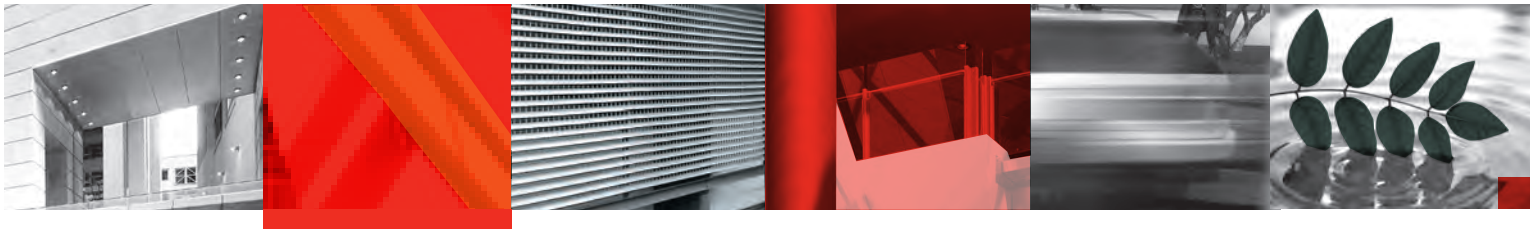


Consolidated Concept Plan



Calderwood Urban Development Project

Submitted to Department of Planning
On Behalf of Delfin Lend Lease

March 2011 ■ 09077

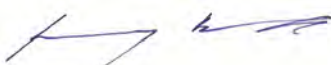
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This report has been prepared by:

Lesley Bull

Signature

A handwritten signature in blue ink, appearing to be 'L. Bull', written over a faint yellow rectangular background.

Date March 2011

Contents

Executive Summary	vii
A Approved Project	vii
B Regional Land Use Planning	viii
C Sustainability	ix
D Infrastructure	xi
E Environmental Impact	xii
1.0 Introduction	1
1.1 Consolidated Concept Plan	2
2.0 The Site	7
3.0 Approved Concept Plan	11
3.1 Approved Development	11
3.2 Urban Design Concept	14
3.3 Sustainability	15
3.4 Land Uses and Distribution	16
3.5 Riparian Corridors	21
3.6 Conservation and Open Space	26
3.7 Retention of Vegetation	31
3.8 Bushfire Asset Protection Zones	36
3.9 Access and Transport	38
3.10 Water Cycle Management	44
3.11 Flood Management	46
3.12 Infrastructure Servicing	48
3.13 Acid Sulphate Soils	53
3.14 Geotechnical	55
3.15 Contamination	56
3.16 Heritage	57
3.17 Community Infrastructure	57
3.18 Project Staging	58
3.19 Implementation and Delivery Proposal	60
4.0 Future Approvals Regime	66
5.0 Statement of Commitments	69

Figures

1	Site local – regional context	8
2	Land ownership	9
3	Approved Concept Plan	13
4	Approved Concept Plan Residential Character Areas	17
5	Approved Concept Plan Riparian Corridor Network	24
6	Approve Riparian classifications including reaches approved to be removed	25
7	Approved Concept Plan Open Space Masterplan (Indicative)	27
8	Approved Concept Plan Environmentally Significant Lands	33
9	Area requiring individual assessment of remnant mature trees at relevant detailed application stage (shown outlined in yellow)	34
10	Area referenced in Statement of Commitment 37	35
11	Approved Concept Plan Bushfire Asset Protection Zones	37
12	Approved Concept Plan Road Layout and Hierarchy	41
13	Approved Concept Plan Pedestrian and Cycle Network	42
14	Indicative Bus service	43
15	Approved Concept Plan Water cycle Management Concept	45
16	Approved Concept Plan Flood Mitigation Plan	47
17	Infrastructure servicing strategy	50
18	Overall Sewer Concept Plan	51
19	Concept Plan Potable Water Strategy	52
20	Areas of potential acid sulphate soils	54
21	Ground stability	55
22	Identified 'Areas of Concern'	56
23	Possible School Sites	59
24	Implementation and Delivery Proposal	65
25	Existing Part 3A Area (Stage 1)	67

Tables

1	Project team	6
2	Land ownership and legal description	10
3	Approved Concept Plan minimum subdivision lot sizes	19
4	CRZ and Vegetated buffer widths	22
5	Concept Plan open space provision	30
6	Water sensitive urban design measures	44
7	Summary of relationship between Part 3A and Part 4 approvals following Concept Plan	68
8	Final Statements of Commitment	70

Appendices

VOLUME 1

- A** State Environmental Planning Policy (Major Development) 2005
Amendment Part 28 Calderwood Site
Department of Planning
- B** Calderwood Concept Plan MP 09_0082 Notice of Determination and
Director General's Environmental Assessment Report
Department of Planning
- C** Approved Concept Plan Drawings
Delfin Lend Lease
- D** State Voluntary Planning Agreement
Delfin Lend Lease / Minister for Planning
- E** Environment Protection and Biodiversity Conservation Act Determination
*Department of Sustainability, Environment, Water, Population and
Communities*
- F** Development Control Strategy
Delfin Lend Lease

VOLUME 2

- G** Landscape and Open Space Masterplan
Environmental Partnership
- H** Land Ownership Options Plan
Delfin Lend Lease
- I** Local Development Contributions Schedules
Delfin Lend Lease
- J** Utilities Services and Facilities Implementation and Delivery Proposal
Delfin Lend Lease
- K** Concept Plan Transport Accessibility Study & Transport Management
and Accessibility Plan (TMAP)
Cardno
- L** Water Cycle Management Study / DECCW 2008 Guidelines and
Examples of on-line basins and water sensitive urban design
Cardno/Delfin Lend Lease

VOLUME 3

- M** Utility Services Study for Concept Plan Application
Cardno
- N** Flood Study & Compendium under Modification B2
Reinco / Water Research Foundation of Australia
- O** Floodplain Risk Management Study
Cardno
- P** Flora and Fauna Assessment under Part 3A of the
Environmental Planning and Assessment Act, 1979
eco logical Australia
- Q** Riparian Consistency Report
eco logical Australia
- R** Social and Community Planning Assessment
Elton

VOLUME 4

- S** Acid Sulphate Soil Assessment
Douglas Partners
- T** Bushfire Planning Assessment
eco logical Australia
- U** Aboriginal Archaeological and Cultural Heritage Assessment,
Combined Desktop Assessment and Field Assessment Report
Austral Archaeology Pty Ltd
- V** Geotechnical Investigation
Douglas Partners
- W** Geomorphology Assessment
Cardno

VOLUME 5

- X** Stage 1 Contamination Assessment
Douglas Partners
- Y** Groundwater Assessment
Douglas Partners
- Z** Heritage Impact Statement
Paul Davies Pty Ltd
- AA** Economic Impacts of the Proposed Calderwood Urban
Development Project
PricewaterhouseCoopers

- BB** Calderwood Employment Update
Strategic Economic Solutions
- CC** Assessment of Retail Floor Space Potential
Duane Location IQ
- DD** Visual and Landscape Assessment
Environmental Partnership
- EE** Assessment of Noise
Wilkinson Murray
- FF** Concept Plan Environmental Assessment Report Section 3.0
Site Analysis
JBA Urban Planning Consultants
- GG** Concept Plan Environmental Assessment Report Section 2.0
Strategic Justification
JBA Urban Planning Consultants
- HH** Concept Plan Environmental Assessment Report Section 7.0
Environmental Assessment
JBA Urban Planning Consultants

Executive Summary

The rezoning of approximately 700 hectares of land and a Concept Plan approval for development of the Calderwood Urban Development Project site for approximately 4,800 dwellings and 50 hectares of mixed use / employment land has been determined by the Minister for Planning.

A Approved Project

Concept Plan

The approved Concept Plan includes approximately 4,800 dwellings and 50 hectares of mixed use / employment land to be used for a range of retail, commercial, business and light industrial uses.

A new Town Centre and a Village Centre are to be established, incorporating a range of retail, commercial, business, light industrial, education, entertainment, civic, community, recreation, residential, tourist and visitor accommodation and mixed use employment.

The approved development includes an open space master plan, riparian corridor network and the retention and protection of land with identified significant or contributory biodiversity for environmental conservation and / or environmental management purposes. It will deliver new roads and physical utilities infrastructure, as well as community facilities.

The approved Concept Plan is the planning and development framework to be used by consent and approval authorities to assess future development proposals within the Calderwood Urban Development Project site. It identifies the parameters and outcomes for future development and describes key elements of the environmental strategies that are to be implemented.

SEPP Amendment

The listing of the Calderwood Urban Development Project site as a State Significant Site within Schedule 3 of the Major Development SEPP has established a new planning and approvals regime for the site.

The land is now zoned a combination of R1 General Residential, R5 Large Lot Residential, B4 Mixed Use, E2 Environmental Conservation, E3 Environmental Management, RU2 Rural Landscape and RE1 Public Recreation.

The SEPP Amendment has established a number of development controls to guide future development on the site including minimum lot sizes and maximum building heights.

A Development Control Strategy is included as part of the approved Concept Plan providing further detailed design controls for future subdivision and residential built form.

Infrastructure delivery and development contributions

The approved Concept Plan is accompanied by an executed State Voluntary Planning Agreement. The approved Concept Plan is also supported by an offer to enter into Voluntary Planning Agreements with both Wollongong and Shellharbour Councils for the delivery of infrastructure, services and utilities required to meet the future demands of the development.

The executed State Voluntary Planning Agreement and offer in relation to the proposed Local Voluntary Planning Agreements includes road network improvements, land for education facilities (primary and high schools), district and local open space, and community and human services infrastructure including a large multi-purpose community resource centre, temporary community centre and co-located branch library.

A detailed Infrastructure, Services and Facilities Implementation and Delivery Proposal identifying all required infrastructure, services and facilities provides a coordinated delivery plan for the Project.

B Regional Land Use Planning

The Strategic Justification for the Project that led to the rezoning of the site under the Major Development SEPP and to approval of the Concept Plan by the Minister for Planning demonstrated that:

- The project is sustainable in environmental, social and economic terms.
- The Project is consistent with the Illawarra Regional Strategy and meets each of the Sustainability Criteria set out at Appendix 1 of that Strategy.
- The three levels of Governments are committed to proactively addressing housing supply and affordability.
- The Project can underpin the supply of residential land in the Illawarra without undermining implementation of the West Dapto Release Area (WDRA).
- The project can be delivered and serviced independently of the WDRA.
- The Project is supported by a viable implementation strategy that will leverage ready access to existing infrastructure capacity, provide structural enhancement to the regional infrastructure base and deliver savings and efficiencies in Government infrastructure expenditure.
- The site has a high ratio of urban to non urban capable land. It is relatively free of major physical and environmental constraints and is suitable for the land uses proposed. It is compatible with surrounding existing and future land uses and environmental constraints that do exist on site can be appropriately integrated, managed and / or conserved as part of the development proposal.
- Consistent with the Illawarra Regional Strategy urban development represents the most viable and effective future use of the land. The Project secures the land for this use.
- The Project has significant public benefit and is in the public interest having regard to its conservation outcomes, social and community benefits, contribution to local and regional economic growth and job creation and sustainability measures.

Housing affordability

Housing affordability is a major policy concern at the National, State and Illawarra regional and local level.

A large number of Shellharbour residents are experiencing housing stress and there is a significant lack of affordable housing available for purchase for low and moderate income earners. The capacity of residents to purchase housing in the Shellharbour market is tight and is rapidly worsening.

The Project delivers housing affordability through increased land supply in the short to medium term, the delivery of a wide range of housing choices, matching housing choices with consumer's ability to pay and specifically targeting affordable housing solutions through product development and other initiatives including government programs. The project meets a demonstrated strategic need that delivers and maintains housing choice, diversity and relative affordability levels for Shellharbour residents.

A significant market entry level housing component will help reduce housing stress and encourage economic activity by attracting and retaining a skilled and younger labour force and increasing disposable incomes of residents.

The Illawarra Regional Strategy (IRS) requires 38,000 new dwellings to be delivered in the Illawarra region in the 25 years to 2031. Delivering residential land to market quickly is required to support the significant additional population growth in the Illawarra. The Calderwood Urban Development Project will underpin the IRS dwelling supply targets by providing an alternate land supply to meet a predicted dwelling shortfall in the Illawarra Region in an environment where other nominated Release Areas are under review. It can provide about 12% of the IRS new dwellings target.

C Sustainability

Social

The Project delivers integrated planning and design that coordinates community, physical, transport and economic outcomes.

It will deliver a range of residential densities, lot sizes and dwelling types and create a diverse community that is demographically balanced. The variety of housing forms will provide opportunities to respond to changing life cycle, lifestyle and work requirements over time, enabling people to age in place. It delivers key social sustainability outcomes.

Economic

The Project will have a series of quantifiable economic benefits and positive flow on effects to neighbouring communities and business, including:

- Direct injection of an estimated \$2.9 billion into the local economy during the construction period in the form of payments to goods and service providers;
- Creation of an additional \$6.3 billion in net value for the Shellharbour economy over the project period;
- Assistance in maintaining existing employment positions particularly in the construction sector, and create an additional 8000 full time equivalent positions, with around 5,260 of these located in the Shellharbour LGA. This yields a high job containment ratio of over 60% for the development. Trip containment will contribute positively to a reduction in trip generation and to minimising the carbon footprint of the development.

As a developer lead master planned community the Project can be delivered in a manner that achieves a relatively high level of self containment in terms of employment generation, retail expenditure and vehicle trip generation. This self containment will contribute positively to reducing the carbon footprint of the development as compared to traditional Greenfields residential development.

The proposed infrastructure and servicing strategy provides for structural enhancements to the region's infrastructure base and long term synergies with other proposed release areas. It will deliver efficiencies and economies of scale in infrastructure delivery and thus improve the sustainability of regional infrastructure to support future urban growth within the wider region.

The Project will provide an appropriate level of retail floor space to support the future population without adversely impacting on known existing or planned future centres and development.

Environmental

The Project will make a positive contribution to the achievement of travel and vehicle use goals in the Illawarra. A comprehensive package of deliverable sustainable transport measures is identified to assist in achieving a 10% mode shift away from private vehicle. Measures include timely provision of facilities and services, a diversity of land uses and housing types across the project, walkable access to key amenities and an holistic approach to the design of the street network, carefully balancing the needs for vehicle movement with the needs of pedestrians and cyclists. It will form part of a larger urban area and assist in the achievement of a public transport catchment that can be serviced by economically efficient transport services.

The Project makes special provision for home based businesses and working from home in accordance with the principles of the National broadband network. Combined with employment lands and a new Town Centre and Village centre, this will reduce car dependency and trip generation rates.

The Project retains core biodiversity areas within the site and incorporates both east west and north south regional habitat connectivity. It presents a long term ownership and management regime for the protection of environmentally significant land.

The Project adopts flood plain management and water sensitive urban design measures and features that respond to an analysis of potential climate change impacts. The large size of the site and its availability for coordinated development enable the delivery of an holistic flood plain mitigation plan and water cycle management strategy that will result in a net improvement in water quality in Marshall Mount Creek, Macquarie Rivulet and as a consequence Lake Illawarra.

Water cycle management integrates with urban design, salinity risk and riparian corridor protection measures.

DLL is committed to the development of alternative technologies in its communities. The issues of carbon emissions, renewable energy targets and land tenure solutions will become increasingly relevant to new urban developments. DLL sees potential for both solar farms and co (or tri) generation as part of the Project, particularly for the Town Centre and employment precincts. Such opportunities will continue to be considered throughout the project.

Energy sustainability for the Project focuses on reducing the demand for energy through the efficient design of the urban form to capitalise on the natural features of the site. Demand will also be mitigated through consumer demand initiatives including BASIX requirements for dwelling design.

The Project adopts potable water supply conservation targets and identifies sustainable integrated options for water supply, wastewater and stormwater servicing.

D Infrastructure

Servicing strategy

The site is a significant consolidated land holding. Consolidated landholdings with scale provide the opportunity for integrated delivery of infrastructure, services and facilities.

The Project is supported by a clear and viable infrastructure servicing strategy that leverages readily accessible existing infrastructure and demonstrates that the Project can be implemented as a standalone proposal.

The Project presents an opportunity to provide infrastructure and high quality new facilities in a timely manner based on leading practice sustainability principles and sustainable funding, management and maintenance arrangements.

Whilst the Project can be implemented as a standalone proposal, the proposed infrastructure and servicing strategy provides structural enhancements to the Region's infrastructure base and long term synergies with other proposed Release Areas.

The infrastructure and servicing strategy minimises implementation risk and cost to Government by utilising DLL expertise and delivery proposals.

Independence from West Dapto Release Area

Calderwood and WDRA represent the last remaining Greenfields urban release areas of scale in the Illawarra.

Whilst the projects will be virtually contiguous when fully developed, and the timing of the release of land in both areas is likely to overlap, their respective early stages of release (ie initial development fronts) are more than 10km apart and will be supported by an entirely different services and delivery implementation mechanism – WDRA is government led, Calderwood is private sector led. Both developments have different servicing provisions and therefore do not significantly affect each other.

The infrastructure, services and facilities implementation and delivery proposal for Calderwood demonstrates that the Project can be serviced independently of West Dapto and will not affect the provision of infrastructure for the WDRA other than positively with respect to providing structural enhancements to the region's infrastructure base.

E Environmental Impact

Detailed investigations of site constraints demonstrate that the land is relatively free of major physical constraints and has a relatively high ratio of urban capable to non urban capable land.

Land incorporated into the site riparian network, open space master plan and environmental conservation lands under the Concept Plan and zoned E2 Environmental Conservation, E3 Environmental Management, RU2 Rural Landscape and RE1 Public Recreation accords with the findings, conclusions and recommendations of detailed technical investigations.

The detailed investigations of site constraints and environmental assessment justified the determination of the R1 General Residential, R5 Large Lot Residential and B4 Mixed Use Zone boundaries as being the urban capable footprint of the site.

The approved Concept Plan and SEPP Amendment proposal presents an holistic and integrated outcome having regard to riparian, flooding, biodiversity and water quality and quantity and other environmental outcomes.

The Strategic Justification for the Project, the Environmental Assessment and the technical supporting investigations provided a detailed assessment of the environmental impact of the proposed land use change (SEPP Amendment proposal) and Concept Plan development. It demonstrated that the proposed development is satisfactory with respect to:

- National, State and local legislative requirements, planning instruments and policy;
- Future patterns of growth and development in the Illawarra, including regional land use planning.
- Transport and accessibility, including cumulative impacts of traffic growth.
- Biodiversity and riparian corridors.
- Flood impact, drainage and stormwater management.
- European and Indigenous cultural heritage impact.
- Bushfire risk assessment.
- Physical and social / community infrastructure needs and impact.
- Contamination, land stability, acid sulphate soils, erosion, ground water impacts.
- Landscape and visual impact.

All measures that have been recommended as part of the detailed technical investigations and studies to mitigate potential environmental impacts have been incorporated into the approved Concept Plan and / or gazetted SEPP Amendment, or are included in the approved project Statement of Commitments.

1.0 Introduction

On 8 December 2010 the Minister for Planning determined (with modifications) the Calderwood Urban Development Project Concept Plan (MP09_0082) (referred to herein as the “Calderwood Concept Plan”). Following approval of the Calderwood Concept Plan, on 14 January 2011, Schedule 3 of State Environmental Planning Policy (Major Development) 2005 (the Major Development SEPP) was amended and the Calderwood Urban Development Project site rezoned. Together, the planning provisions at Schedule 3 of the Major Development SEPP and the approved Calderwood Concept Plan establish the planning regime to guide the future development of the site.

SEPP Amendment

A copy of the land use zoning and development control provisions that apply to the Calderwood Urban Development Project Site under Schedule 3 of the Major Development SEPP, including relevant maps, is included at **Appendix A**.

Concept Plan Approval

The approved Calderwood Concept Plan comprises the following documentation:

- *“State Significant Site Study and Environmental Assessment Report – Calderwood Urban Development Project”* dated March 2010, as amended by the *“Preferred Project Report – Calderwood Urban Development Project”* dated August 2010, prepared by JBA Planning Consultants (JBA);

as modified by the Department’s modifications of approval set out in:

- Schedule 2, Part B of the Concept Plan Notice of Determination;

and by the further assessment requirements set out in:

- Schedule 2, Part C of the Concept Plan Notice of Determination.

Future development within the Calderwood site is required to be generally consistent with the plans and documentation (including any appendices therein) referenced above.

A copy of the Notice of Determination of the Calderwood Concept Plan (MP09_0082) is included at **Appendix B**. Also included at **Appendix B** is a copy of the Director General’s Environmental Assessment Report in relation to the application.

A full set of the series of drawings that comprises the approved Concept Plan is included at **Appendix C**.

State Voluntary Planning Agreement

In determining to approve the Calderwood Concept Plan, the Minister required that the Proponent (Delfin Lend Lease) enter into a planning agreement for State infrastructure contributions prior to approval for the project, or any stage of the project. A copy of the Calderwood Urban Development Project Voluntary Planning Agreement between Delfin Lend Lease and the Minister for Planning is included at **Appendix D**.

EPBCA Determination

On 26 February 2010 the Proponent made a referral to the Department of Environment, Water, Heritage and the Arts (DEWHA) for a determination as to whether or not the then proposed rezoning and development was a controlled action under the Environment Protection and Biodiversity Conservation Act (EPBCA). The referral included details of the proposal and the site, and identified the measures included in the then Concept Plan application and rezoning proposal to mitigate potential impacts on matters of National Environmental Significance.

On 30 March 2010 DEWHA notified the Proponent that the proposed rezoning and development is not a controlled action and therefore may proceed without further assessment under the EPBC Act. A copy of the EPBCA determination is included at **Appendix E**.

1.1 Consolidated Concept Plan

Condition A4 of the Concept Plan Notice of Determination (MP09_0082) requires a consolidated version of the Concept Plan, combining the approved components of the Environmental Assessment, Preferred Project Report, Statement of Commitments, and modifications required by the Concept Plan approval to be submitted to the Department of Planning.

This report is the Consolidated Concept Plan for the Calderwood Urban Development Project.

The purpose of the Consolidated Concept Plan is to provide an integrated document that presents the approved Calderwood Urban Development Project Concept Plan and sets out all of the requirements to be addressed for the next stages of the development.

It consolidates into a single document the:

- approved components of the *State Significant Site Study and Environmental Assessment Report – Calderwood Urban Development Project* dated March 2010 prepared by JBA;
- approved components of the *Preferred Project Report – Calderwood Urban Development Project* dated August 2010 prepared by JBA;
- modifications of approval at Schedule 2, Part B of the Concept Plan Notice of Determination; and
- further assessment requirements set out in Schedule 2, Part C of the Concept Plan Notice of Determination.

The Consolidated Concept Plan includes the updated Flood Study (*Reinco*) and Floodplain Risk Management Study (*Cardno*) as required by Modification B2 of the approval.

As also required by Modification B6 of the approved Concept Plan the Consolidated Concept Plan includes a consolidated and amended Development Control Strategy.

Other supporting technical studies have been updated only as relevant to respond to the terms of the Concept Plan approval.

The Calderwood Consolidated Concept Plan is structured as follows:

Volume 1

Volume 1 of the Consolidated Concept Plan incorporates the key elements of the approved Concept Plan and SEPP Amendment that form the development control framework for implementation of the Calderwood project. It comprises:

- Section 1:** Introduction.
- Section 2:** The Site.
- Section 3:** The approved Concept Plan.
- Section 4:** Future Approvals Regime, including summary of the gazetted Major Development SEPP provisions.
- Section 5:** Statement of Commitments.
- Appendix A:** Calderwood SEPP Amendment and Maps
- Appendix B:** Concept Plan Notice of Determination and Director General's Environmental Assessment Report
- Appendix C:** Approved Concept Plan Drawings
- Appendix D:** State Voluntary Planning Agreement
- Appendix E:** Environmental Protection & Biodiversity Conservation Act\ Determination
- Appendix F:** Calderwood Consolidated Development Control Strategy

Volumes 2, 3 and 4

Volumes 2, 3 and 4 of the Consolidated Concept Plan contain the Appendices which form a component of the approved environmental assessment. This includes the technical studies undertaken to inform the Concept Plan and its environmental assessment, including urban design, ecology, landscape and open space, heritage, engineering (infrastructure, water cycle, flooding), traffic, economics, social and community planning, bushfire management, contamination, geomorphology, soils and geotechnical assessment.

The technical studies included at **Volumes 2, 3 and 4** provide a detailed analysis of the existing site conditions, constraints and opportunities that informed the development of the Concept Plan and the site rezoning. They also provide technical assessment of the environmental impacts of the proposed development, and recommend proposed mitigation measures to manage potential environmental impacts associated with the proposal.

The Site Analysis included in the March 2010 EAR (refer to Section 3.0 Site Analysis) provided a comprehensive documentation of existing site conditions, based on technical investigations and assessments undertaken by a range of specialist disciplines. It also analysed linkages, synergies and potential impacts of the project with respect to existing and proposed urban development adjoining the site. A copy of the Site Analysis is included at **Volume 4**.

The March 2010 EAR assessed and responded to the following with respect to both the Concept Plan and the rezoning proposal:

- Consistency with the Illawarra Metropolitan Development Program and Illawarra Regional Strategy, including the Sustainability Criteria at Appendix 1 of that Strategy.
- Housing affordability.
- Residential land supply.
- Economic growth.
- Employment.
- Retail impact.
- Infrastructure and servicing implementation and delivery.
- Impact on the West Dapto Release Area (both land supply and infrastructure servicing).
- Impact on agricultural practices and regional food production.
- Sustainability initiatives and outcomes.
- Consideration of alternative land uses.
- Public benefit.
- Environmental Protection and Biodiversity Conservation Act.
- Other State environmental legislation.
- Environmental planning instruments and development control plans.
- Section 117 Ministerial Directions.
- Transport and accessibility.
- Biodiversity.
- Flood impact, including consideration of potential climate change impacts.
- Riparian corridor network and consistency with the Riparian Corridor Management Study 2004.
- Drainage and stormwater management, including consideration of potential climate change impacts.
- European heritage impact.
- Aboriginal cultural heritage impact.
- Bushfire risk assessment.
- Utilities infrastructure.
- Social and community planning needs and impact assessment.
- Contamination assessment.
- Land stability.
- Acid sulphate soils.
- Erosion.
- Ground water impacts.
- Landscape and visual impact.

For background information purposes, Sections 2.0 Strategic Justification and 7.0 Environmental Assessment from the March 2010 EAR are included at **Volume 4**.

The Consolidated Concept Plan does not reproduce those components of the *State Significant Site Study and Environmental Assessment Report – Calderwood Urban Development Project* dated March 2010 prepared by JBA that specifically supported only the proposed listing of the site at Schedule 3 of the Major Development SEPP and do not therefore form part of the approved Concept Plan or its environmental assessment.

Accordingly, the following documentation that supported the Schedule 3 State significant site listing is not reproduced within this report:

- March 2010 EAR Section 6.0 Major Development SEPP Amendment Proposal;
- Illawarra Housing and Land Supply prepared by Delfin Lend Lease (refer to Appendix E of the March 2010 EAR) and Update Report – Consistency with Illawarra Regional Strategy and correspondence with Department of Planning (refer to Appendix C of the Preferred Project Report dated August 2010);
- Illawarra Regional Strategy Sustainability Criteria prepared by JBA (refer to Appendix F of the March 2010 EAR);
- Infrastructure, Services and Facilities Implementation and Delivery Proposal (refer to Appendix G of the March 2010 EAR)
- Agricultural Land Study prepared by Sphere Property Corporation (refer to Appendix K of the March 2010 EAR);
- Existing State Environmental Planning Policies & 117 Directions prepared by JBA (refer to Appendix EE of the March 2010 EAR); and
- Revised Draft SEPP Amendment Maps and Land Use Table prepared by Delfin Lend Lease + JBA (refer to Appendix H of the PPR dated August 2010).

In addition, the following documentation, which does not form part of the approved components of the Concept Plan, has not been reproduced in this report:

- Director General's Requirements Compliance prepared by JBA (refer to Appendix C of the March 2010 EAR);
- Community and Stakeholder Consultation Outcomes Report prepared by Elton Consulting (refer to Appendix D of the March 2010 EAR);
- QS Report prepared by Wilde & Wolland (refer to Appendix GG of the March 2010 EAR);
- Agency Consultation Summary prepared by Delfin Lend Lease (refer to Appendix HH of the March 2010 EAR);
- Response to Council and Agency Submissions prepared by Delfin Lend Lease + JBA (refer to Appendix A of the PPR dated August 2010);
- Response to Public Submissions prepared by Delfin Lend Lease + JBA (refer to Appendix B of the PPR dated August 2010);
- Offsite Flood Impact Analysis prepared by Delfin Lend Lease (refer to Appendix D of the PPR dated August 2010). Note that an updated version of the offsite flood impact analysis is incorporated in the updated Floodplain Risk Management Strategy; and
- Albion Park Bypass / Tripoli Way Extension – Report on Impact prepared by Delfin Lend Lease (refer to Appendix F of PPR dated August 2010). Note that the deletion of this document is required by Modification B4 of the Concept Plan approval).

Reference should be made to the *State Significant Site Study and Environmental Assessment Report – Calderwood Urban Development Project* dated March 2010 and to the *Preferred Project Report – Calderwood Urban Development Project* dated August 2010 prepared by JBA in relation to this documentation.

The expert project team that has contributed to the preparation of the Consolidated Concept Plan is set out at **Table 1**.

Table 1 – Project team

Specialty	Consultant
Urban Design	Delfin Lend Lease
Urban Planning	JBA Urban Planning Consultants
Transport and Accessibility	Cardno
Infrastructure	Cardno
Ecology / Riparian	Ecological
Flooding	Rienco / Cardno
Bushfire	Ecological
Landscape, Open Space and Visual	Environmental Partnership
Geomorphology	Cardno
Geotechnical	Douglas Partners
Surface and Groundwater	Douglas Partners
Acid Sulphate Soils	Douglas Partners
Contamination	Douglas Partners
Social and Community Planning	Elton Consulting
Community consultation	Elton Consulting
Noise	Wilkinson Murray
European Heritage	Paul Davies Pty Ltd
Indigenous Heritage	Austral Archaeology Pty Ltd
Agricultural Land	Sphere Property Corporation
Employment	Strategic Economic Solutions
Economic Impact	PricewaterhouseCoopers
Retail	Duane Location IQ
Quantity Surveyor	Wilde and Wollard

2.0 The Site

The Calderwood Urban Development Project site is located within the Calderwood Valley in the Illawarra Region. It is approximately 700 hectares in area with approximately 107 hectares of land in the Wollongong LGA and the balance located within the Shellharbour LGA.

The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong LGAs), to the south by the Macquarie Rivulet, to the south-west by Johnston's Spur and to the west by the Illawarra Escarpment. Beyond Johnston's Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project site extends south from the intersection of North Marshall Mount Road and Marshall Mount Road to the Illawarra Highway.

The regional context of the site and the LGA boundary is illustrated by **Figure 1**.

The land to which the approved Concept Plan applies and full title description is shown on **Figure 2** and in **Table 2**.

The Concept Plan site also includes Macquarie Rivulet, which is Crown Land, and the public road reservations of Calderwood Road and North Macquarie Road which are owned by Shellharbour Council. Marshall Mount Creek is in various ownership, partly incorporated into existing lots that adjoin or straddle the riparian corridor.

A copy of the full Site Analysis that was included at Section 3.0 of the March 2010 is included at **Volume 4** of this report.

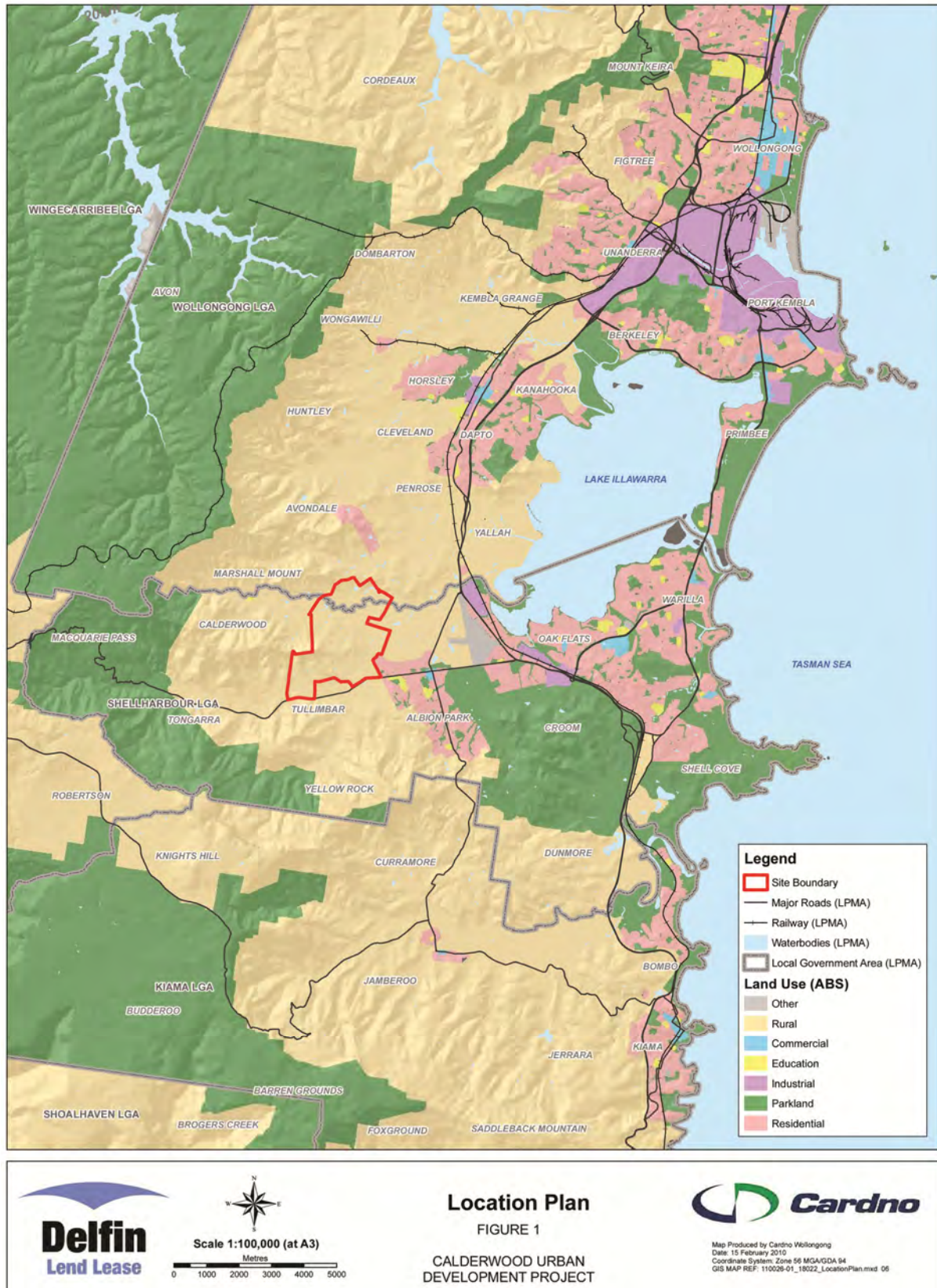


Figure 1 – Site local – regional context

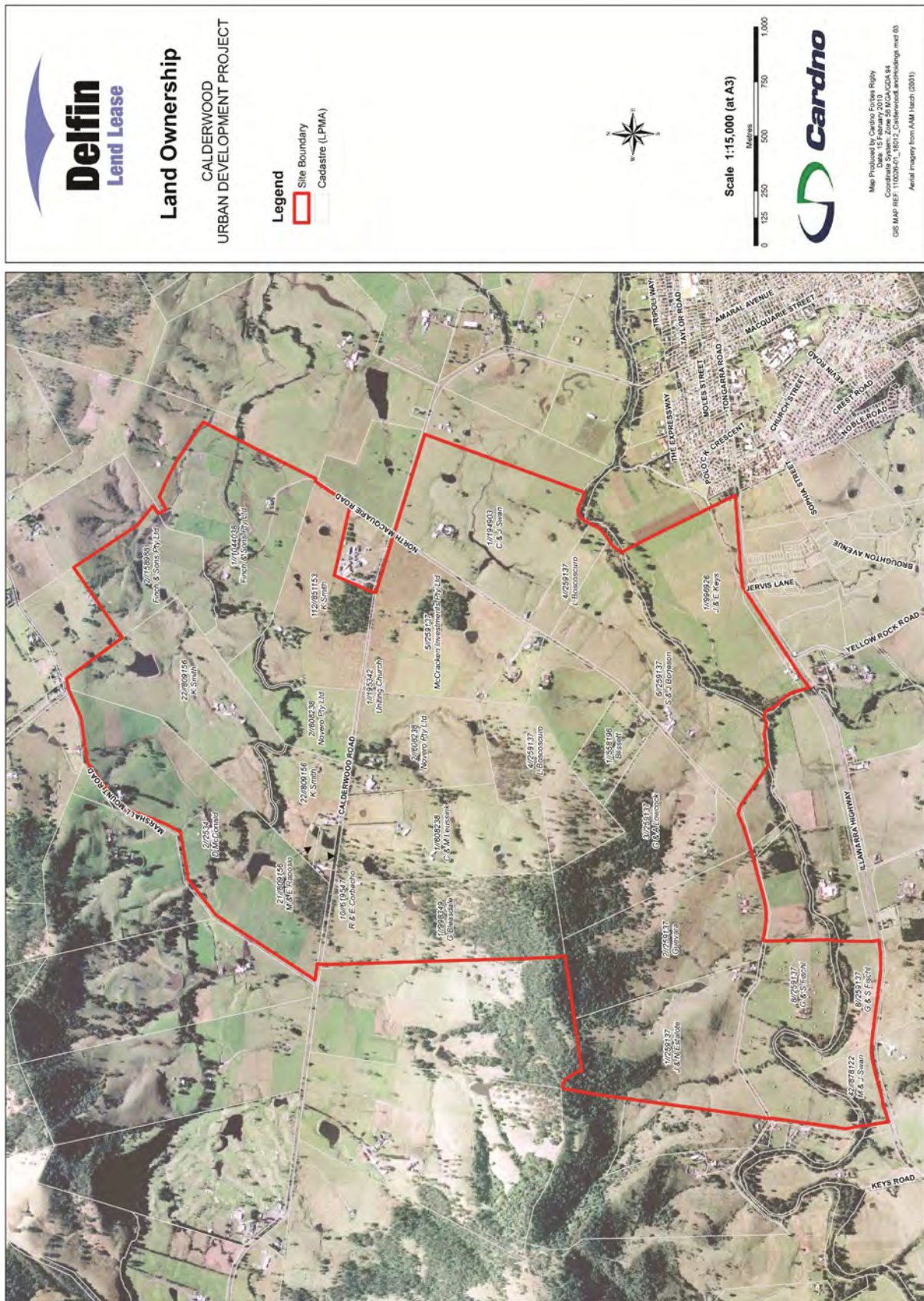


Figure 2 – Land ownership

Table 2 – Land ownership and legal description

Property	Legal Description	Existing land use
299 North Macquarie Road, North Macquarie	Lot 4 in DP 259137	Low intensity farming
317 Calderwood Rd, Calderwood	Lot 2 in DP 608238	Low intensity farming
337 North Macquarie Road Calderwood 25	Lot 5 in DP 259137	Low intensity farming
"Meadow Wood", 379 Calderwood Road, Calderwood	Lot 1 in DP 998349	Low intensity farming
"Riversdale" North Macquarie Road, Calderwood	Lot 1 in DP 1044038	Dairy
"Parkview", 24 Yellow Roack Road, Yellow Rock	Lot 1 in DP 194903	Dairy
"Marshall Mount House", Marshall Mount Road, Albion Park	Lot 2 in DP 2534	Low intensity farming (incorporates part of Marshall Mount Creek)
221 North Macquarie Road, Calderwood	Lot 3 in DP 259137	Agistment
"Cledau", 129 North Macquarie Road, North Macquarie	Lot 1 in DP 259137	Agistment
"Calderwood Farm" 320 Calderwood Road, Calderwood	Lot 22 in DP 809156 and Lot 112 in DP 851153	Horse stud
159 North Macquarie Road, North Macquarie	Lot 2 in DP 259137	Low intensity farming
Calderwood Road, Calderwood	Lot 1 in DP 608238	Low intensity farming
"Brushgrove", 248 North Macquarie Road, North Macquarie	Lot 6 in DP 259137	Agistment
342 Calderwood Road, Calderwood	Lot 21 in DP 809156	Other
368 Calderwood Road, Calderwood	Lot 10 in DP 619547	Other
Illawarra Highway, Calderwood	Lot 1 in DP 996926	Dairy
440 North Macquarie Rd, Calderwood	Lot 2 DP 158988	Dairy
128 North Macquarie Rd, Calderwood Valley	Lot 8 DP 259137	Horse Stud
	Lot 42 DP 878122	Hobby farm
Marshall Mount Methodist Cemetery	Lot 1 DP 195342	Cemetery
269 North Macquarie Rd, Calderwood	Lot 1 DP 558196	Hobby farm
Macquarie Rivulet	Bed to top of bank	
Public roads:	Calderwood Road, North Macquarie Road	

3.0 Approved Concept Plan

The approved Calderwood Concept Plan is the planning and development framework to be used by consent and approval authorities to assess all future development proposals within the Calderwood Urban Development Project site. It identifies the parameters and outcomes for future development and describes key elements of the environmental strategies that are to be implemented.

The Calderwood Urban Development Project is proposed to be developed in stages over an approximately 20 year period. This long term horizon requires a planning and assessment framework that can provide the certainty of a workable urban structure at the outset, supported and drawing upon an appropriate level of environmental assessment, whilst allowing for detailed neighbourhood design to occur as part of a staged framework over time, consistent with the parameters and outcomes for development identified in the Concept Plan.

The Concept Plan provides an approved structure plan that addresses the manner in which site-wide environmental issues and relationships including conservation, use and management of riparian corridors, flood management, infrastructure servicing heritage protection, have been resolved.

Detailed planning and design for urban development will be addressed as part of a series of future applications for subdivision, open space, conservation and infrastructure works that will be submitted as part of a staged process over time.

In accordance with Section 75P(2)(a) of the Environmental Planning & Assessment Act, and Concept Plan **Term of Approval A2(3)**, each of these future applications will be required to be generally consistent with the terms of approval of the Concept Plan as described in this Section and with the Statement of Commitments set out at Section 5.

3.1 Approved Development

The approved Calderwood Concept Plan provides for:

- Approximately 4,800 dwellings and minimum subdivision lot sizes for a range of dwelling types;
- Approximately 50 hectares of mixed use / employment land to be used for a range of retail, commercial, business and light industrial uses;
- A new Town Centre and Village Centre incorporating a range of retail, commercial, business, light industrial, education, entertainment, civic, community, recreation, residential, tourist and visitor accommodation and mixed use employment;
- An Open Space Masterplan (indicative) for the development, including the general location and function of passive and active open space areas to serve the future population;
- The retention, future use and management of riparian corridors that perform a significant drainage and flooding function in accordance with a Riparian Corridor Network;
- The retention and protection of land with identified significant or contributory biodiversity for environmental conservation and / or environmental management purposes;
- The Road Network Layout and Hierarchy for the site;
- Provision of associated infrastructure including a Utilities Infrastructure Strategy, Potable Water Strategy (indicative) and Sewer Concept Plan (indicative);

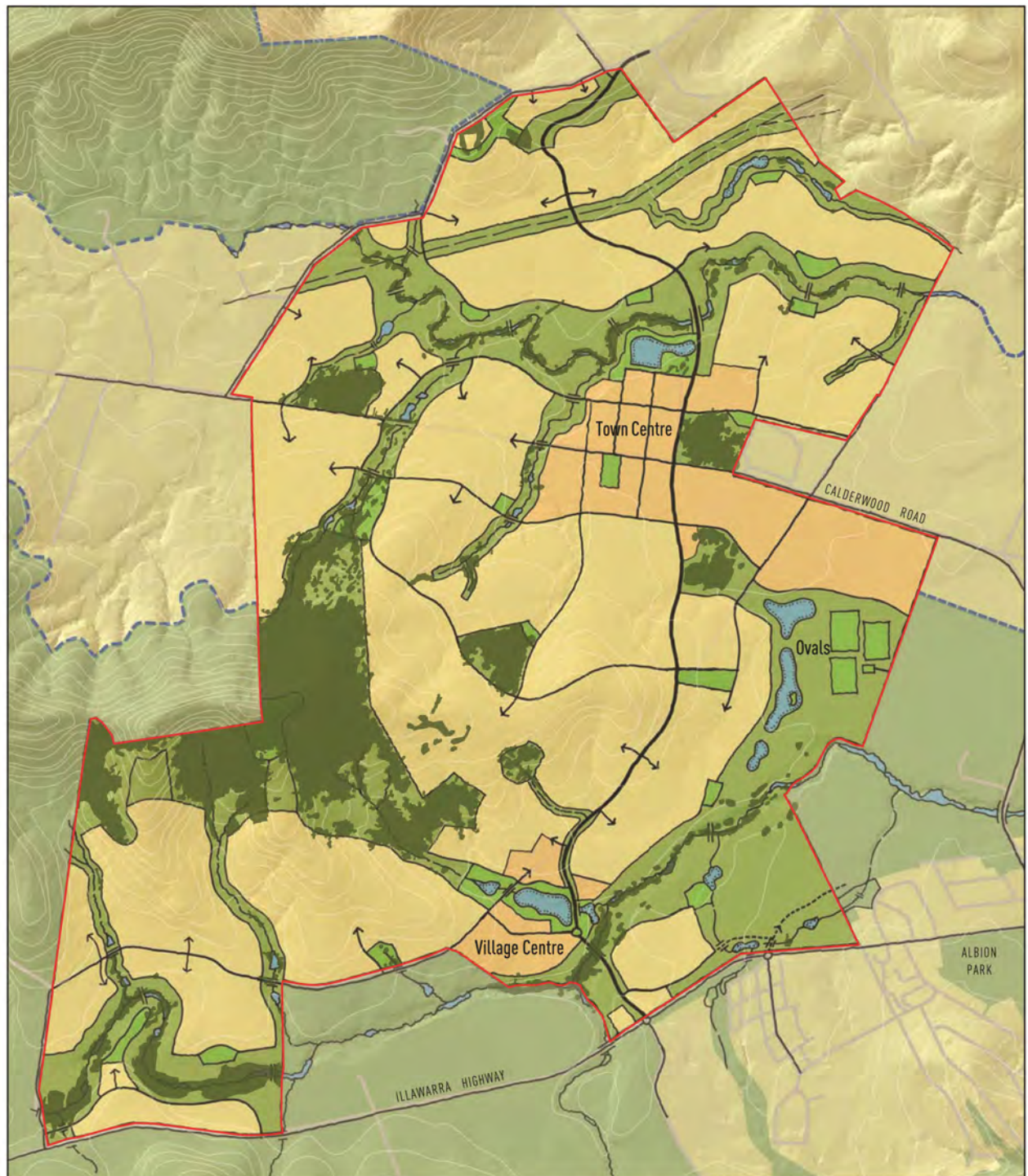
- A Flood Mitigation Plan for integrated management of the floodplain across the site as a whole, including finished levels for re-shaping of the floodplain and importation of fill;
- A Water Cycle Management Plan for the development; and
- The location and dimension of Bushfire Asset Protection Zones.

The overall development will accommodate about 12,500 people. It will deliver \$2.9 billion in direct expenditure into the local economy during the construction period and create an additional \$6.3 billion in net value for the Shellharbour economy over the life of the project. It will create 8,000 full time equivalent jobs, with around 5,260 (approximately 60%) of these located in the Shellharbour LGA. A significant market entry level housing component will help reduce housing stress and encourage economic activity by attracting and retaining a skilled and younger labour force and increasing disposable incomes of residents.

The Concept Plan approval was granted by the Minister subject to a number of modifications including, relevantly, that the:

- proposed filling located within the eastern portion of Stage 1 (ie the area between Macquarie Rivulet and the Illawarra Highway shown as RU2 zone on the relevant zoning in the Schedule 3 of the Major Development SEPP) be deleted (**Modification B2**); and
- Part 3A Area map is not approved (**Modification B3**);
- Albion Park Bypass / Tripoli Way Extension report and the corresponding Statement of Commitments are not endorsed (**Modification B4**); and
- Residential Character Area map is to be amended to remove the Indicative Parkland Nodes (**Modification B6**).

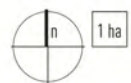
The full series of drawings illustrating the approved Concept Plan (as modified) are included at **Appendix C**. The approved Concept Plan drawings reflect the requirements of the modifications of the Concept Plan Notice of Determination (refer to **Appendix B**).



Concept Plan

Part 3A | Calderwood Urban Development Project

- Town and Village Centres**
Mixed Uses including Retail, Employment, Residential, Learning and Community Amenities
- Residential Neighbourhoods**
- Parks**
eg Citywide, district and local parks
- Principal Open Space and Drainage**
eg Environmental Conservation, Environmental Management and Drainage Corridors
- Indicative Water Bodies**



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Subject to verification and detailed site survey 1:20,000 @ A4 10m Contours February 2011

Figure 3 – Approved Concept Plan

3.2 Urban Design Concept

Key features of the approved Concept Plan urban design concept are:

- Delivery of a sustainable community in terms of community, environmental outcomes and integrated land use and transport planning.
- A range of densities, lot sizes and dwelling types providing housing choice to satisfy the needs of a wide spectrum of households, at different life stages and from varying socio-economic circumstances and lifestyle preferences. Housing solutions to support the creation of a diverse community will range from the more traditional detached homes to smaller attached houses, including studio homes, villas, townhouses, live-work, apartments and retirement units.
- A Town Centre located adjacent to the main north-south road and near the principal east-west road connecting the balance of the Calderwood Valley with Albion Park. The Town Centre is located to maximise walkable access for residents and is to be integrated via strong pedestrian and cycle linkages to the balance of the development. The Town Centre will be the key built identity and focal point for the whole of the Calderwood community, both visually and physically central to many of the neighbourhoods.
- A second smaller centre in the form of a Village Centre located in an early stage of the project to provide a ready supply of local retail and basic temporary community needs.
- A community made up of a series of distinct residential neighbourhoods, each deriving its character from particular features of its natural context and landscape character and each incorporating a range of housing types to ensure diversity and choice. An identifiable heart will be established for each neighbourhood, typically as an element of open space; a natural site characteristic or through leveraging specific views and vistas.
- A modified grid street hierarchy and engaging and active streets that promote permeable connections and accessibility, trip containment, walking, cycling and use of public transport.
- Walking and cycling networks designed to provide for both commuter and recreation users linking key amenities within the project as well as providing access to existing neighbouring facilities.
- Provision of an extensive passive and active open space and landscape / vegetation network that shapes a identity and character responsive to the rural valley and escarpment setting and integrates a liveable, robust network of parks, reserves, corridors and streetscapes. Open space and landscape celebrate the special qualities of a diversity of landform and views, providing continuity and connectivity through a combination of blue (creek/water) and green (bushland) links that optimise the community's mobility and interaction.
- Use of water bodies, performing both an aesthetic and functional (water sensitive urban design) purpose, as a contributing element of the public domain.

A Consolidated Development Control Strategy is included at **Appendix F**. The detailed design of all relevant future development including the design of streets, subdivision and built form will be generally in accordance with the Consolidated Development Control Strategy.

Refer also to Statements of Commitment 18 to 22 at Section 5.

3.3 Sustainability

Sustainability is a fundamental element of the development. Sustainability initiatives include:

- Integrated planning and design that coordinates social, physical, transport and economic outcomes.
- Delivery of a range of densities, lot sizes and dwelling types as a key social sustainability outcome to create a diverse community that is demographically balanced. The variety of housing forms will provide opportunities to respond to changing life cycle, lifestyle and work requirements over time, enabling people to age in place.
- Special provision for home based businesses and working from home facilitated by access to high speed broadband. Combined with employment lands and a new Town Centre and Village centre, this will reduce car dependency and trip generation rates.
- The Project adopts a mode share target of 80% car based journey to work by 2031. This represents a 10% modal shift away from private vehicle use. A series of comprehensive measures are in place to assist in achieving this, including:
 - Timely Provision of Facilities and Services.
 - Fibre to the Home (FttH) and National Broadband Network.
 - Website/Community Portal.
 - Resident Kits.
 - Promotions.
 - Public transport incentives.
 - Land Use/Transport Interaction including:
 - Provision of walking and cycling networks.
 - A diversity of land uses and housing types across the project to accommodate a diverse population.
 - Engaging and active streets that provide a positive experience for the users particularly along primary pedestrian and cycle corridors.
 - Crime Prevention Through Environmental Design (CPTED) principles applied to provide a greater sense of safety through passive surveillance of streets, parks and other areas of open space.
 - Establish a sub network of lit paths to provide for safer walking and cycling after dark.
 - Locate key amenities to maximise walkable access.
 - Holistic approach to the design of the street network, carefully balancing the needs for vehicle movement with the needs of pedestrians and cyclists.
 - Local Access Street Design.
 - Pedestrian and Cycle Hierarchy.
 - Way-finding Signage.
 - Parking Strategies.
 - Safety Elements for Network.
 - Bicycle parking at key destinations within CUDP.
 - Bus Network Provision
 - Bus Service levels that meet and exceed NSWIT's Outer Metropolitan Service Planning Guidelines
 - Early bus service provision
 - Branding and Publicity
 - Bus Stop Infrastructure
 - Bus Network Infrastructure
- Retention of core biodiversity areas within the site and incorporation of both east west and north south regional habitat connectivity with a long term ownership and management regime.

- Floodplain management and water sensitive urban design measures and design features that respond to an analysis of potential climate change impacts.
- Water sensitive urban design measures that will result in a net improvement in water quality in Marshall Mount Creek, Macquarie Rivulet and as a consequence Lake Illawarra. Water cycle management integrates with urban design, salinity risk and riparian corridor protection measures.
- Energy sustainability for the Project focuses on reducing the demand for energy through the efficient design of the urban form to capitalise on the natural features of the site. Demand will also be mitigated through consumer demand initiatives including BASIX requirements for dwelling design.
- The Project adopts potable water supply conservation targets and identifies sustainable integrated options for water supply, wastewater and stormwater servicing.

Potential for both solar farms and co (or tri) generation as part of the Project, particularly for the Town Centre and employment precincts are to be further considered.

Refer also to Statements of Commitment 23 to 26 at Section 5.

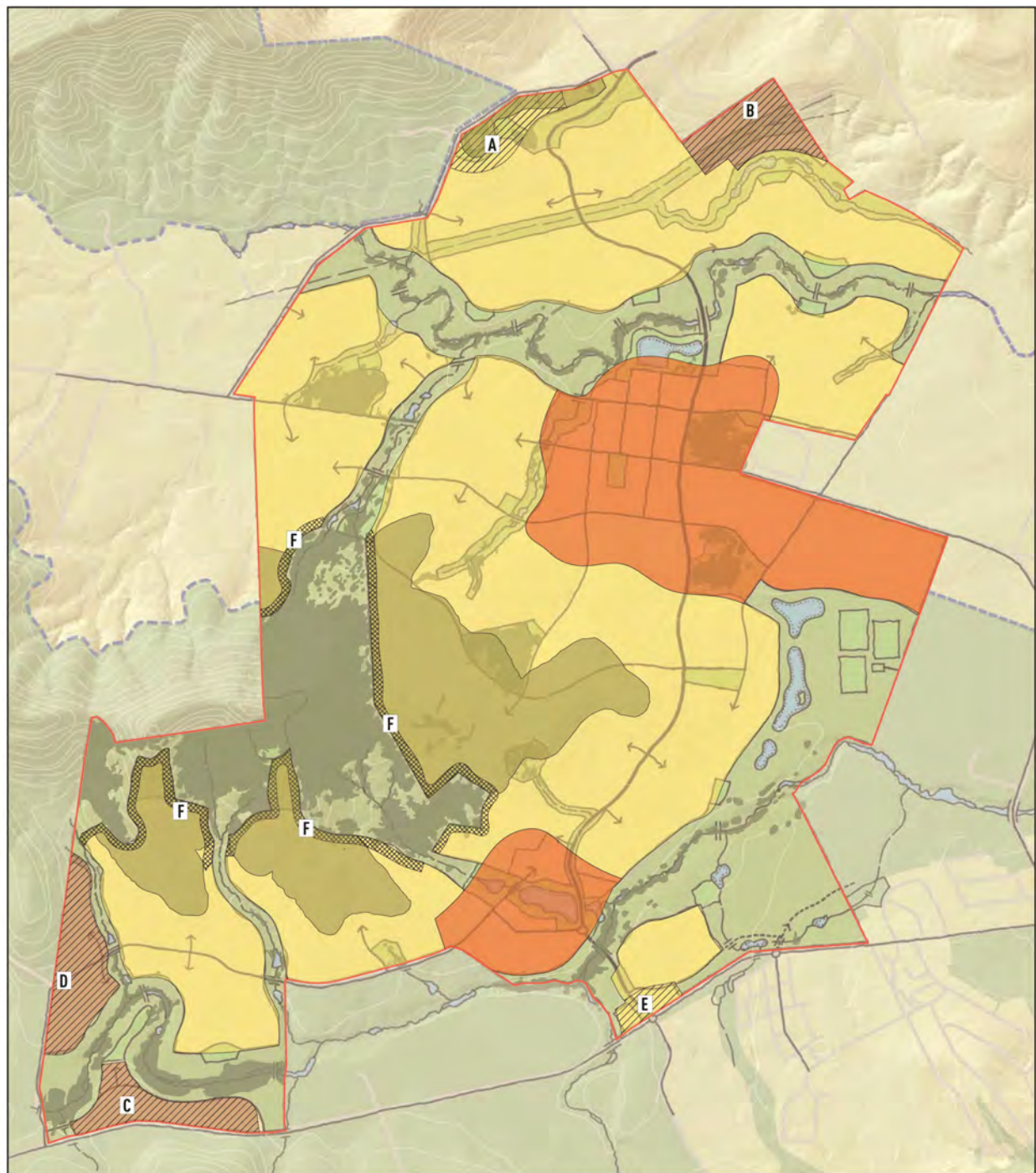
3.4 Land Uses and Distribution

3.4.1 Residential character areas

The detailed design of the individual residential neighbourhoods and mixed use residential areas within the future development will reflect the particular environmental features and landscape character of its surrounds.

A general distribution of the residential character areas is shown on **Figure 4**. These include:

- General residential neighbourhoods – residential scale and character, incorporating a range of attached and detached dwellings of 1 to 2 storeys.
- Town and Village Centres – urban scale, higher density and diverse built form resulting from pattern of use. Mixed use with residential, retail, commercial, community and education uses and incorporating a range of attached and detached dwellings, shop housing, axis and urban sleeve dwellings, apartments and multi unit dwellings.
- Country residential – residential character with decreased density and comprising detached dwellings.
- Bushland edge/ RL 50 m AHD – a residential character with layout and setting that responds to the bushland interface and elevation and generally comprises detached dwellings.



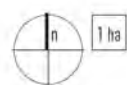
Residential Character Areas

Part 3A | Calderwood Urban Development Project

- Town and Village Centres**
Urban scale, higher density and diverse mixed use built form
- General Residential**
Residential scale and character
- Country Residential**
Residential character with decreased density
- Bushland Edge / RL 50m AHD**
Responding to bushland interface and indicative elevation

- A** Special Character Overlay
Marshall Mount House
- B** Special Character Overlay
Northern fringe
- C** Special Character Overlay
Southern Gateway
- D** Special Character Overlay
Western fringe

- E** Special Character Overlay
B4 Illawarra Highway
- F** Bush Edge Buffer Overlay



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Figure 4 – Approved Concept Plan Residential Character Areas

3.4.2 Dwelling Yield, Mix and Minimum Lot Sizes

Concept Approval has been granted for approximately 4,800 dwellings and for minimum subdivision lot sizes for a range of dwelling types. The overall Project will deliver lot sizes and dwelling types that ensure diversity in housing mix.

Each future residential neighbourhood within the overall development will contain a range of lot sizes and a variety of housing types to cater for the life cycle of residents and choice in housing affordability.

Under the Major Development SEPP, the following minimum lot sizes generally apply:

- 0 m² for development within the B4 Mixed Use Zone;
- 300 m² for development within the R1 General Residential Zone;
- 2000 m² for development within the R5 Large Lot Residential Zone ; and
- 100,000 m² – 400,000 m² for development within the E3 Environmental Management and RU2 Rural Landscape Zones.

Within the general residential neighbourhoods, residential lot sizes will generally range from 300 m² to 1,500 +m². The proposed lot sizes will accommodate a wide range of detached housing product, including larger parkland lots, traditional 900 m² and 450 m² detached housing residential lots and a variety of smaller, more affordable detached housing product between 300 m² and 450 m². It will also accommodate a variety of attached and semi-detached housing types.

In order to allow for, and to encourage, the provision of the broad range of dwelling product type within each neighbourhood, housing on < 300 m² lots is also permitted to be delivered.

Modification B6(8) of the approved Concept Plan permits residential lots less than 300 m² in area within the General Residential Area (ie within the R1 General Residential Zone), where subdivision of these lots occurs after the construction of dwellings and where the dwellings directly adjoin or are located directly opposite the following:

- (a) Public parks of at least 0.3 ha in size, or
- (b) The Town and Village Centres.

Modification B6(8) of the approved Concept Plan identifies that the minimum allotment size can be varied for the subdivision of 'Integrated Housing' under the Exceptions to Development Standards – Other Development Clause in the Major Development SEPP.

Dwellings to be provided on > 300m² lots include a wide range of detached, attached, semi detached and dual occupancy product. The delivery of a range of smaller lot housing will support diversity and choice, and underpins the housing affordability of the project.

The smallest lot size to be provided within the general residential neighbourhoods is 125m².

The range of dwelling types and minimum subdivision lot sizes for which concept approval has been given within the general residential areas are set out in **Table 3** below:

Table 3 – Approved Concept Plan minimum subdivision lot sizes

Dwelling type	Minimum Subdivision Lot Size (R1 General Residential)
Dwelling houses	300 m ² or 180 m ² in accordance with Modification B6(8)
Attached dwellings and semi-detached dwellings	300 m ² or 125 m ² in accordance with Modification B6(8)
Dual occupancies	180 m ² in accordance with Modification B6(8)
Multi dwelling housing and residential flat buildings	300 m ²

A Consolidated Development Control Strategy forms part of the approved Concept Plan (refer to **Appendix F**).

The Consolidated Development Control Strategy sets out detailed controls for housing. It includes minimum lot sizes for residential development within the Town Centre and Village Centre. The detailed design of future relevant development, including the design of streets, subdivision and built form, is to be generally in accordance with the Consolidated Development Control Strategy.

A proportion of housing types will make special provision for home based businesses and others who wish to work from home. This includes home occupations, home businesses, home industries, and home based child care.

Secondary dwellings, comprising small dwellings of up to 75 m² in floor area on the same allotment of land as another principal dwelling are to be included throughout the residential neighbourhoods. Design controls for secondary dwellings are included in the Development Control Strategy at **Appendix F**.

Opportunities to provide purpose-designed self-care housing to meet the needs of older people, in association with retirement housing providers, will be explored in the delivery phases of the project.

An indicative mix of housing may be:

- 60-85% detached dwellings, attached dwellings, semi attached dwellings and dual occupancies; and
- 15-40% other, including multi dwelling housing and residential flat buildings.

The actual dwelling mix and yield for each dwelling type will be determined as part of the future detailed applications for each stage.

The approved Concept Plan specifically does not pre-determine the number of dwellings or mix within each future stage, and does not approve the above indicative mix. Dwelling mix is subject to change over the significant time period for implementation of the development as market requirements change.

Refer also to Statements of Commitment 18 to 22 at Section 5.

3.4.3 Mixed Use Centre and Employment Precincts

Town Centre and adjoining employment lands

Approximately 58 hectares of land is provided for a new Town Centre with adjoining employment lands. The Town Centre is generally located to the west of the new north south collector road, with the employment lands located to the east.

The new Town Centre will comprise a wide range of retail, commercial, business education, entertainment, civic recreation, residential, tourist and visitor accommodation and employment land uses including (in accordance with **Modification C8** of the Concept Plan approval):

- A maximum of 20,000 sqm of retail floor area that may accommodate development within the following ranges:
 - A small discount department store of around 4,000 – 5,000 sqm.
 - Two full line supermarkets and possibly a discount supermarket comprising around 9,000 -10,000 sqm.
 - 3,000- 4,000 sqm of mini major floorspace.
 - 50-60 speciality stores, or around 7,000 – 8,000 sqm of floor space.
 - Some limited freestanding facilities such as fast food and small bulky goods stores.
- Approximately 20,000 sqm of mixed use employment floor area including a wide range of commercial office, light industrial, and non-retail service/convenience tenants (eg banks, doctors, post office, real estate etc).
- Community facilities including a large multi purpose community resource centre and co located branch library, and child care.
- Public primary school and high school.
- Residential mixed use dwellings including a range of higher density dwelling types including terraces, small lot detached homes, apartments, live work dwellings, shop top housing and retirement living (attached, semi detached, multi dwelling housing, residential flat buildings etc).

Marshall Mount Methodist Cemetery is to be retained within the new Town Centre. The site will be used and retained in private ownership and is to be encompassed within a park setting to ensure an appropriate buffer (refer to section 3.6 below).

The mixed use employment land to the east of the north south collector road is intended to accommodate a wide range of employment uses including commercial, business, light industrial and bulky goods.

In accordance with **Modification C9** of the Concept Plan approval, prior to the first application for development within the Town Centre, a strategy is to be developed and submitted to the Department of Planning for approval to encourage the following with respect to the urban design for the Town Centre:

- Minimisation of land use conflicts through distribution of uses including the consideration of noise, odour, air quality, hours of operation, parking and commercial waste.
- Buildings should address and define streets providing a relatively continuous street frontage for safe and attractive circulation.
- Maximise active ground floor uses as possible and entrances located directly off the main street.
- Provide weather protection for pedestrians in public areas in the form of awnings, sails or other climate appropriate methods.

- The creation of high quality public domain, including equity of access.
- Appropriate setbacks to the cemetery.

Village centre

In addition to the Town Centre, a new Village Centre is proposed towards the southern boundary of the site. The Village Centre will be delivered as part of the initial stages of the development to assist in place creation and to provide for the local day to day convenience retail needs of future residents.

The Village Centre will include (in accordance with **Modification C8** of the approved Concept Plan):

- A maximum of 5,000 sqm of retail floor area.
- Approximately 1,000 sqm of mixed use employment floor area including a range of commercial, business and light industrial uses.
- Residential mixed use dwellings including a range of higher density dwelling types including terraces, small lot detached homes, apartments, live work dwellings, shop top housing and retirement living.
- A Sales and Information Centre.

A residential display village will be established in close proximity to the Village Centre.

A temporary community centre is also to be provided within the Village Centre during the initial stages of the development.

3.5 Riparian Corridors

The approved Concept Plan Riparian Corridor Network is shown on **Figure 5**.

The approved riparian strategy for the Concept Plan is:

- Provision of regional linkages from the ocean to the escarpment via the principal riparian corridors of Marshall Mount Creek and Macquarie Rivulet.
- Identification of a series of secondary corridors from the regional linkages to Johnston's Spur reflecting their relative importance as riparian corridors. Secondary corridors will support the primary corridors.
- Provision of a sufficient Core Riparian Zone (CRZ) for remaining riparian corridors to provide for bed and bank stability. The CRZ is the total width of the corridor.

The approved Concept Plan requires:

- Retention of the riparian corridors that have been assessed and determined to have a requisite hydrological function generally in accordance with **Figure 5**.
- A riparian corridor of 92 metres total width to be provided to Marshall Mount Creek and Macquarie Rivulet in accordance with **Figure 5**.
- A riparian corridor of 48 metres total width to streams extended from the main valley floor environmental corridors to Johnston's Spur in accordance with **Figure 5**.

Refer also to Statements of Commitment 28 to 30 at Section 5.

There are a small number of first order drainage lines (13) that are approved under the Concept Plan to be removed. Each of these is a small ephemeral first order line with very small catchment area.

The first order drainage lines approved to be removed are Reaches 11-14, 16, 19, 20, 22, 25, 30, 31, 38 and 39. The location of these existing drainage lines is shown on **Figure 6** below.

With reference to **Figure 6**, the approved Concept Plan provides for:

- 16 mapped stream segments (segments 1, 7, 8, 15, 18, 23, 26, 24, 32, 33, 34, 35, 40, 42, 44, 45, 46 and 48) consistent with the RCMS;
- 12 mapped stream segments (2, 17, 27, 28, 29, 36, 37, 43, 47, 49) with a higher category than the RCMS; and
- 6 first order drainage lines 3, 5, 6, 9 and 10 and second order stream 4 with a lower categorisation than the RCMS.

CRZ and Vegetated Buffer Widths

The approved Concept Plan provides for CRZ and Vegetated Buffer (VB) widths as identified in **Table 4** below.

For information purposes only, Table 4 also states the CRZ and Vegetated Buffer (VB) widths previously suggested by NOW and requirements under the most recent Guidelines published by DECCW under the Water Management Act (February 2008). Where differing to the NOW and / or DECCW guidelines, the approved Concept Plan provisions prevail.

Table 4 – CRZ and Vegetated buffer widths

Stream	NSW Office of Water (submission 2010)	DECCW 2008 Guidelines	Concept Plan
Marshall Mount Creek, Macquarie Rivulet and Hazleton Creek (Category 1 /3 rd + Order Streams)	40 m CRZ + 10m VB either side	20 – 40 m CRZ + 10m VB dependent upon merit issues	46 m CRZ either side Significant additional open space and drainage land is provided immediately adjacent to CRZs resulting in an average of well in excess of 10 m of VB either side
Category 2 / 2 nd Order Streams	20 m CRZ + 10m VB either side	20 m CRZ + 10 m VB dependent on merit issues	24 m CRZ either side A 4 m wider CRZ is provided, with additional open space and drainage land forming an additional VB where considered appropriate
Category 3 / 1 st Order Streams	10-20 m CRZ + 10 m VB either side	10m CRZ (intermittent flow) + 10 m VB dependent on merit issues (RCMS 10 m CRZ only)	12 m CRZ either side The minimum CRZ width is met, with open space and drainage land forming an additional VB where considered appropriate.

Under the Concept Plan approval a blanket 10 metre wide VB has not been applied in addition to the CRZs for the entire length of each 1st, 2nd and 3rd Order stream.

The CRZs and any associated additional VBs adopted at the detailed design stages of the Project will be considered based on analysis of the management objectives of the riparian corridors and applied flexibly depending on their locations and the objectives to be applied.

In addition to the CRZs identified above and at **Figure 7**, significant areas of land located immediately adjacent to riparian corridors, although not part of the riparian corridor network itself, will contribute to achieving riparian outcomes.

These areas, which are shown on the approved Open Space Master Plan at **Figure 7** below, will incorporate a suite of ancillary functions as part of an integrated urban environment and will substantially increase the environmental outcomes beyond that afforded through the riparian strategy alone.

The areas of open space and drainage land immediately adjoining the Riparian Corridor Network will incorporate a suite of ancillary functions as part of an integrated urban environment private / public open space provided immediately adjacent to CRZs substantially increases the capacity of environmental outcomes beyond the area afforded through the riparian strategy alone. The Landscape Open Space Masterplan for the Project (refer to **Appendix J**) provides clear details as to how this land will be designed and landscaped so that it contributes a “VB” to riparian corridors.

Refer also to Statements of Commitment 33 to 36 at Section 5.

Uses and development within riparian lands

The approved Concept Plan allows for a limited number of vehicular crossings, and pedestrian and cycle pathway crossings of riparian corridors generally in accordance with the principles shown on the approved Road Layout and Hierarchy Plan at **Figure 11** below and the approved Pedestrian and Cycle Initiatives Plan at **Figure 12** below. These crossings may be designed in a variety of forms dependent upon final location, and would not necessarily comprise bridges. The identified roads provide egress during the 1:100 yr flood event.

A network of pedestrian and cycle pathways within the CRZs is permitted. Utility services infrastructure will need to cross the CRZs as required and may be located within CRZs where dual location within pathways makes sense.

The final location of crossings and pedestrian and cycle pathways, and utility services infrastructure, will take into consideration vegetation that is proposed to be retained and protected as shown on the Environmentally Significant Land map at **Figure 8** below.

Refer also to Statements of Commitment 31 and 32 at Section 5.

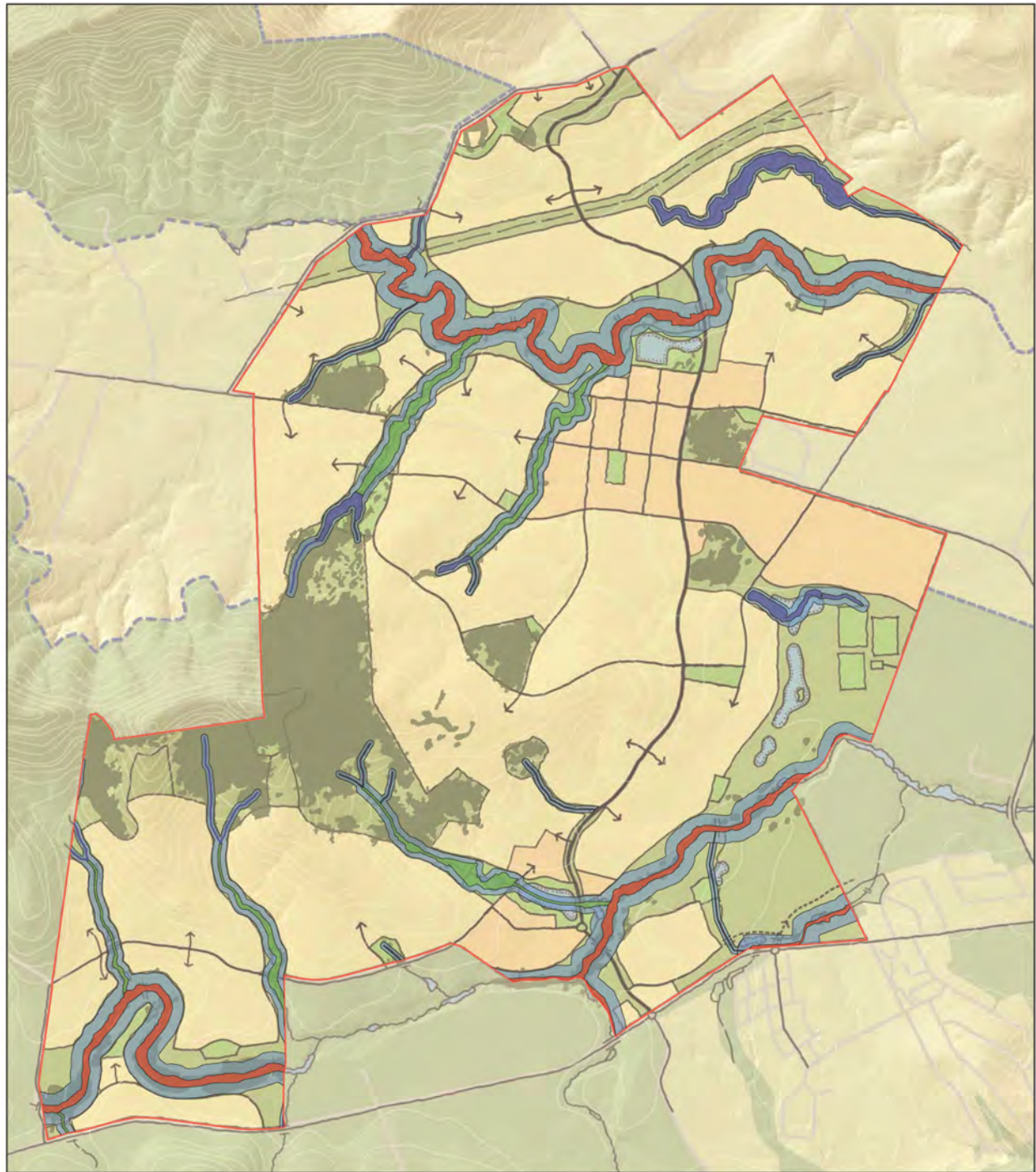
Recreation and drainage uses within riparian lands are to be sensitively designed and managed and existing native riparian vegetation should not be unnecessarily removed to accommodate these uses. Wetlands and ponds will be located and designed to be sympathetic to complement the environment.

The basic configuration of the proposed wetland system consists of a combination of permanent and intermittently inundated ponds and wetlands, shaped and interlinked with bioswales to retain mature trees where possible.

Where any spill ways / outlets are proposed from stormwater detention basins / wetlands directly into the main arms of Marshall Mount Creen and Macquarie Rivulet, their design is to have regard to facilitating colonisation by native fish species.





Wherever feasible in the installation of services such as water, sewerage and gas pipeline across Marshall Mount Creek and Macquarie Rivulet are to be combined with vehicular crossings to minimise potential impact on fish passage and or by trenching.

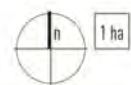
Refer also to Statements of Commitment 39 and 40 at Section 5.



Riparian Corridor Network

Part 3A | Calderwood Urban Development Project

-  **Top of Bank - Stream Order 3+**
Ground truth and ALS survey data
-  **Top of Bank - Stream Order 2**
Ground truth and ALS survey data
-  **Top of Bank - Stream Order 1**
Ground truth and ALS survey data
-  **Core Riparian Zone (CRZ)**
Size based on stream order



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Figure 5 – Approved Concept Plan Riparian Corridor Network



Figure 6 – Approve Riparian classifications including reaches approved to be removed
(Source: Riparian Consistency Report, Ecological)

3.6 Conservation and Open Space

A Landscape and Open Space Masterplan prepared by Environmental Partnership is included at **Appendix G**. The approved Concept Plan Open Space Masterplan is shown at **Figure 7**.

The approved Open Space Masterplan will deliver a combination of conservation and passive and active recreation. It encompasses the approved Riparian Corridor Network (refer to Section 3.5) as well as other open space corridors, a number of environmental conservation reserves and bushland conservation areas, and city wide, district and local parks.

In accordance with **Modification B5** of the approved Concept Plan the location of parks and public open space in the Landscape Open Space Masterplan at **Appendix G** is to be considered to be indicative locations only, and will be subject to further agreement with the relevant Council or other agency regarding the specific location of parks and open space, as part of each staging application.

3.6.1 Conservation

Land approved to be retained for environmental conservation purposes, includes:

- Open space corridors, incorporating the Riparian Corridor Network (these corridors perform a dual conservation and critical drainage function) – approximately 154 hectares (approximately 113 hectares of the total open space corridor area comprises riparian corridors);
- Environmental reserves – approximately 16.6 hectares in four separate reserves; and
- Johnston's Spur (city wide bushland) – approximately 61.1 hectares of bushland and 2.6 hectares of parkland.

Johnston's Spur

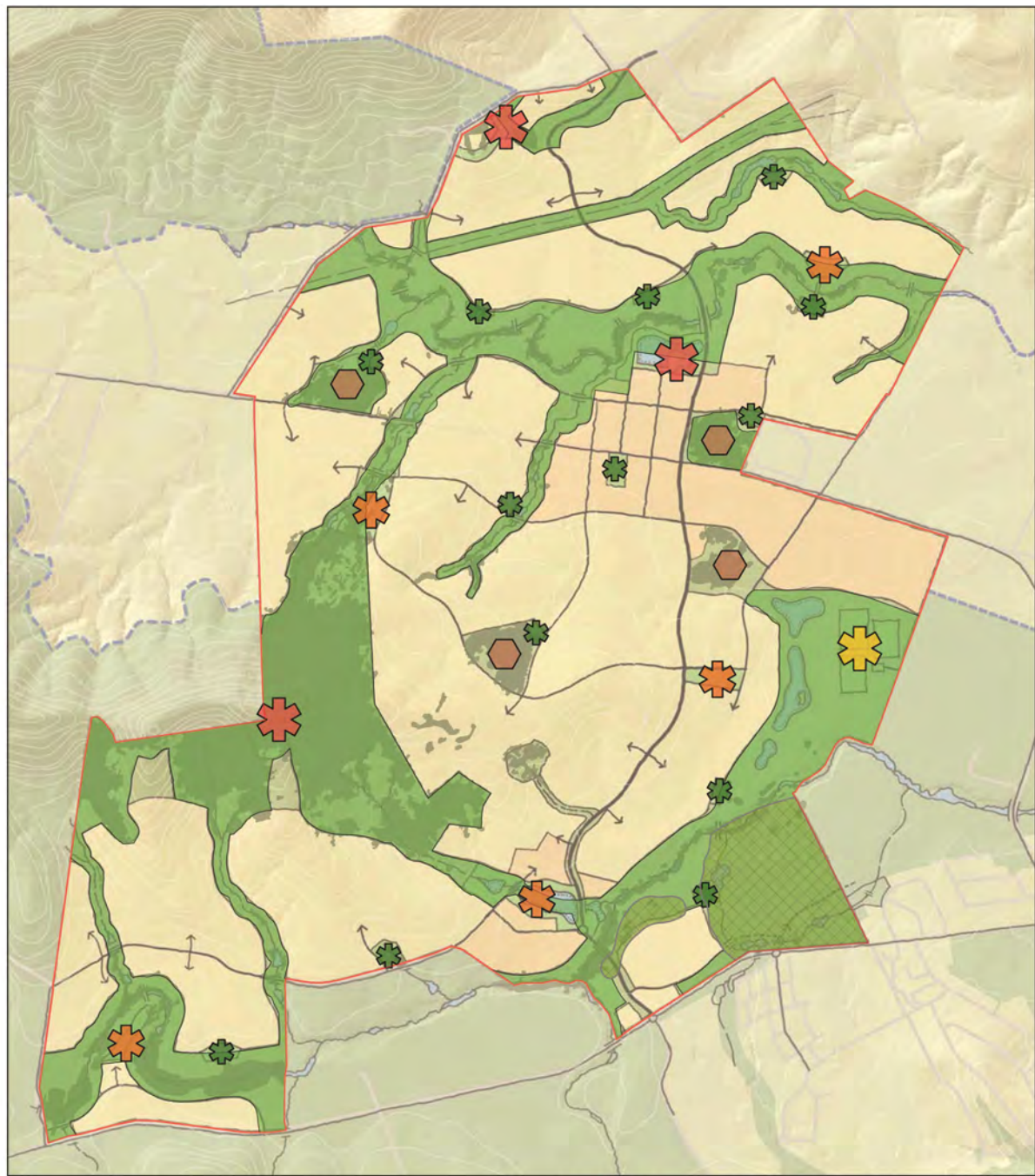
It is proposed to retain Johnston's Spur as city wide park and bushland to provide a combination of conservation and passive recreation outcomes.

Environmental reserves

There are four approved environmental reserves:

- Environmental Reserve (ER1) Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest and linking to the Marshall Mount Creek corridor. Proposed to adjoin an access corridor link to the Marshall Mount Creek corridor.
- Environmental Reserve (ER2) Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest to be conserved as a nodal "stepping stone" habitat adjoining the existing school site.
- Environmental Reserve (ER3) Incorporating a remnant stand of Coastal Grassy Red Gum Forest to be conserved as a nodal "stepping stone" habitat. Proposed to incorporate an area of Local Park to the north eastern side.
- Environmental Reserve (ER4) Incorporating a remnant stand of Lowland Woollybutt Melaleuca Forest and potentially linking to the Macquarie Rivulet corridor. Proposed to incorporate an area of District Park to the northern side.

The four reserves comprise areas identified as being of Primary Conservation Significance in the Flora and Fauna Assessment (refer **Appendix P**).



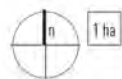
Indicative Open Space Network

Part 3A | Calderwood Urban Development Project

-  **Citywide Parks**
Johnston's Spur, Town Centre Park, and Marshall Mount House Curtilage
-  **District Parks**
Indicative locations. Minimum size 1.0 ha
-  **Local Parks**
Indicative locations. Minimum size 0.2 ha
-  **Main Sports Complex**
Three sports ovals

-  **Environmental Reserves**
-  **Open Space Corridors and Citywide Bushland**
-  **Rural Landscape / Lifestyle**
Agricultural area and paddocks

Delfin
Lend Lease



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Figure 7– Approved Concept Plan Open Space Masterplan (Indicative)

Corridors

The approved Open Space Masterplan incorporates 17 open space corridors, primarily relating to site drainage lines. In addition to access and habitat conservation corridors, these corridors, which incorporate the approved Riparian Corridor Network, perform a key role in the proposed water cycle management strategy for the site. The corridors will offer passive recreation and comprise generally open grassed areas, with some regeneration.

In most cases additional areas of public open space (local and district parks – refer below)) is provided immediately adjoining the corridor. The majority of the corridors provide potential for provision of off road cycle/ pedestrian linkages.

The individual function and purpose of the approved corridors C1 to C17 is detailed in the Landscape and Open Space Masterplan at **Appendix G**. Approved Corridors C1 to C5 are located in the Wollongong LGA, and approved corridors C6 to C17 in the Shellharbour LGA.

Consistent with the recommendation made by the Department of Agriculture, cleared land on the floodplain is retained within the corridors to allow potential opportunities for suitable future agricultural uses.

Vegetation management plans

Modification C3(1) of the approved Concept Plan requires management plans for the Open Space Corridors and Citywide Bushland, and Environmental Reserves identified on the Open Space Network map to be prepared and submitted with each relevant application.

The management plans are to include the ownership arrangements for these lands, and how these ownership arrangements will ensure the management regimes will be implemented and be on-going.

Modification C3(2) of the approved Concept Plan requires the Vegetation Management Plans (VMPs) to be prepared as detailed in Statement of Commitment No. 35 to apply to the corridors identified in the Riparian Corridor Network plan, and for the VMPs to demonstrate that the following will be achieved:

- (a) Improvement to the aquatic habitat (for Marshall Mount Creek and Macquarie Rivulet);
- (b) Improvement to water quality;
- (c) Contribute to fauna habitat connectivity; and
- (d) Provide passive recreation with low environmental impact, where it is available for public use.

Refer also to Statement of Commitment 35 at Section 5.

3.6.2 Public Open Space Provision

The approved Concept Plan Open Space provision includes the following indicative open space provision:

- 13 local parks > 0.3 ha each in area totalling 3.9 ha;
- 5 district parks > 1 ha each in area totalling 7.8 ha;
- 3 city wide parks totalling 6.42 ha; and
- 1 sporting ground (active recreation) of 15.98 ha in area.

The baseline requirement for each category of open space is consistent with the Shellharbour City Council 2009 Draft Open Space and Recreation Plan.

All local parks, district parks, city wide parks, and the sporting ground are to be dedicated to the relevant Council.

As identified above, **Modification B5** of the Concept Plan approval requires the location of parks and public open space to be considered as indicative locations only, with the specific location of parks and open space to be the subject of further agreement with the relevant Council or agency as part of each staging application.

Notwithstanding the above, **Modification C12** of the approved Concept Plan further identifies that local open space areas are to be provided generally in accordance with the following principles as part of the requirements for local infrastructure:

- A total of approximately 17.36 ha of open space (made up of local parks, district parks and city wide parks); and
- Sports fields of approximately 15.84 hectares.

The approved Open Space Master Plan develops the following principles in locating open space:

- Local or District Park accessible to each neighbourhood as recreational, civic, and landscape focus.
- The majority of the residents within walking distance (5-10 minutes) of quality open space.
- Focal active recreational parkland that provides for clustering of sports facilities and relates to the Village Centre community and educational facilities.
- Locate parklands to take advantage of existing landscape features where possible.
- Provide access to recreational and environmental amenity of Johnston's Spur ridge top via corridor path system to complement local open space provision
- Integrate parklands where possible with the internal network of open space corridors to enhance continuity of pedestrian / cycle and environmental links
- Supplement open space corridor connectivity with off road pedestrian / cycle access to "parkway" style road corridors with tree lined verges.
- Provide adequate buffer zones between creek lines and the recreational open space where parklands adjoin corridors.
- Balance quantum of open space for residential population against quality of open space settings, experiences, diversity and the range of recreation and lifestyle opportunities available.

- Optimise the effective use of specific site characteristics and values in provision of open space - that is, the site has high potential to provide quality passive recreational spaces such as to Johnston's Spur – but less potential to provide large scale multi-facility sports fields due to undulating landform and extent of floodplains.
- Provide a sustainable quantum of open space that does not place undue demand on Council's maintenance resources without tangible benefit for the community.

The final location of open space is subject to resolution at the detailed design stage. Principles to be used to determine the final location of each identified open space area are provided in the Landscape and Open Space Masterplan included at **Appendix J**.

The indicative provision of open space within each LGA is summarised in **Table 5**. The indicative open space provision is subject to **Modification C12**.

Table 5 – Concept Plan open space provision (Source: Landscape and Open Space Masterplan, Environmental Partnership, 2010)

Open space provision by LGA					
Item	Shellharbour		Wollongong		Total
	No.	Area	No.	Area	Area
Local parks (>0.3 ha)	10	3 ha	3	0.9 ha	3.9 ha
District Park (>1 ha)	4	6.8 ha	1	1.0 ha	7.8 ha
Citywide Park	2	5.11 ha	1	1.31 ha	6.42 ha
Sporting Grounds	1	15.98ha	-	-	15.98 ha
Total		32.7 ha		4.08 ha	39.04 ha

The landscape character and embellishments proposed for each of the open space areas is detailed in the Landscape and Open Space Masterplan prepared by Environmental Partnership included at **Appendix G**.

A city wide park is to be located adjacent to Marshall Mount House to assist in retaining the view from Marshall Mount Road to the house, including the Oak.

Marshall Mount Cemetery is to be encompassed within a local park that will provide an appropriate landscape buffer to the surrounding Town Centre.

3.6.3 Future Land Ownership Options

A Land Ownership Option matrix, and a Land Ownership Options Plan relating to the approved Concept Plan are included at **Attachment H**.

The Land Ownership Option matrix and Land Ownership Options Plan provide a detailed analysis of each area of land that forms a part of the approved Concept Plan Open Space Network including:

- Environmental reserves;
- City Wide Parks;
- District Parks;
- Local Parks;
- Open Space Corridors and Citywide Bushland.

All riparian land is included in the analysis.

The Land Ownership Option matrix and Plan identify, for each area of land:

- Location;
- Land use (purpose), including multiple uses as relevant;
- Ownership options, including existing ownership of adjoining lands; and
- Logical future maintenance responsibility – preferred ownership.

Proposed Local Development Contributions Schedules reflecting the terms of **Modification C12** of the Concept Plan Approval are included at **Appendix I**.

The Proponent is committed to ongoing negotiations with State and local government to achieve the preferred ownership outcomes for the identified land.

However, if the preferred ownership outcome is not ultimately agreed, the Proponent will identify an alternative ownership arrangement at the relevant subdivision stage.

Refer also to Statements of Commitment 2 to 12 at Section 5.

3.7 Retention of Vegetation

The approved Concept Plan identifies the areas of significant vegetation that are to be retained and appropriately enhanced. Refer to **Figure 8**.

The areas shown on **Figure 8** comprise the majority of areas of vegetation in good condition that has been identified as Primary, Support for Primary or Other Native Vegetation significance (refer to Section 2).

These core ecological (values) include Johnston's Spur, Marshall Mount Creek and Macquarie Rivulet as well as smaller pockets of good quality remnant native vegetation.

Within riparian corridors, enhancement of existing native vegetation is to be balanced as part of the approved Flood Mitigation Plan (refer below).

Vegetation Management Plans (VMPs) are to be prepared for all works within land identified as Environmentally Significant Land and within the Core Riparian Zones shown on the approved Concept Plan Riparian Corridor Network in accordance with the principles of the Landscape and Open Space Masterplan at **Appendix G**.

The approved Concept Plan **Statement of Commitment 37** requires a detailed survey to be carried out in an appropriate season for *Pterostylis gibbosa* (Illawarra Greenwood) prior to any works commencing within potential habitat for that species. Potential habitat for the species is the Moist Box-Red Gum Foothills Forest and Coastal Grassy Red Gum Forest Wollybutt-Melaleuca. Following the further detailed survey work, any specific mitigation measures determined as required are to be addressed in the relevant detailed application(s). Refer to **Figure 9**.

The approved Concept Plan **Statement of Commitment 38** requires that mature remnant habitat trees will be individually assessed prior to detailed design in the area identified on **Figure 10** below (this Figure is referenced in the March 2010 EAR as Figure 7 of the Flora and Fauna Assessment prepared by Ecological Australia). Individual trees considered to provide significant habitat will be retained and incorporated into the design wherever practicable.

Modification C2 of the approved Concept Plan requires the following in relation to development on land identified on the Environmentally Significant Lands Layer on **Figure 8**:

Before granting consent, the consent authority must be satisfied that the development:

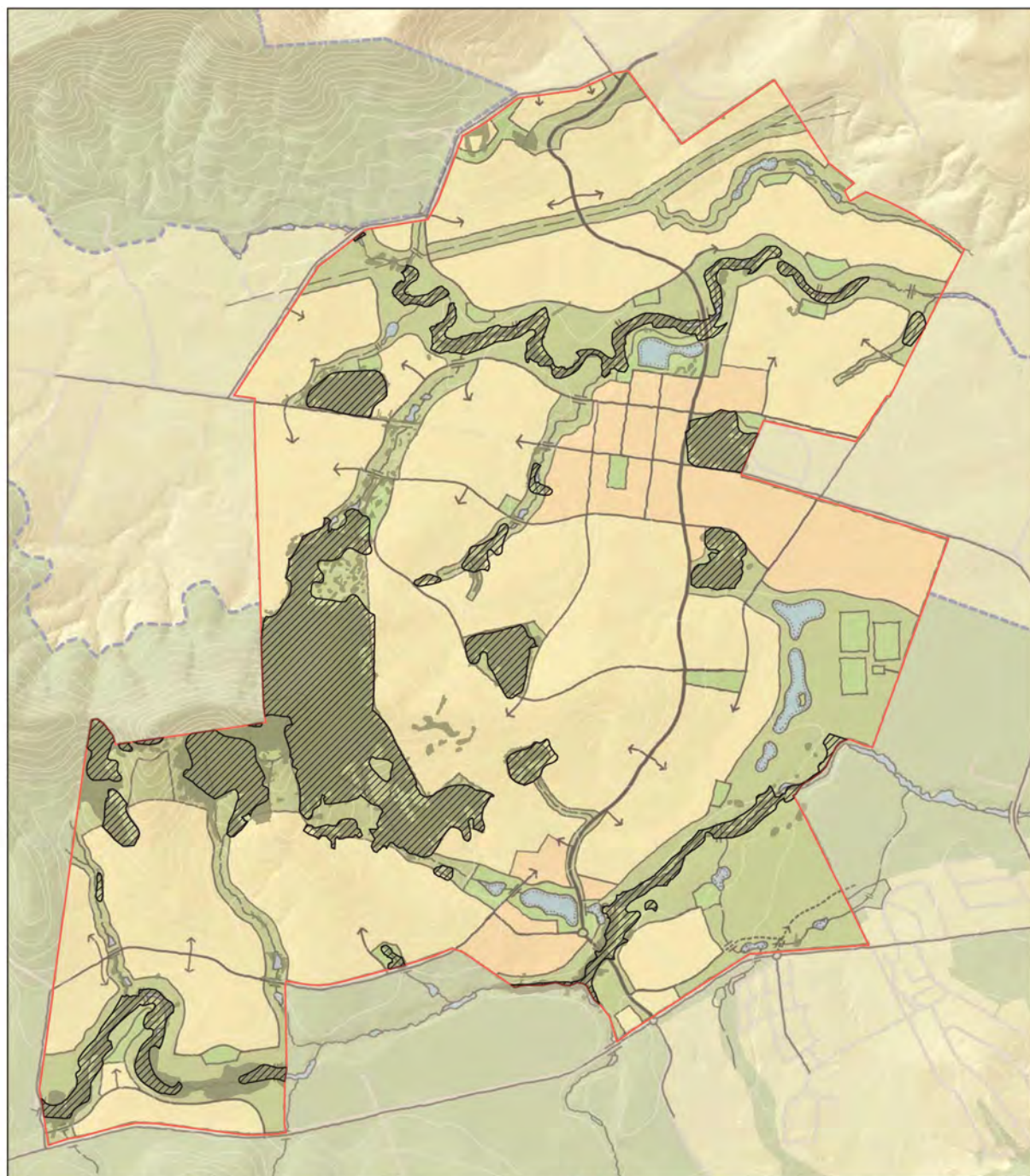
- *would substantially retain existing native vegetation, and*
- *would not adversely affect to a significant extent:*
 - *the ecological value of the existing vegetation, or*
 - *native fauna*

Before granting consent, the consent authority must consider whether:

- *the locality has high biological diversity*
- *the locality contains:*
 - *a disjunct population of native species or a species that is near the limit of its geographical range, or*
 - *riparian vegetation, or*
 - *vegetation associated with wetlands, and*
- *the land has connective importance as, or as part of, a corridor of native vegetation forming a connection that allows for the potential passage of species of flora or fauna between two or more areas of native vegetation, and*
- *the vegetation is adequately represented on land in the general locality, and*
- *the land is important as a site along a migratory route for wildlife, and*
- *the land functions as an important drought refuge for wildlife, and*
- *clearing of the land would be likely to contribute significantly to:*
 - *soil erosion, or*
 - *salinisation of soil or water, or*
 - *acidification of soil, or*
 - *landslip, or*
 - *deterioration in the quality of surface or ground water, or*
 - *increased flooding, or*
- *there is any need to conserve all or some of the native vegetation because:*
 - *of its unusually good condition or its significance as a sample of its type, or*
 - *the development will increase the perimeter of the native vegetation, and so the ratio of the boundary to the area of the native vegetation, making it more vulnerable to negative impacts, or*
 - *there is an archaeological site that has Aboriginal heritage significance on the land.*

Modification C4 of the approved Concept Plan also requires an arborist to be engaged when works may affect significant trees on the heritage sites (Marshall Mount Cemetery and Marshall Mount House).

Refer also to Statements of Commitment 34 to 38 at Section 5.



Environmentally Significant Lands

Part 3A | Calderwood Urban Development Project

 Environmentally Significant Lands
Primary and Support for Primary



Figure 8 – Approved Concept Plan Environmentally Significant Lands

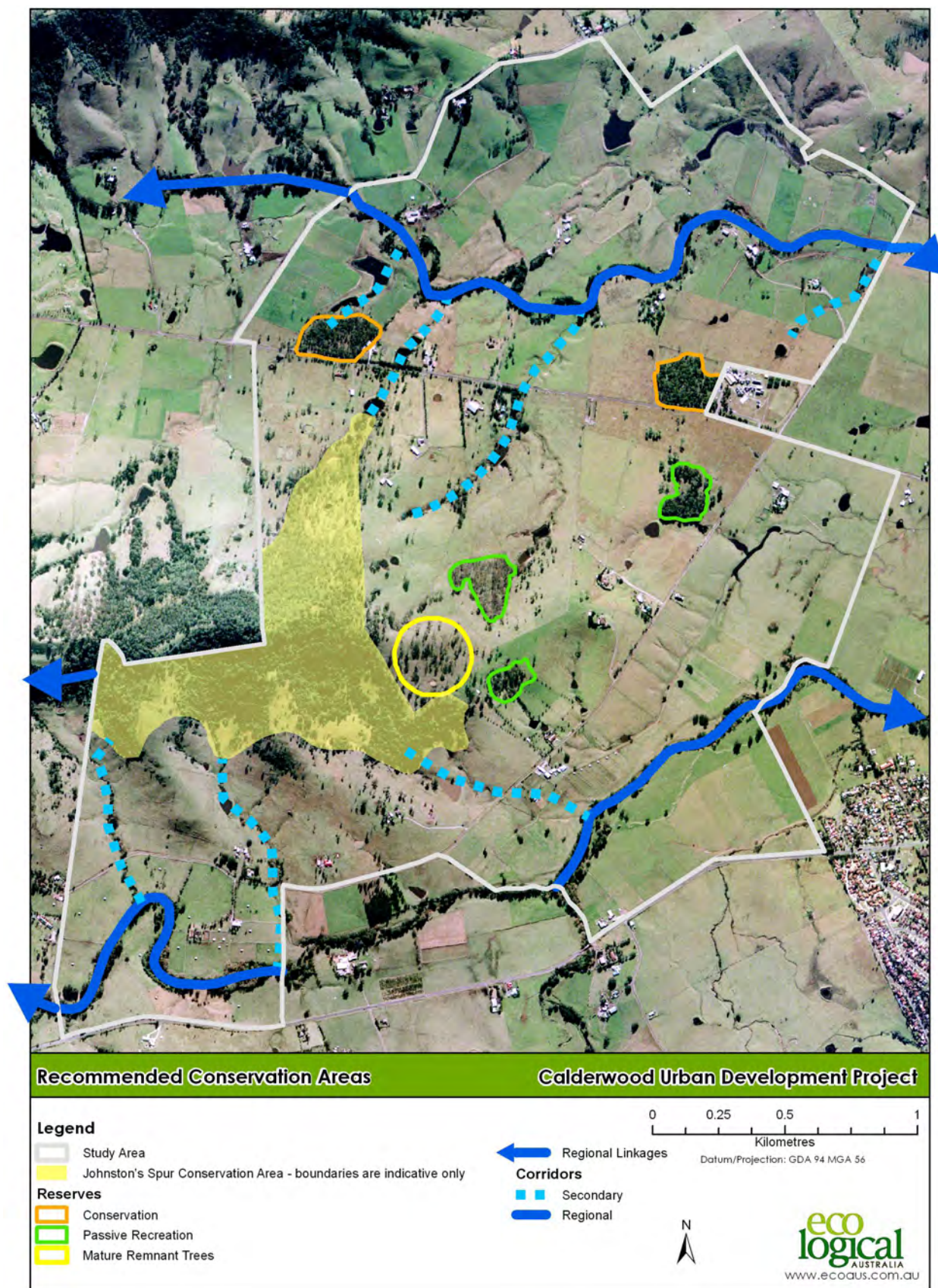
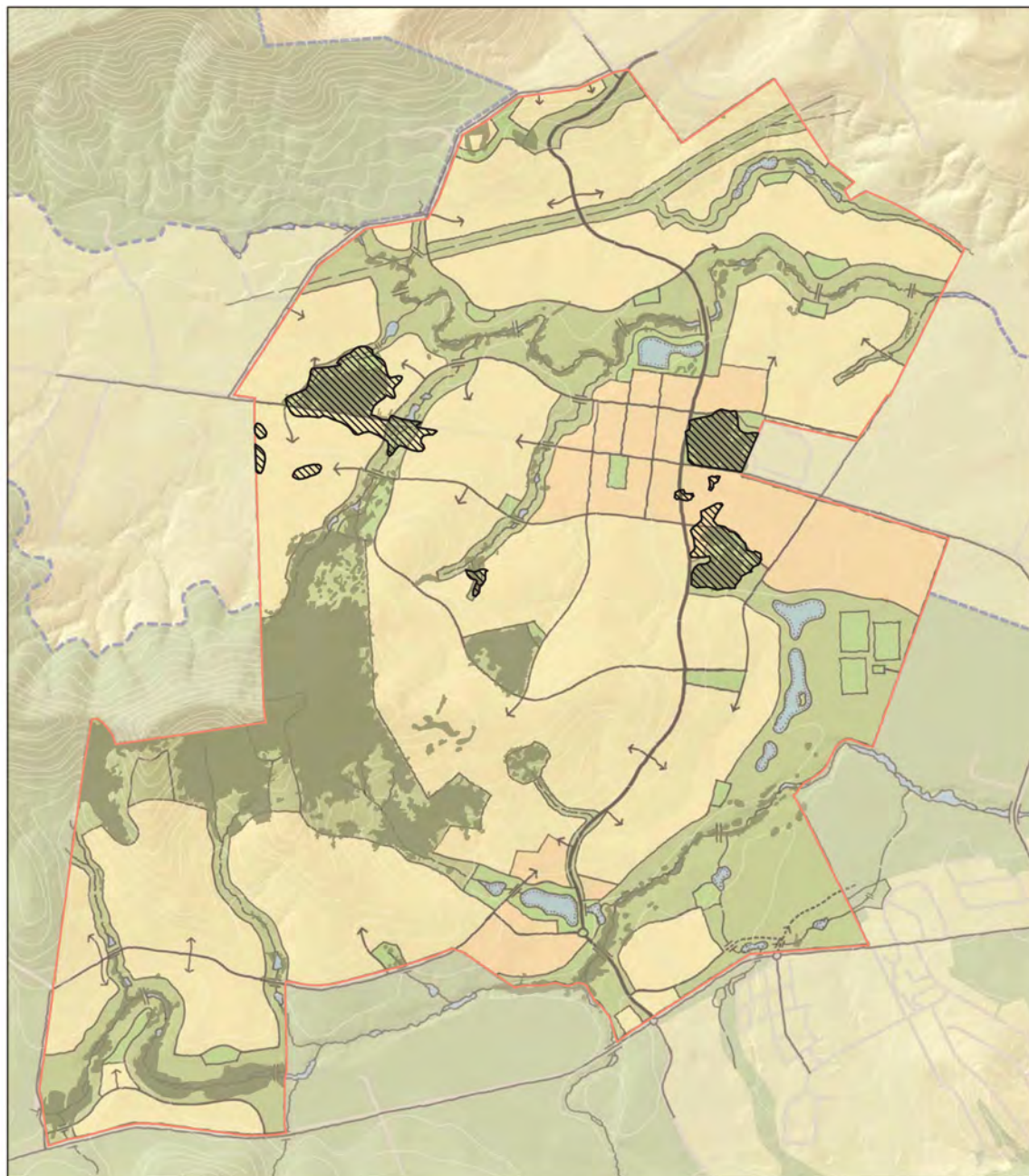


Figure 9 – Area requiring individual assessment of remnant mature trees at relevant detailed application stage (shown outlined in yellow)



Statement of Commitment #37

Part 3A | Calderwood Urban Development Project

 Lowland Woollybutt-Melaleuca
(Refer Ecological Flora and Fauna Assessment, March 2010)



Figure 10 – Area referenced in Statement of Commitment 37

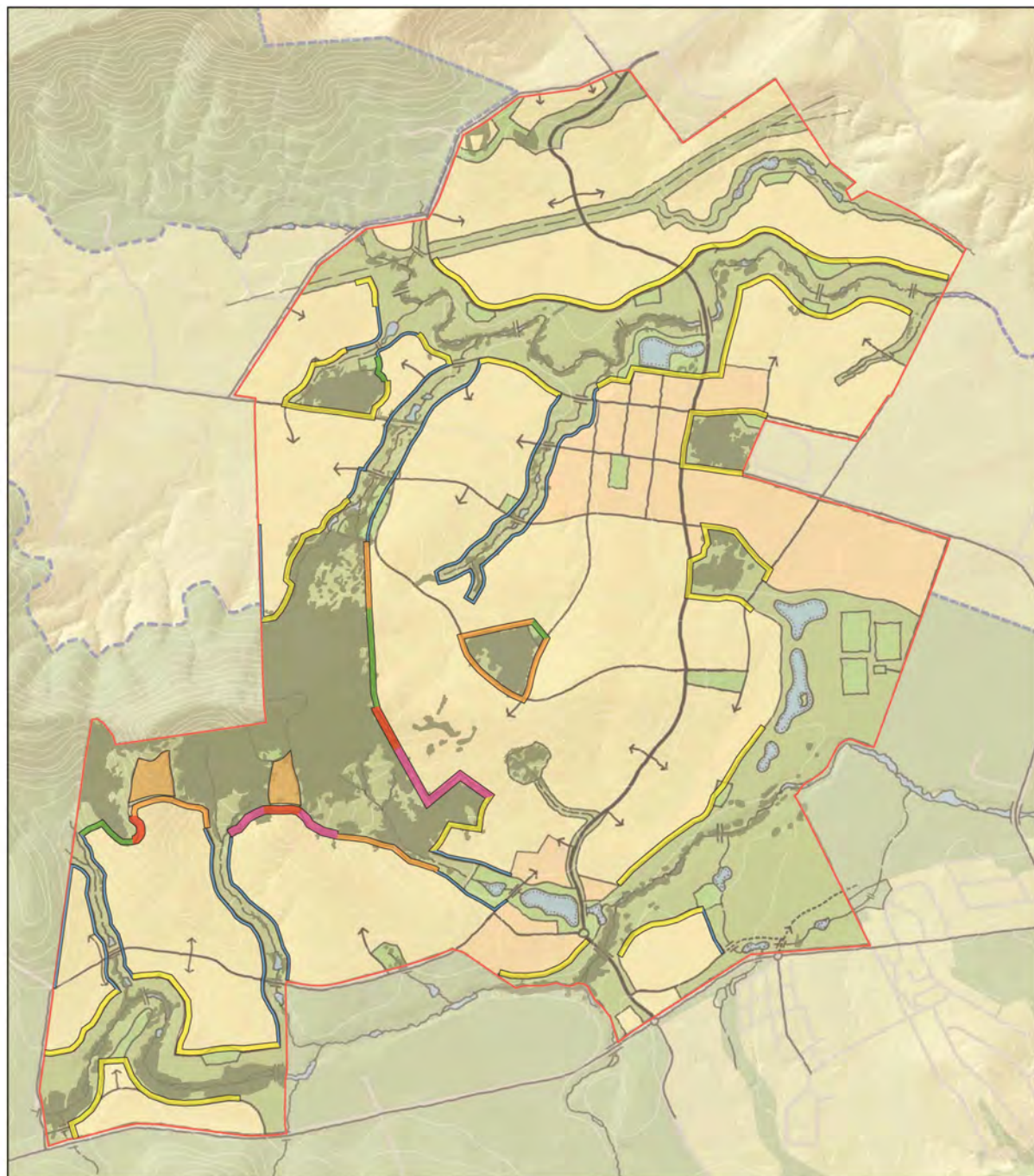
3.8 Bushfire Asset Protection Zones

The approved Concept Plan includes the establishment of maximum Bushfire Asset Protection Zones at known areas of bushland / development interface as illustrated on **Figure 11**.

Subject to final land uses and detailed design, the APZs may be reduced in accordance with Planning for Bushfire Protection.

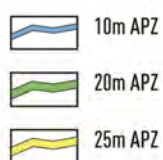
Modification C10 of the approved Concept Plan requires specified matters to be addressed for future applications for development.

Refer also to Statement of Commitment 74 at Section 5.

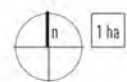


Bushfire Asset Protection Zones (APZ)

Part 3A | Calderwood Urban Development Project



APZ to be determined at point of Subdivision



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Figure 11 – Approved Concept Plan Bushfire Asset Protection Zones

3.9 Access and Transport

3.9.1 Internal Road Network

The approved Concept Plan internal road network hierarchy is illustrated by **Figure 12**.

The internal road hierarchy comprises a sub-arterial boulevard, major collector streets and minor collector streets. A network of local roads will service the residential areas within the site.

Key features of the proposed internal road network are:

- A north-south sub arterial spine road that connects to:
 - the Illawarra Highway in the south opposite Yellow Rock Road; and
 - Marshall Mount Road in the north near North Marshall Mount Road.

The spine road will provide one traffic lane in each direction. It will accommodate bus movements. Due to its sub-arterial function, direct access to the spine road will be limited to permit the free flow of traffic.
- Realignment of Calderwood Road (in part) through the development site. The Calderwood Road alignment is retained to the east and west of the site.
- Major collector roads serving each residential neighbourhood and providing links between sub arterial roads and minor collector roads. These roads will provide one traffic lane in each direction and accommodate bus movements. They will be designed to a lower speed limit (50 kph or lower) with a lower speed environment reinforced through design features and the use of roundabouts at four way intersections.
- Minor collector roads servicing sections of each residential neighbourhood, designed as principal pedestrian links.
- A network of local roads.
- A bridge across Macquarie Rivulet accommodating vehicular, pedestrian and cycle movement. The Macquarie Rivulet Bridge is a key element of the internal movement network and will provide flood free access to the site in the 1:100 ARI event.
- A bridge across Marshall Mount Creek in the location where the main north south road crosses the corridor.
- A culvert crossing at North Macquarie Road.
- A culvert crossing on the new north south road north of Macquarie Rivulet.
- Connection to the external road network via a four arm round about at the location of the existing Illawarra Highway / Yellow Rock Road priority controlled intersection.

The Macquarie Rivulet Bridge approved site has been selected based on a combination of engineering, urban design and environmental issues:

- It is located at the narrowest portion of flood affected land, and will have the least impact on flooding off site on adjoining property.
- It crosses the Rivulet at a natural 'knoll' in the landform and as such is well suited to an approach road on either side of the Rivulet, being naturally elevated with good sight distances.
- The location uses the Yellow Rock Road intersection, rather than other locations along the Illawarra Highway that are much more flood prone than the Yellow Rock Road intersection. This assists in the provision of flood free access across the bridge.

- It is located opposite Yellow Rock Road intersection, where the installation of a roundabout and associated works will provide a safe access to the Illawarra Highway with site distances consistent with RTA standards.

The design standards, including reservation widths, carriageway widths, verge widths and parking bay allowance, for each proposed street type are provided in the approved Consolidated Development Control Strategy included at **Appendix F**.

Modification C12(d) of the approved Concept Plan requires the following external road works to be provided as part of future relevant subdivision approvals:

- The upgrade of Calderwood Road from the site boundary to Tripoli Way extension (referred to in the TMAP as 32); and
- Upgrade of the intersection of the Illawarra Highway and Yellow Rock Road to provide site access (referred to in the TMAP as 37).

Further external road network improvements are required to address future network deficiencies that will result from the cumulative traffic impact of all future development that is likely to occur within the surrounding locality to 2031, including the proposed development. The proponent will make a contribution towards these required road network improvements.

In accordance with **Modification C12 (c)** of the approved Concept Plan, the total cost, apportionment and timing of the following works is to be determined in consultation with the Department of Planning:

- Upgrade of Marshall Mount Road (referred to in the TMAP as 22, 23 & 24);
- Upgrade of Yallah Road from Marshall Mount Road to Haywards Bay Drive (referred to in the TMAP as 25);
- Upgrade to the intersection of Marshall Mount Road and Yallah Rod (referred to in the TMAP as 36);
- Construction of the Tripoli Way Extension (referred to in the TAMP as 14, 15 & 16); and
- The construction of the intersection of Tripoli Way with the Illawarra Highway (referred to in the TMAP as 30).

A copy of the Concept Plan Transport and Accessibility Study & Transport Management and Accessibility Plan (TMAP) is included at **Appendix K**.

Modification C5(1) of the approved Concept Plan requires a detailed traffic assessment to be submitted with the relevant application for subdivision and infrastructure works for each future stage of the project, with regard to:

- (a) Identification of the traffic generated by that particular stage of the development, having regard to the RTA Guide to Traffic Generating Developments.
- (b) Existing capacity of surrounding road network and its ability to accommodate the development proposed within the Stage, including consideration of timing of the construction of the F6 extension and Tripoli Way Bypass.
- (c) Identification of upgrades to the local roads required to accommodate that stage.

Modification C5(2) also requires detailed design plans for the proposed road works to be undertaken as part of each Stage to be submitted with the relevant application for subdivision and infrastructure works, including:

- (a) Plans for the upgrades to be undertaken as works in kind including details of proposed timing / staging for the completion of the works.
- (b) Plans for proposed internal road and parking arrangements, including number of parking spaces, and details of bicycle and pedestrian facilities.

3.9.2 Pedestrian and Cycle

Approved pedestrian and cycle initiatives are shown on **Figure 13**. A network of pedestrian and cycle paths is to be provided within open space / riparian corridors and through bushland as well as along the street network providing a high level of connectivity within and between the future residential neighbourhoods, and linking the Town Centre and Village Centre.

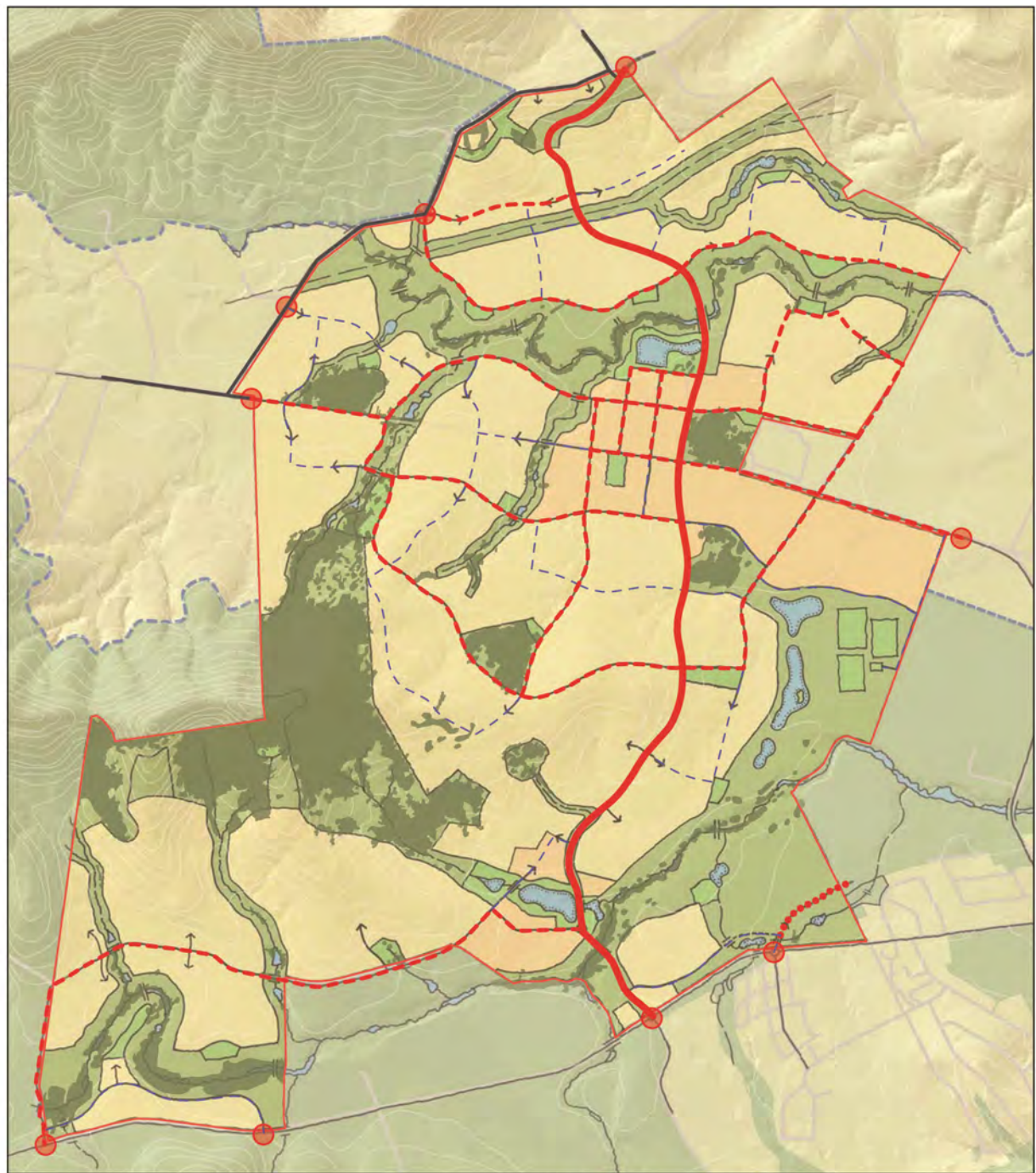
The approved Concept Plan allows for pedestrian and cycle pathways within the approved Riparian Corridor Network, and for these pathways to cross the riparian corridors in places. The final number and location of pathways and corridor crossings is subject to refinement in at the detailed design stages, however will be generally in accordance with the principles illustrated at **Figure 13**.

Refer also to Statements of Commitment 31 and 32 at Section 4.0.

3.9.3 Public Transport

It is proposed to service the development via a network of bus services. Indicative routes, stop locations and 400 m walking catchments are illustrated on **Figure 14**.

In accordance with **Modification C6** of the approved Concept Plan, the bus service map is indicative only. The final design of the bus route network and stop locations will be determined in consultation with Transport NSW and bus service providers.

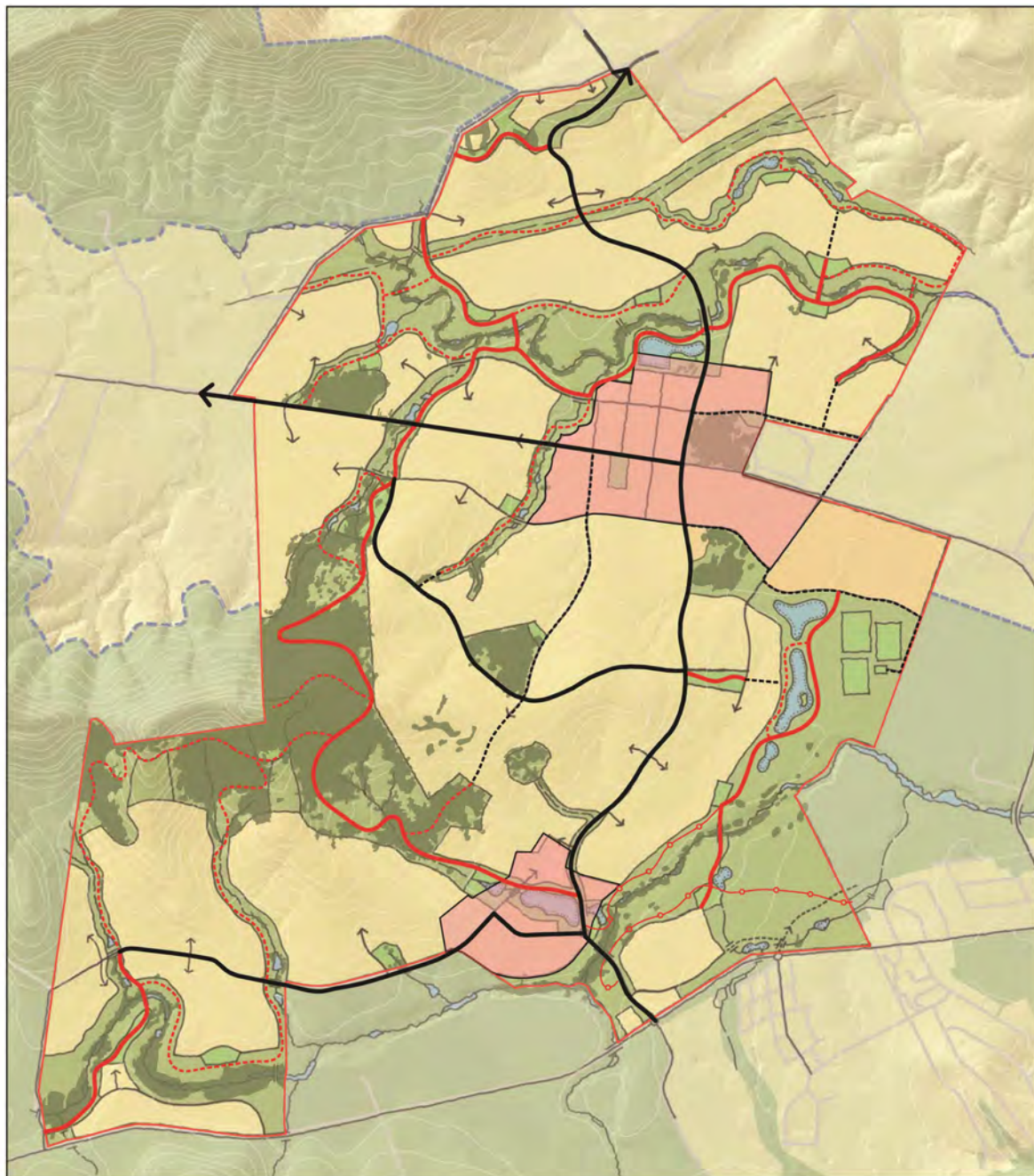


Road Layout and Hierarchy

Part 3A | Calderwood Urban Development Project



Figure 12 – Approved Concept Plan Road Layout and Hierarchy



Proposed Pedestrian and Cycle Network

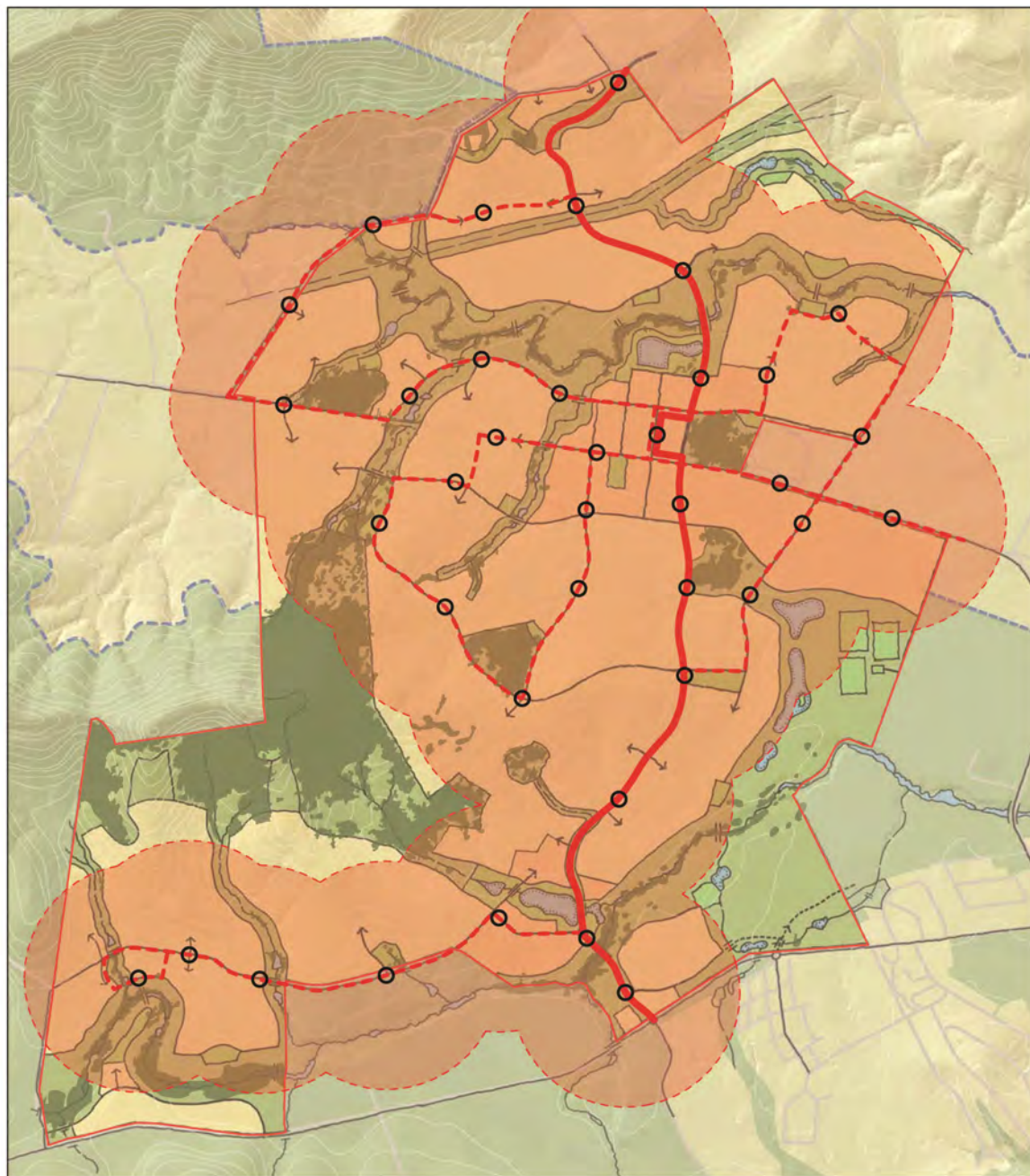
Part 3A | Calderwood Urban Development Project

- | | |
|--|--|
|  Pedestrian/Bicycle Friendly Zones |  Indicative Crossing Points |
|  Primary/Commuter Path in Road Corridors
2.5m sealed |  Subject to Stage 1 PA |
|  Secondary Path in Road Corridors
2.5m sealed | |
|  Primary Trail in Open Space Corridors
2.5m sealed | |
|  Secondary Trail in Open Space Corridors
1.5m gravel | |




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Figure 13 – Approved Concept Plan Pedestrian and Cycle Network

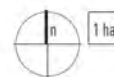


Indicative Bus Service

Part 3A | Calderwood Urban Development Project

-  **Strategic Trunk Bus Route**
To be negotiated with future operator
-  **Approximate Bus Route**
To be negotiated with future operator
-  **Approximate Bus Stop Location**
To be negotiated with future operator
-  **400m Radius from Bus Stops**
Typically 5 minute walking radius
-  **Albion Park Bypass**
Indicative Route

Delfin
Lend Lease



m 0 100 500 1,000

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Figure 14 – Indicative Bus service

3.10 Water Cycle Management

The approved Concept Plan Water Cycle Management Concept is illustrated at **Figure 15**. **Statement of Commitment 44** requires future relevant detailed applications to demonstrate consistency with the approved Concept Plan Water Cycle Management Strategy prepared by Cardno. A copy of the Concept Plan Water Cycle Management Strategy is included at **Appendix L**.

On site detention will be incorporated into the development to ensure that post-development peak flows do not exceed pre-development peak flows. This will be achieved by the dual use ponds serving detention purposes as well as enhanced water quality functionality.

For stormwater quality management, a combination of proprietary litter/sediment traps, bio-retention swales and water quality control ponds / artificial wetlands is proposed. Strategic use of gross pollutant traps will be required to decrease loadings of coarse particulates and improve the amenity of wetlands and ponds.

Water Sensitive Urban Design measures to be incorporated into the development are summarised in **Table 6**.

Table 6 – Water sensitive urban design measures

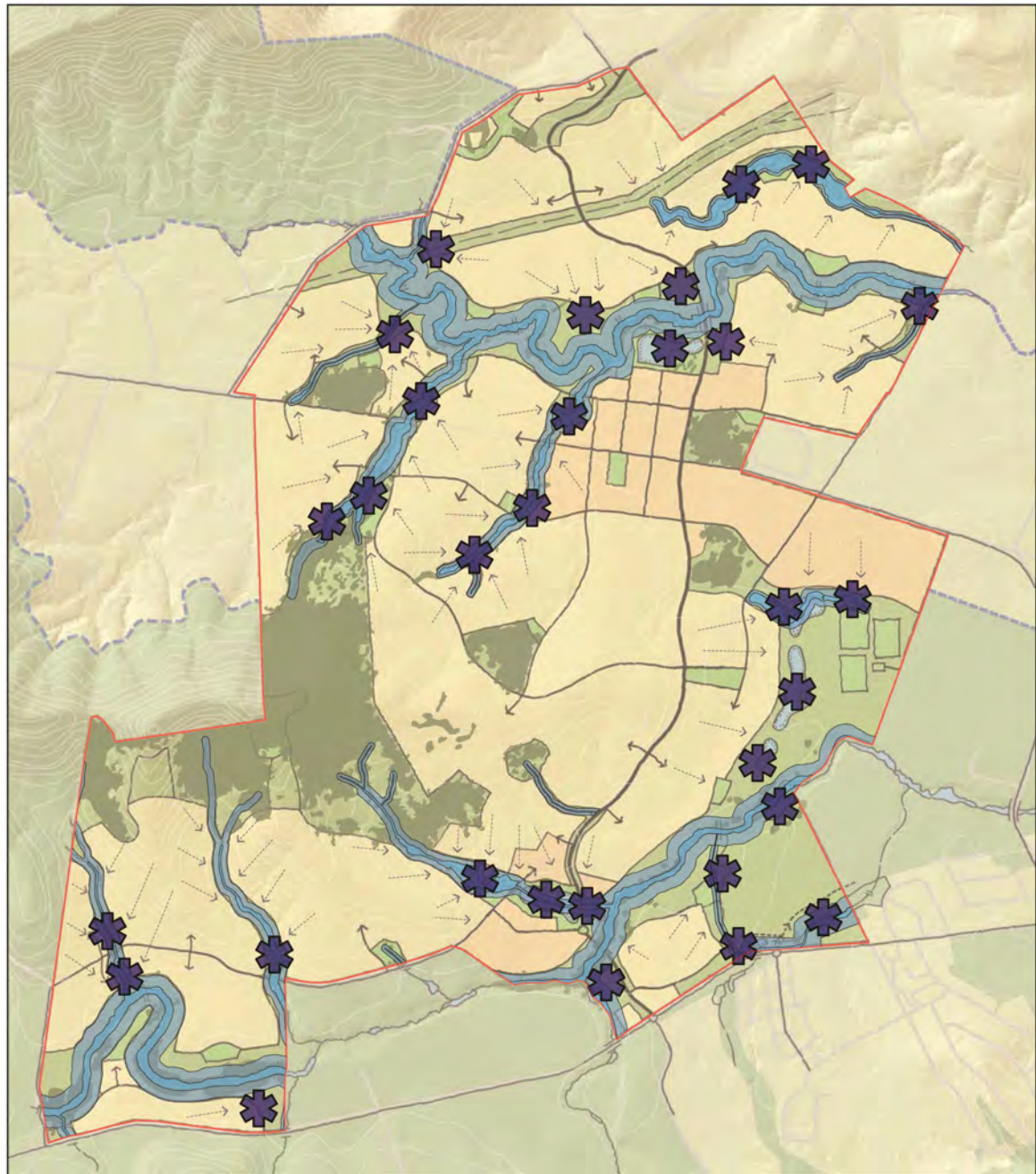
Stormwater volume reduction	Stormwater quality
The use of rainwater tanks on residential lots to provide water for toilet flushing / garden use.	Gross pollutant traps for removal of coarse pollutants and litter
Re-use of water from large roof areas in the commercial area to provide top-up water from ornamental ponds and for toilet flushing.	Wetlands / ponds (deep water zone) for sedimentation and storage of sediments
Use of buffer swales and small wetlands with pervious substrates to enable maintenance of groundwater levels,	Wetlands (macrophyte zone) for physical filtration and capture of fine sediments. Enhanced sedimentation and storage of fine sediments. Biological uptake.
Provision of suitably located large ornamental ponds.	

Wetlands and ponds are located to be sympathetic to the existing environment, and to compliment the proposed urban environment. The conceptual locations of ponds and wetlands are shown on **Figure 15**. Wetlands will be constructed to service each stage of the development as it is released.

The basic configuration of the wetland system consists of a combination of permanent and intermittently inundated ponds and wetlands, mostly positioned so that they lie within the APZs (refer to **Figure 15**). The shape of the wetlands and interlinking bio-swales will be varied to retain mature trees where possible. Aesthetic considerations have also influenced the preferred wetland location. The wetlands have been placed to maximise viewing from the development site, and shaped to create visual interest for residents.




The proposed wetlands and ponds will be designed to treat all urban runoff typically up to the 3 month ARI where the proposed topography permits. In some instances the wetlands and ponds may be required to treat some non-urban areas that are located upstream of urban areas due to topographic limitations. GPTs are proposed for the outlet of each major stormwater discharge point. The primary purpose of these will be to reduce the amount of large particles (principally litter) reaching the creek and wetlands. These units will also however assist (to varying degrees) with improving water quality through removal of sediment.

Refer also to Statements of Commitments 45 to 48 at Section 5.

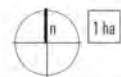


Water Cycle Management

Part 3A | Calderwood Urban Development Project

-  Indicative location of possible water bodies
Both on-line and off-line ponds serving ornamental, water quality and water detention purposes
-  Riparian Corridor - Top of Bank
Based on ground truth and ALS survey data
-  Core Riparian Zone (CRZ)
Size based on stream order

Delfin
Land Lease



0 100 500 1,000

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Figure 15 – Approved Concept Plan Water cycle Management Concept

3.11 Flood Management

The Floodplain Mitigation Strategy for the project is centred around a holistic merit-based assessment of floodplain mitigation options in accordance with the Flood Plain Development Manual 2005. In accordance with **Modification B2** of the Concept Plan approval, this Consolidated Concept Plan includes an updated Flood Study and Floodplain Risk Management Study incorporating the matters detailed at Modification B2(1) to (6). Refer to **Appendices N and O**.

The approved Flood Mitigation Plan for the project is shown at **Figure 16**.

The approved Flood Mitigation Plan incorporates a number of measures to mitigate flood impact. Specifically it is proposed to:

- Optimise floodplain hydraulics by reshaping areas of the existing floodplain in the areas nominated on **Figure 16** as 'increase elevation' and 'decrease elevation'.
- Construct two new vehicular bridges providing flood free access during the 1:100 AEP event, one across Marshall Mount Creek and one across Macquarie Rivulet.

The approved Flood Mitigation Plan has been developed based on modelling that assumes potential revegetation may occur within the existing riparian corridors within nominated locations as shown on **Figure 16**. Selective planting of carefully selected vegetation species may occur within the locations identified on **Figure 16** subject to demonstration that no adverse impact on flood levels results.

In accordance with the Floodplain Development Manual and s.117 Direction 4.3 the 1% AEP flood level (incorporating climate change) plus 500 mm freeboard has been adopted as the Flood Planning Level for the project.

The majority of land within the development site will be located on land above the PMF and as such is not subject to flood related planning controls or located on flood prone land.

All new bridge decks will be located above the 1% AEP flood level and will allow uninterrupted road traffic throughout the development (and beyond) during events up to an including the 1% AEP flood.

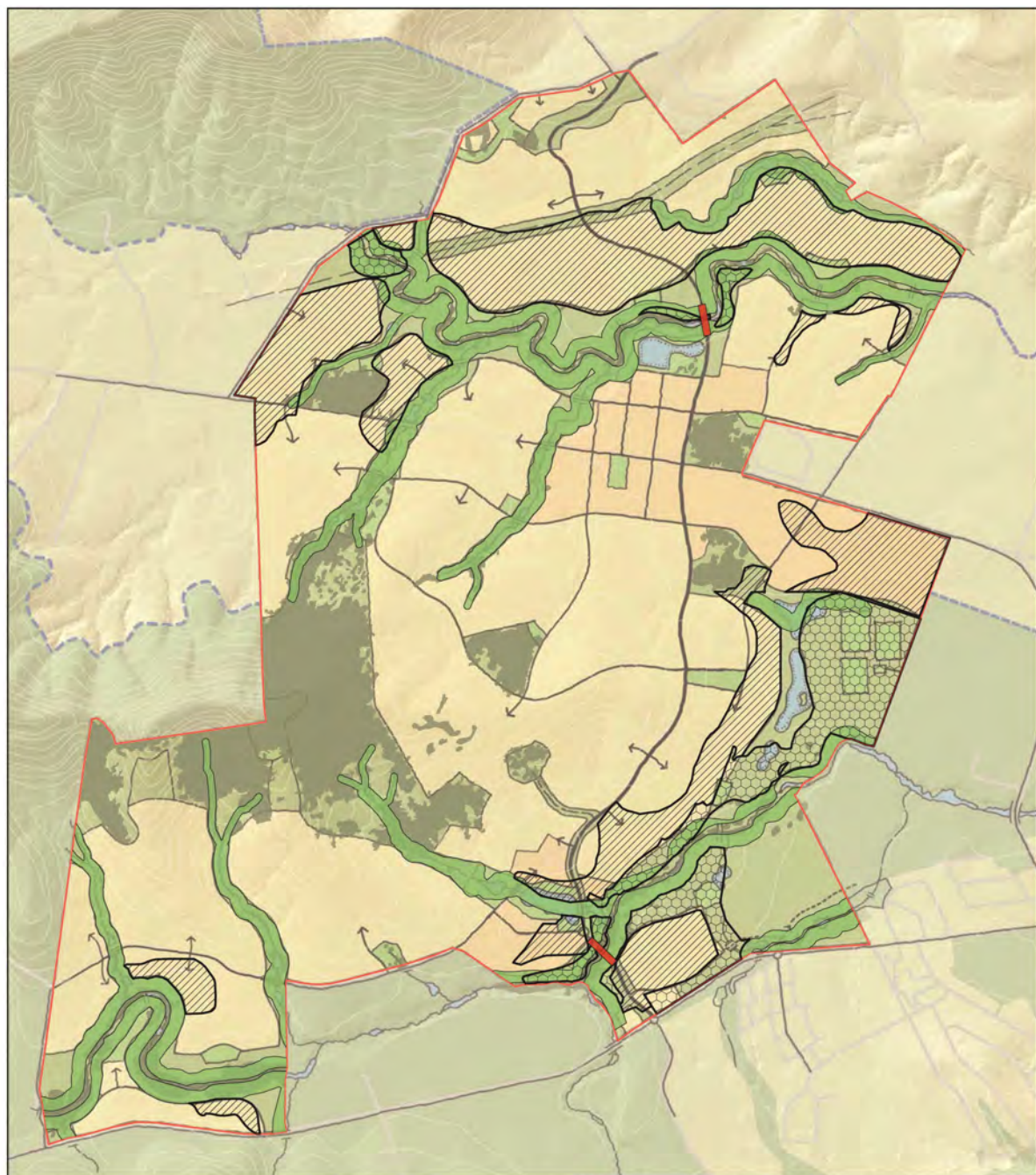
The approved Concept Plan allows for the import and placement of fill within the areas shown as 'Floodplain Regrade - Increased Elevation' on **Figure 16** over the lifespan of the project as suitable fill becomes available.

Note: physical works are not approved under the Concept Plan and further development approvals may be required.

Any staging of earthworks within the approved earthworks strategy will demonstrate no unacceptable interim flooding impacts external to the site boundary.





Modification C7 of the Concept Plan Approval requires a flood impact statement to be submitted for any future applications proposing development on flood liable land.

Refer also to Statements of Commitment 41 to 44 at Section 5.

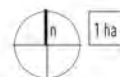


Flood Mitigation Plan

Part 3A | Calderwood Urban Development Project

-  Floodplain regrade - increase elevation
-  Floodplain regrade - decrease elevation
-  Proposed Increased Roughness
-  Proposed Road Bridge

Delfin
Land Lease



Subject to verification and detailed site survey 1:20,000 @ A4 10m Contours February 2011

Figure 16 – Approved Concept Plan Flood Mitigation Plan

3.12 Infrastructure Servicing

The overall utility services strategy for the whole of the development is illustrated at **Figure 17**. Utilities infrastructure servicing will require both on and off site works and upgrades in stages over the life of the development.

An Infrastructure Services and Facilities Implementation and Delivery Proposal prepared by DLL is included at Section 3.18 below. The proposal provides further detail with respect to the manner in which utilities services infrastructure will be delivered and staged.

Statement of Commitment 27 requires proposals in respect of the supply of water, sewerage, stormwater, gas, electricity and telephone services within the site, including the adoption of technologies to reduce the demand or need for servicing and the supply of sustainable services, to be generally in accordance with the Engineering Infrastructure and Utility Services Study prepared by Cardno. A copy of the Engineering Infrastructure and Utility Services Study is included at **Appendix J**.

Sewer

The Sewer Concept Plan is illustrated by **Figure 18**. The Sewer Concept Plan details the location and sizing of proposed sewer pump stations, rising mains and gravity mains.

All sewer reticulation from the development will be connected to the existing 600 diameter gravity feed sewer main (Albion Park low-level carrier main) that runs across the south eastern corner of the site. The carrier main will convey sewage flows through to the existing Shellharbour STP.

After connection of the first 500 lots various off site system amplifications will be required to cater for subsequent stages of the development. Sydney Water will fund the upgrade and duplication of the external sewer reticulation infrastructure to service the project including:

- Upgrade of existing sewer pump stations SPS 505, 500 and 498;
- Duplication of rising mains 505, 500 and 498.

Sydney Water planned upgrades to the Shellharbour STP will accommodate the proposed development.

In accordance with **Modification C11** of the approved Concept Plan the Overall Sewer Concept Plan map is indicative only. The sewer requirements for each future stage are to be determined in consultation with the relevant authority as part of each application for subdivision works.

Water

The Concept Plan Potable Water Strategy for the project is illustrated by **Figure 19**.

The Albion Park WS0296 water reservoir is to provide a temporary supply of potable water to the development for up to the first 500 lots or equivalent demand. An extension from the existing water main located in Sophia Street, Albion Park is to be constructed to connect into the subject site.

For long term water supply, construction of a 20ML reservoir at Marshall Mount is required. SWC owns a site off Mountainview Terrace, which has been identified for this reservoir.

A new 375mm diameter trunk main will be constructed from the existing Southern Towns Trunk Main at Yallah to the new reservoir site. The new Marshall Mount reservoir will be reticulated to the development site along Marshall Mount Road.

Sydney Water will fund the construction of the lead-in watermain works and the proposed Marshall Mount reservoir.

In accordance with **Modification C11** of the approved Concept Plan the Potable Water Strategy map is indicative only. The water requirements for each future stage are to be determined in consultation with the relevant authority as part of each application for subdivision works.

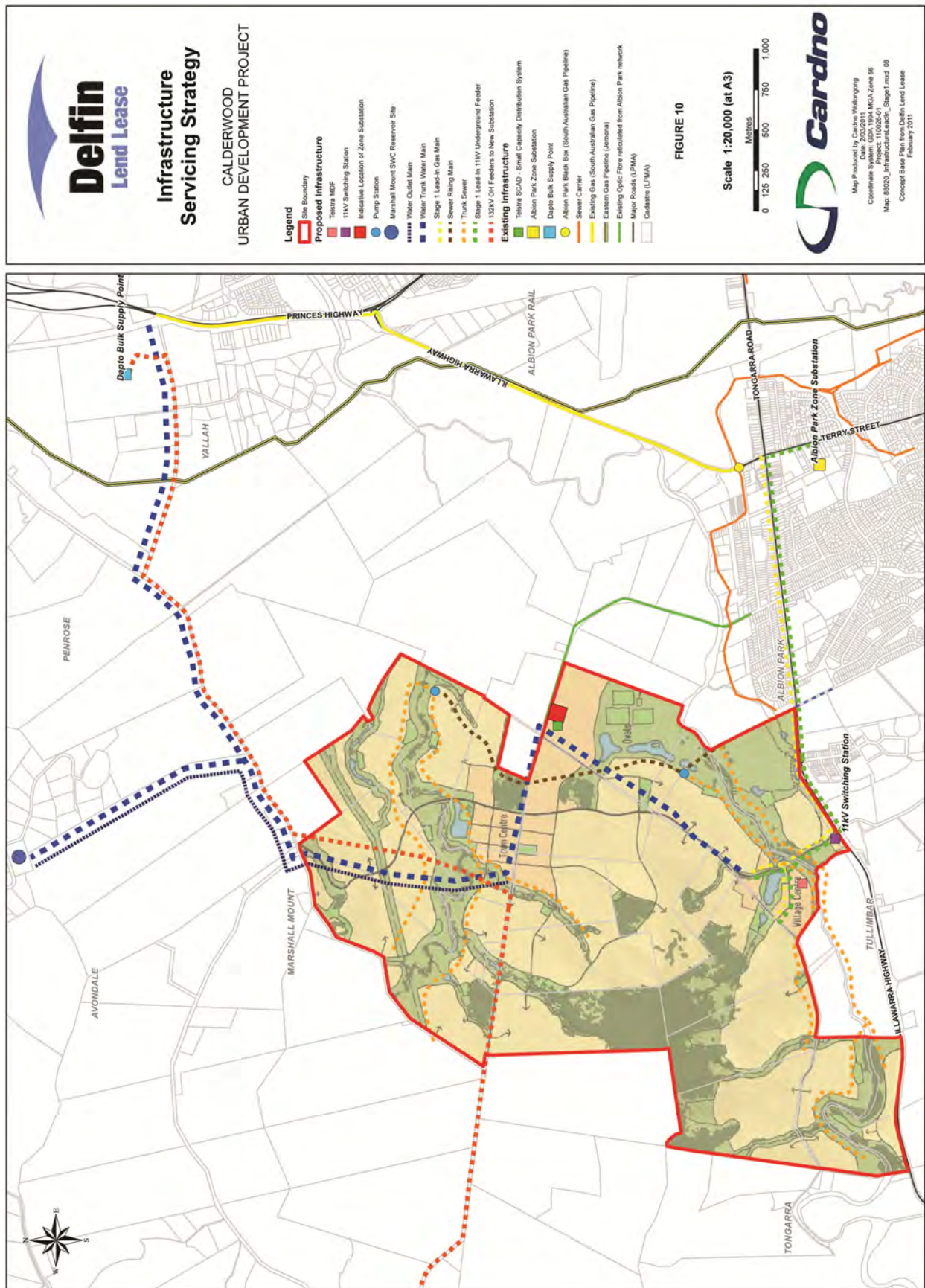


Figure 17 – Infrastructure servicing strategy (Source: Cardno, 2010)

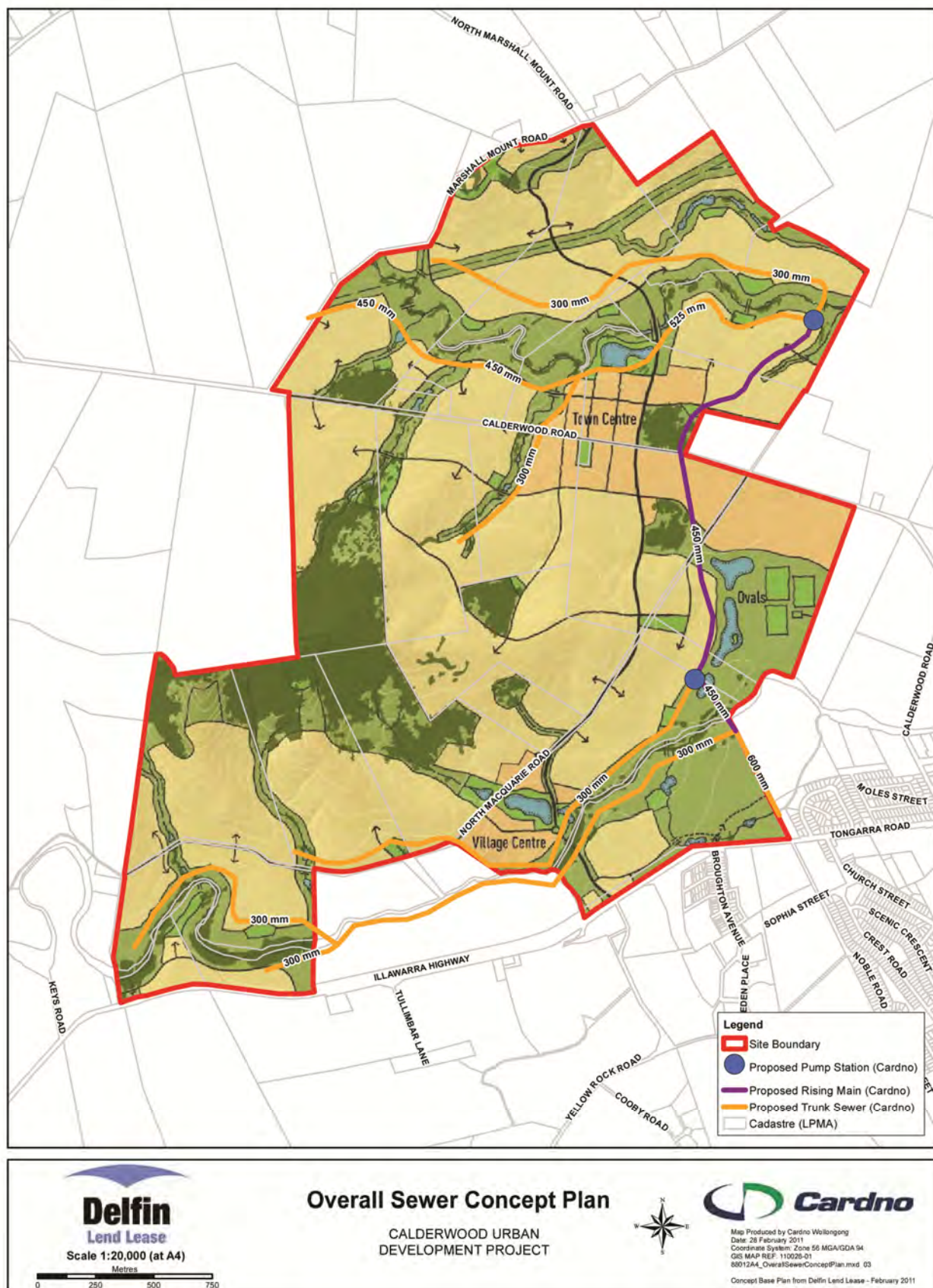


Figure 18 – Overall Sewer Concept Plan (Source: Cardno 2010)

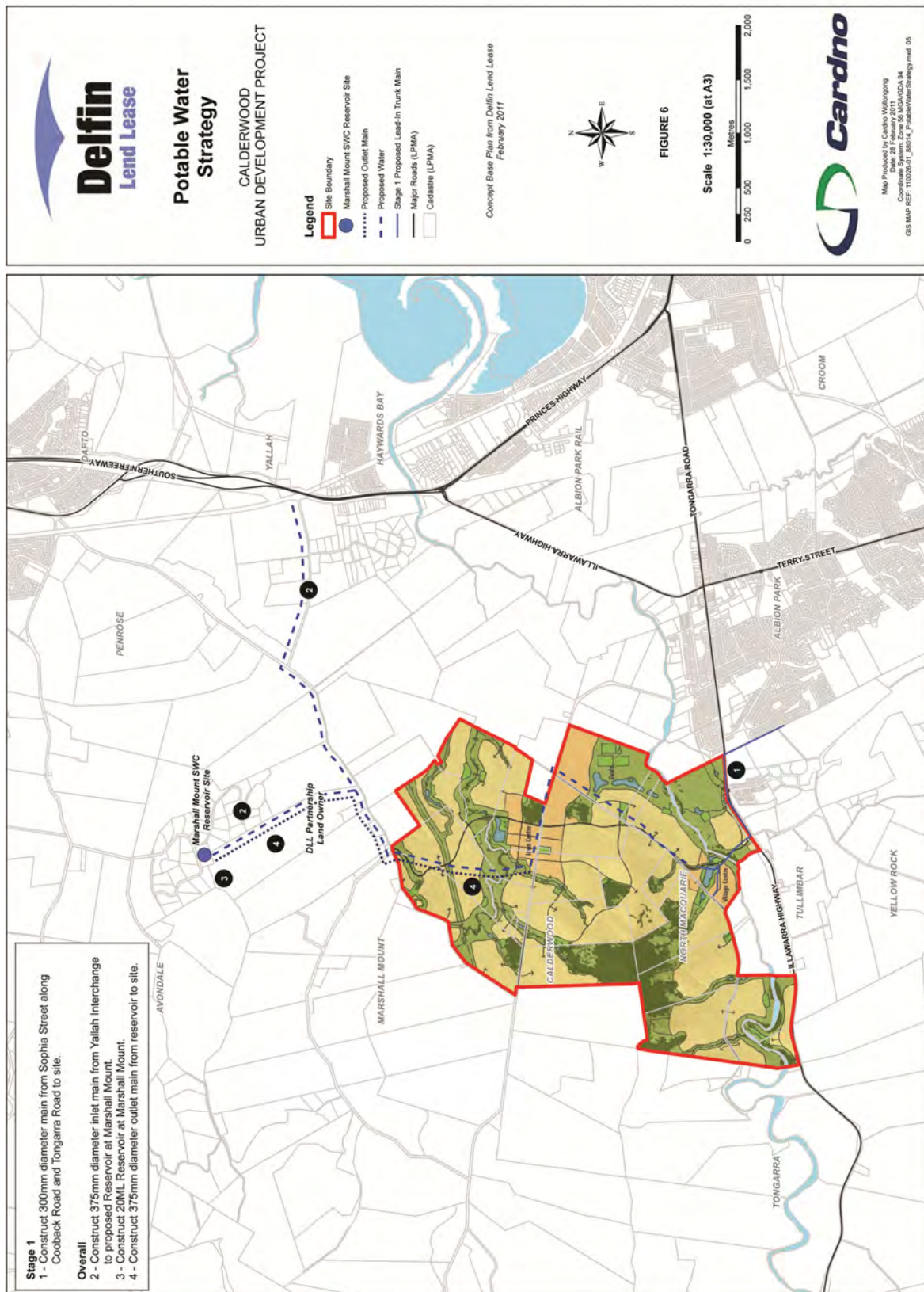


Figure 19 – Concept Plan Potable Water Strategy (Source: Cardno, 2010)

Electricity

The initial stages of the development will be supplied from the existing DS at Albion Park. An 11kV underground feeder will be established to the site from the existing DS at Albion Park (located on Russell Street approximately 100 metres from Terry Street).

A new zone substation is to be provided for electricity supply. A parcel of land approximately 100m x 100m is to be provided to Integral Energy for this purpose. Integral Energy will fund the zone substation and incoming feeders.

The location of the parcel of land is subject to final resolution, however Integral Energy has advised that a suitable location for the zone substation site would be on Calderwood Road approximately 1km east of Marshall Mount Road as this is approximately the electrical load centre of the site.

From the zone substation, a distribution network will be established to service the site. The network will include padmount substations strategically positioned throughout the network to reduce the electricity load down to residential and commercial usage.

Waste

Shellharbour and Wollongong Councils will extend existing waste removal/recycling services to the site.

Natural gas

Initial gas supply provision to the first stage of the development will be obtained by reticulating a gas main to the site from the Albion Park 'black box' located on the corner of Taylor Road and the Illawarra Highway (1.7 km east of the site). The provision of gas supply to the development progressively in stages is being investigated by Jemena.

Gas reticulation will be underground in a shared trench arrangement with electricity and communication reticulation.

Telecommunications

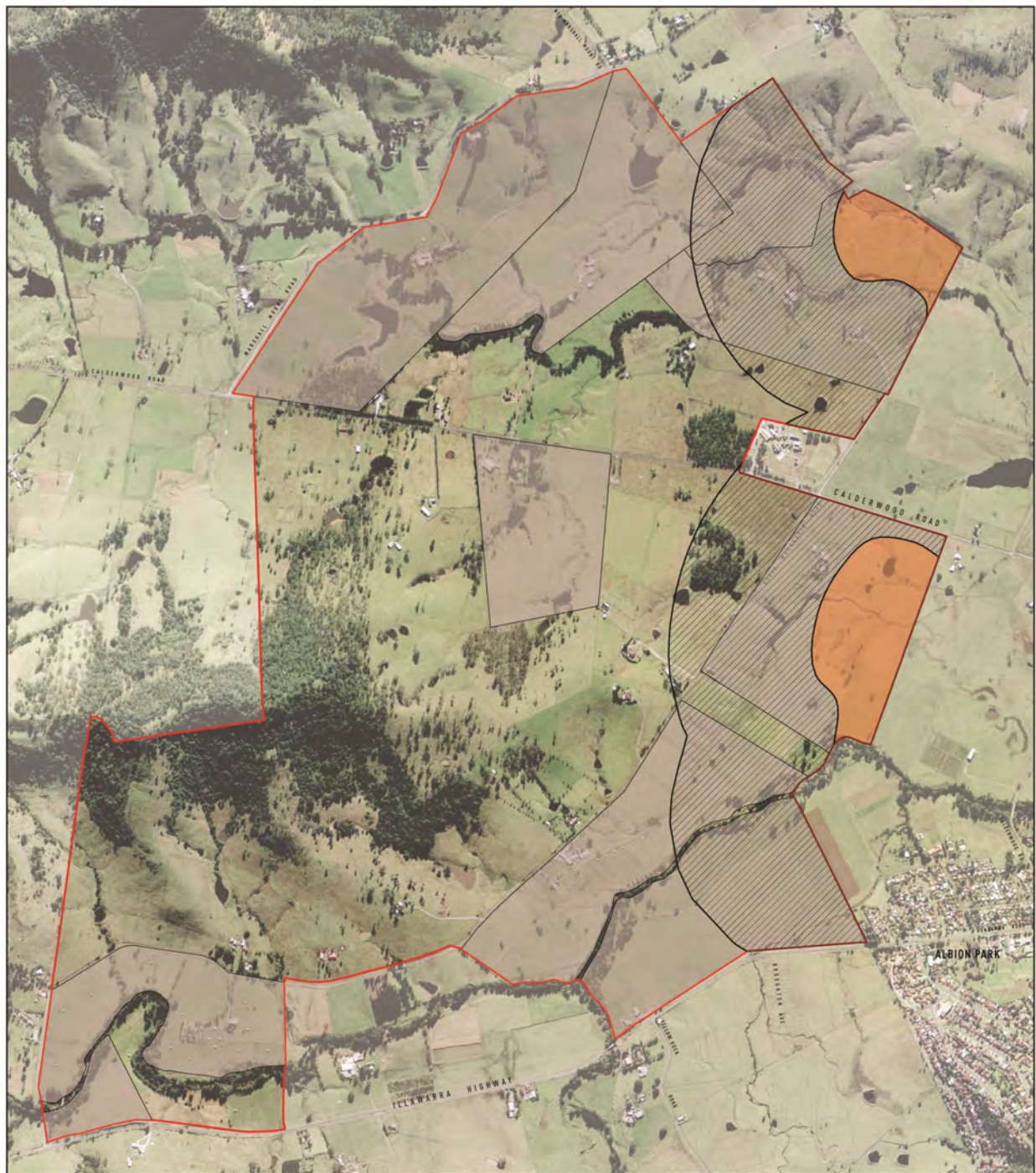
Consistent with the National broadband network FTTP will be reticulated into the site from the Small Capacity Distribution System located at the corner of North Macquarie and Calderwood Roads.

The future Village Centre is to accommodate a Telstra Mains Distribution Frame to be utilised as a hub for all lines infiltrating into the centre to distribute back and out to the external Telstra system.

3.13 Acid Sulphate Soils




At the time of any relevant detailed application, maximum excavation depths are to be identified (for any development involving excavation) within the land shown on **Figure 20** below (this Figure is Figure 18 from the March 2010 EAR as referenced at **Statement of Commitment 66 at Section 5**).

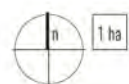
During the detailed design process, potential conflict with Potential Acid Sulphate Soils is to be avoided wherever possible by adoption of the site specific management strategies identified at **Statement of Commitment 67 at Section 5**.



Acid Sulphate Soils Map

Part 3A | Calderwood Urban Development Project

-  Class 4 Acid Sulphate Soils
-  Class 5 Acid Sulphate Soils
-  Land Parcel Requiring Further Investigation



Subject to verification and detailed site survey 1:20,000 IG A4 10m Contours February 2010

Figure 20 – Areas of potential acid sulphate soils

3.14 Geotechnical

In accordance with Statement of Commitment 68 development within the areas shown as 'Less Stable Land' and 'Moderately Unstable Land' on **Figure 21** is to demonstrate good engineering practice for hillside slopes. Refer to **Statement of Commitment 68 at Section 4.0**.



Ground Stability

Part 3A | Calderwood Urban Development Project

- Essentially Unstable Land
- Moderately Unstable Land
- Less Stable Land
- Stable Land - Minor Area of Slope Instability



Subject to verification and detailed site survey 1:20,000 @ A4 10m Contours February 2010

Figure 21 – Ground stability

3.15 Contamination

Field investigation is to be undertaken at the time of any future application relation to land within an 'Area of Concern' identified on **Figure 22** below. **Refer to Statement of Commitments 71 to 73 at Section 5.**

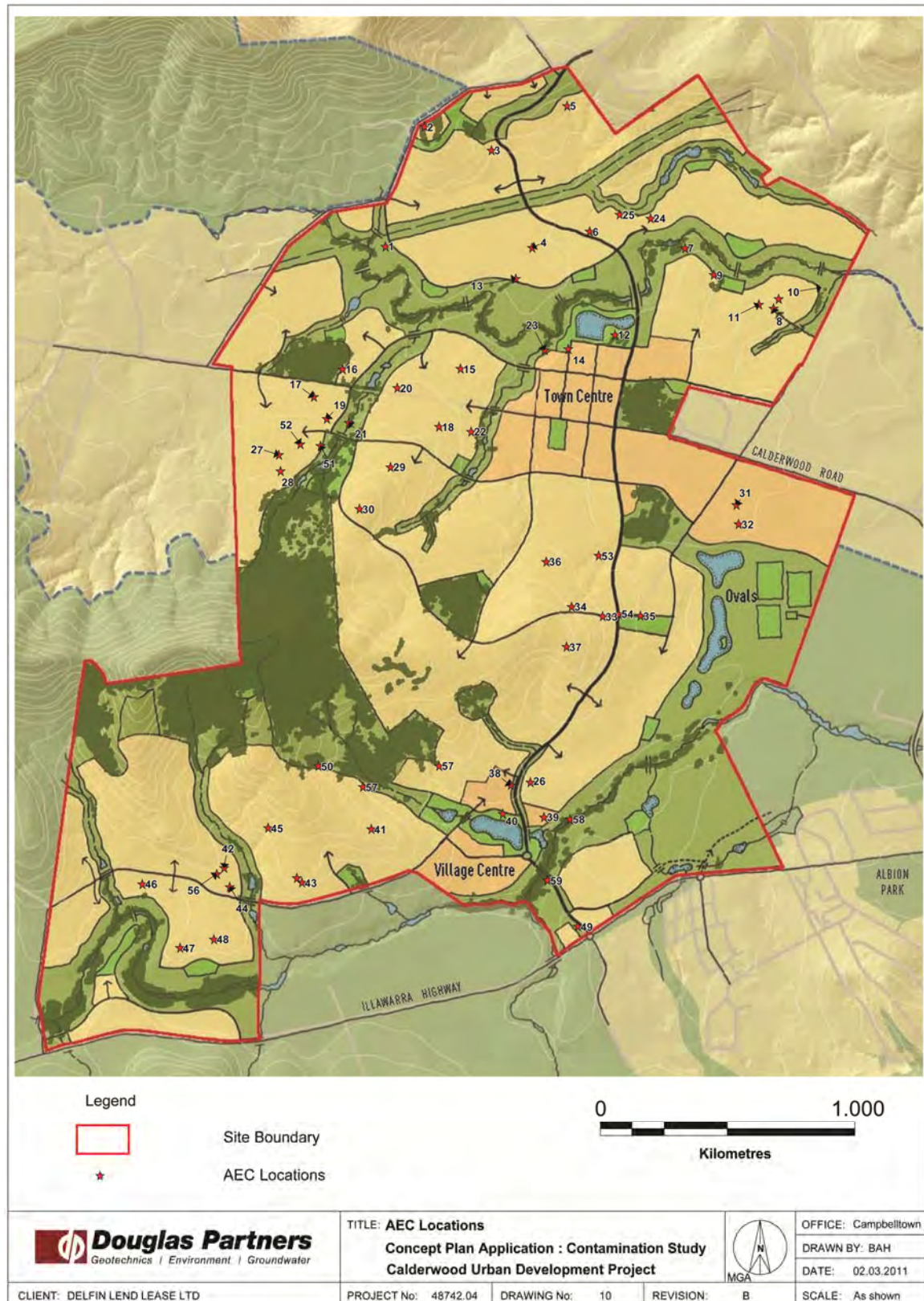


Figure 22 – Identified 'Areas of Concern'

3.16 Heritage

European Heritage

The approved Concept Plan provides for the retention of Marshall Mount House and Barn and the Marshall Mount Methodist Cemetery. No other buildings, structures or features on the site have been determined to be of European heritage significance. Accordingly, the approved Concept Plan allows for the removal of all structures etc other than Marshall Mount House and Barn and the Marshall Mount Methodist Cemetery.

Note: physical works are not approved under the Concept Plan and further development approvals may be required.

Statements of Commitments 57 to 67 set out the approved Concept Plan requirements with respect to European Heritage.

Indigenous Heritage

Statements of Commitments 49 to 51 at Section 5 identify the requirements for the relevant future detailed stages of the project in relation to Indigenous Heritage. The areas referenced at Statements of Commitment 49 to 51 are shown in the Aboriginal Archaeological and Cultural Heritage Assessment included at **Appendix T**.

Refer also to **Statements of Commitment 52 to 56**.

3.17 Community Infrastructure

It is proposed to provide the following community infrastructure within the development:

- Land and building (fit out) for a large multi purpose community resource centre.
- Co located branch library.
- Temporary community centre.
- Community development strategy.
- Land for 2 public primary schools, along with a special needs unit.
- Land for 1 public high school.
- One private school (primary / secondary).
- Up to 3 childcare centres.

No specific requirements have been identified by relevant agencies for health, emergency services or Police services.

Modification C12 of the Concept Plan approval provides that requirements for local community infrastructure facilities are to be generally in accordance with the following principles:

- A temporary community centre (approximately 120 – 150 m²);
- A permanent community centre (approximately 900 m²), including the dedication of 4,000 m² land; and
- Branch library (approximately 626 m²) adjoining the community centre.

The State Voluntary Planning Agreement (refer to copy at **Appendix D**) requires the provision of a total of 13 hectares of land to the Department of Education and Training to accommodate 1 high school site of 6 hectares and 2 primary school sites of 3 hectares each, and a special needs unit of 1 hectare co-located with one of the primary schools.

The preferred location of school sites, consistent with the proposed State contributions for education lands is shown on **Figure 23**.

Details of the proposed community infrastructure provision are provided at **Appendices I, J and R**.

Refer also to Statements of Commitments 75 to 77 at Section 5.

3.18 Project Staging

Commencement of the project is targeted for FY2012. Development will continue progressively until 2036/38, when all dwellings will be completed and occupied, subject to market take up.

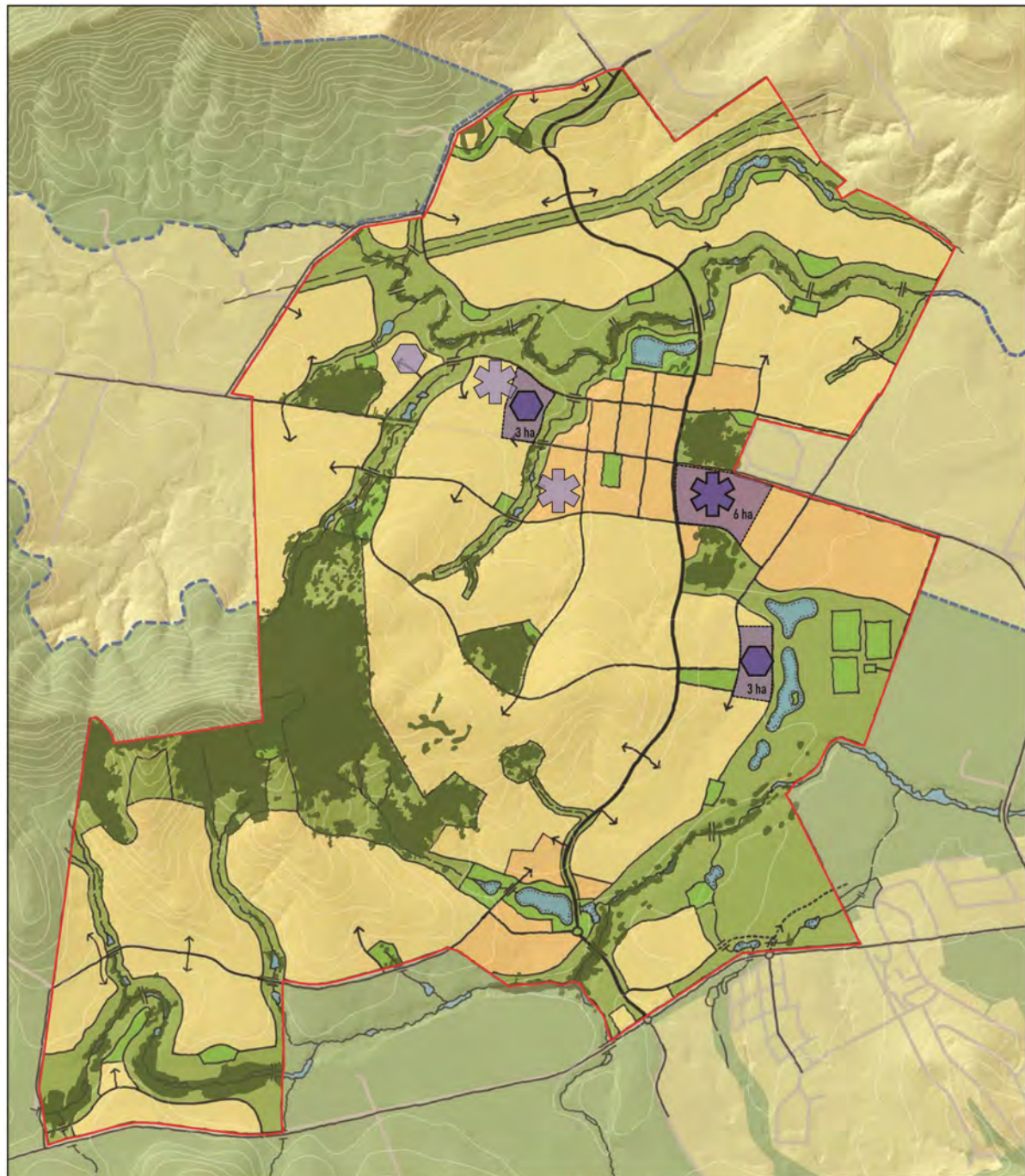
The actual annual and cumulative yield figures will be subject to market take up, and may change over the course of the project. An average annual lot production of approximately 200 lots is anticipated.

The delivery of transport, infrastructure, utility servicing and community and social infrastructure is detailed below.

Modification C1 of the approved Concept Plan requires a detailed staging plan to be submitted to the relevant consent authority with each Stage application for subdivision and infrastructure works.

The staging plan is to demonstrate with each application that the proposed stage or precinct represents orderly and coordinated development such that:

- (a) It may be serviced by existing infrastructure, or is capable of being serviced;
- (b) Access for vehicles and pedestrians is available and can be made available; and
- (c) An update of likely timing of future stages and infrastructure required to support future stages.



Possible School Sites

Part 3A | Calderwood Urban Development Project





-  Preferred High School Location
6 ha allocation
-  Preferred Primary School Location
3 ha allocation
-  Alternative High School Locations
-  Alternative Primary School Locations



Figure 23 – Possible School Sites

3.19 Implementation and Delivery Proposal

An Infrastructure, Services and Facilities Implementation and Delivery Proposal prepared by DLL is provided at **Figure 24**.

It coordinates information from a number of technical supporting documents and DLLs delivery expertise and presents a comprehensive proposal for the implementation and delivery of infrastructure, services and facilities for the Calderwood Urban Development Project.

The Calderwood Urban Development Project has sufficient scale and diversity to justify the provision of a range of new facilities and services and to be reasonably self contained in terms of local and district social infrastructure.

DLL has undertaken a significant investigation into how the site can be serviced. The infrastructure and servicing strategy aims to:

- Demonstrate a viable implementation strategy with timely provision of facilities and services;
- Control of land required for infrastructure delivery;
- Leverage ready access to existing infrastructure capacity, provision of structural enhancements to the Regional infrastructure base and potential synergies with other release areas;
- Minimise implementation risk and cost to Government;
- Utilise DLL delivery experience and skill base to ensure innovation and flexibility in design and use of facilities; and
- Enhance existing services and contribute to a wider regional network of community resources.

The need for new services and infrastructure presents an opportunity to:

- Provide infrastructure and high quality new facilities in a timely manner based on leading practice sustainability principles that are tailored to the needs of the future community;
- Delivery sustainable infrastructure solutions such as the Fibre to the Home/Premise and sustainable funding, management and maintenance arrangements; and
- Guide the provision of integrated service delivery, efficient use of resources and equitable access through shared or co-located facilities, joint use arrangements and convenient locations.

The delivery schedules have been prepared following ongoing and formal consultation with Shellharbour and Wollongong Councils, Department of Education and Training, Ministry of Transport, Roads and Traffic Authority, Human Services Agencies, and each of the servicing authorities including Sydney Water, Telstra, Integral Energy and Jemena.

Staging sequences have been created to demonstrate that the area can be developed logically and economically with the full suite of utility services.

They also demonstrate the manner in which the site can be serviced independently of the WDRA.

The delivery schedules contain delivery methodologies with estimates of timeframes. The delivery schedules are reproduced on the following pages.

Outlines of proposed local contributions schedules for the Shellharbour and Wollongong LGAs are included at **Appendix I**.

Refer also to Statements of Commitments 5 to 12 at Section 5.

Calderwood Urban Development Project
Infrastructure, Service and Facilities Delivery Program

Type of Facility/Service/Infrastructure					Details	Delivery Responsibility	Method of Delivery	Land	Preliminaries	Calderwood Urban Development Project (4,800 lots) DLL landholdings																								
Dwelling No. (Cumulative)										2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
KEY INITIAL MILESTONES																																		
Site Works Commence					Note Key Milestone	NA	NA	NA																										
Commence engagement with local services providers					Note Key Milestone	NA	NA	NA																										
First Resident					Note Key Milestone	NA	NA	NA																										
Public transport commences					Operator/ NSW Transport and Infrastructure Agreement	Operator	NA	NA																										
1. COMMUNITY AND EDUCATION																																		
1a. Community Facilities and Initiatives																																		
Shellharbour City Council																																		
Temporary community centre					Located in village centre.	DLL VPA	WIK																											
Community Centre (incorporating branch library)					Located town centre, land, building approx. 900 m2, furniture and fittings	DLL WIK VPA	WIK	0.4 ha																										
Branch library					Located town centre, co-located Community Centre land, building approx 625 m2, furniture and fittings.	DLL WIK VPA	WIK	0.2 ha																										
Community Development Worker					5 year full time equivalent	DLL WIK VPA	WIK	NA																										
Resident Information Kit					Information kit for new households.	DLL WIK VPA	WIK	NA																										
Community initiatives Fund					To support new community.	DLL WIK VPA	WIK	NA																										
1b. Education																																		
Public Primary School (1)					Land dedication by DLL; Buildings by Government.	DLL VPA	WIK	3 ha																										
Public Primary School (2) and Special Needs					Land dedication by DLL; Buildings by Government.	DLL VPA	WIK	4 ha																										
Public High School					Land dedication by DLL; Buildings by Government.	DLL VPA	WIK	6 ha																										
Private School opens (Primary / High)					Commercial agreement DLL/Operator	DLL Commercial Agreement	NA	NA																										
1c. Integrated Children's Services Centre/Childcare Centres																																		
Childcare Centre (1) opens					Commercial agreement DLL/Operator	DLL Commercial Agreement	NA	NA																										
Childcare Centre (2) opens					Commercial agreement DLL/Operator	DLL Commercial Agreement	NA	NA																										
Childcare Centre (3) opens					Commercial agreement DLL/Operator	DLL Commercial Agreement	NA	NA																										
2. RETAIL / COMMERCIAL CENTRES																																		
Stage 1 Village Centre					Commercial agreement DLL/Operators	DLL Commercial Agreements	NA	NA																										
Stage 1 Town Centre					Commercial agreement DLL/Operators	DLL Commercial Agreements	NA	NA																										
Stage 2 Town Centre					Commercial agreement DLL/Operators	DLL Commercial Agreements	NA	NA																										
3. OPEN SPACE AND PUBLIC DOMAIN																																		
3a. Shellharbour LGA Open Space																																		
L4 – L13 Local Parks (10 @ 0.30 ha each)					Embellishment standards to Council's local park standards and include	DLL VPA	WIK	3.0 ha																										

Type of Facility/Service/Infrastructure Dwelling No. (Cumulative)	Details	Delivery Responsibility	Method of Delivery	Land	Calderwood Urban Development Project (4,800 lots) DLL landholdings															
					Preliminaries	2011	2012	2013	2014	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
						50	180	600	1000	1500	2000	2400	2800	3300	3700	4200	4600	4800		
D2 District Park (1 ha)	pedestrian/cycle pathways, play space, seating/tables/bins, signage, landscape. Embellishment standards to Council's district park standards and include pedestrian/cycle pathways, playground, seating/tables/bins, shade structure, signage, enhanced landscape standard. As above.	DLL VPA	WIK	1.0 ha																
D3 District Park (1 ha)	As above.	DLL VPA	WIK	1.0 ha																
D4 District Park (3.80 ha)	As above.	DLL VPA	WIK	3.80 ha																
D5 District Park (1 ha)	As above.	DLL VPA	WIK	1.0 ha																
CW2 Citywide Park (Urban) (2.47 ha)	Lakeside urban park level of embellishment to district park plus outdoor artworks.	DLL VPA	WIK	2.47 ha																
CW3 Citywide Park (Johnston's Spur) (2.64 ha)	As above.	DLL VPA	WIK	2.64 ha																
S1 Sports Fields (15.98 ha)	Sporting grounds, amenities building, training facilities, lighting, vehicular access and parking.	DLL VPA	WIK	15.98 ha																
Paths in Open Space (Primary and Secondary)	Linear metres to suit design.	DLL VPA	WIK	3.61 ha																
C6 – C17 Corridors	Mix of passive recreation, open grassed areas, some regeneration.	DLL VPA	WIK	105 ha																
ER1 Environmental Reserve (3.39 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	3.39 ha																
ER2 Environmental Reserve (4.20 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	4.20 ha																
ER3 Environmental Reserve (4.20 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	4.24 ha																
ER4 Environmental Reserve (4.95 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	4.75 ha																
CB1 Citywide Bushland Zones (44.98 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	44.98 ha																
CB2 Citywide Bushland Zones (16.13 ha)	Mix of regeneration, weed control, possible fencing, pathways.	DLL VPA	WIK	16.13 ha																
PR3 Paths in Road Corridors (Primary and Secondary)	Linear metres to suit design.	DLL VPA	WIK	2.77 ha																
3b. Wollongong LGA Open Space																				
L1 – L3 Local Parks (3 @ 0.30 ha each)	Embellishment standards to Council's standards and include pedestrian/cycle pathways, play space, seating/tables/bins, signage, landscape.	DLL VPA	WIK	0.9 ha																
D1 District Park (1 ha)	Embellishment standards to Council's district park standards and include pedestrian/cycle pathways, playground, seating/tables/bins, shade structure, signage, enhanced landscape standard.	DLL VPA	WIK	1.0 ha																
CW1 Citywide Park (Heritage) (1.72ha)	Parkland with focus on natural environment and cultural heritage elements. Embellishment as above with potential for viewing decks and environment/heritage interpretation.	DLL VPA	WIK	1.31ha																
PO1 Paths in Open Space (Primary and Secondary)	Linear metres to suit design.	DLL VPA	WIK	0.82 ha																
C1 – C5 Corridors	Mix of passive recreation, open grassed areas, some regeneration.	DLL VPA	WIK	49.04 ha																
PR1 Paths in Road Corridors (Primary and Secondary)	Linear metres to suit design.	DLL VPA	WIK	0.32 ha																
3c. Public Domain and Landscaping																				
Public domain and streetscape	DLL through sub-division process	DLL	WIK																	
4. TELECOMMUNICATIONS																				
Lead-in network design	DLL/Operator	DLL	Commercial Agreement																	
Extend off existing Telstra SCAD	Commercial agreement DLL/Operator	DLL	Commercial Agreement																	
Construct MDF in dedicated structure	Commercial agreement DLL/Operator	DLL	Commercial																	

Type of Facility/Service/Infrastructure Dwelling No. (Cumulative)	Details	Delivery Responsibility	Method of Delivery	Land	Calderwood Urban Development Project (4,800 lots) DLL landholdings															
					Preliminaries	2011	2012	2013	2014	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Reticulation of fibre to the home/premise	Commercial agreement DLL/Operator	DLL	Agreement																	
Reticulation of telecommunications	DLL through sub-division process	DLL	Commercial Agreement																	
5. ELECTRICITY																				
Substation site identified	DLL/Integral	DLL/Integral	NA																	
Lead-in and network design	DLL/Integral network planning group.	DLL/Integral	NA																	
Stage 1 Albion Park Zone Substation and construct 11kV lead-in conductor	Integral	DLL/Integral	DLL/Integral																	
Stage 2 Co-ordinate transfer of Calderwood Zone Substation land to Integral Energy	DLL	DLL/Integral	Commercial Agreement																	
Order materials, design and construction Calderwood Zone Substation	Integral	Integral	Integral																	
Construct 132kV feeder connection to Calderwood Zone Substation	Integral	Integral	Integral																	
Reticulation of electricity	DLL through sub-division process	DLL	Commercial Agreement																	
6. NATURAL GAS																				
Extend secondary gas main	Jemena	Jemena	Jemena																	
Lead-in and network design	DLL/Jemena network planning group	Jemena	Jemena																	
Natural gas reticulation	DLL through sub-division process	DLL	Commercial Agreement																	
7. POTABLE WATER																				
Lead-in and network design	DLL/Sydney Water network planning.	DLL/SW	NA																	
Design for water trunk system	DLL/Sydney Water network planning.	DLL/SW	NA																	
Stage 1 - Construct temporary 300mm diameter water main from Sophia Street	DLL/Sydney Water network planning	SW	SW																	
Construct Marshall Mount reservoir and inlet / outlet mains from Southern Towns Trunk Main	DLL/Sydney Water network planning	DLL/SW	DLL/SW																	
Potable water reticulation	DLL through sub-division process	DLL	Commercial Agreement																	
8. WATER CYCLE MANAGEMENT																				
Shellharbour City Council																				
Drainage infrastructure design and delivery	DLL through sub-division process	DLL	Commercial Agreement																	
Wetlands/detention basins design and delivery	DLL through sub-division process	DLL	Commercial Agreement																	
Initial maintenance period	Obligation through Planning Agreement.	DLL VPA	WIK																	
Wollongong City Council																				
Drainage infrastructure design and delivery	DLL through sub-division process	DLL	Commercial Agreement																	
Wetlands/detention basins design and delivery	DLL through sub-division process	DLL	Commercial Agreement																	
Initial maintenance period	Obligation through Planning Agreement.	DLL VPA	WIK																	
9. SEWER																				
Lead-in and network design	DLL/Sydney Water network planning.	DLL/SW	DLL/SW																	
Stage 1 - Connection to existing carrier main	DLL/Sydney Water network planning.	DLL/SW	DLL/SW																	
Stage 2 - Upgrade pumps stations, duplicate rising main for SPS 505, 500 and 498	DLL/Sydney Water network planning	SW	SW																	
Stage 3 - northern catchment assessment, detailed design and needs specification for pump station and rising main	DLL/Sydney Water network planning	DLL/SW	DLL																	
Construct on site pump station and rising main	DLL/Sydney Water network planning.	SW	SW																	

Type of Facility/Service/Infrastructure		Details		Delivery Responsibility	Method of Delivery	Land	Preliminaries																Calderwood Urban Development Project (4,800 lots) DLL landholdings															
Dwelling No. (Cumulative)								2011	2012	2013	2014	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036																
Reticulation		DLL through sub-division process		DLL	Commercial Agreement			■		50	180	600	1000	1500	2000	2400	2800	3300	3700	4200	4600	4800																
10. TRANSPORT																																						
9a. State/Regional																																						
Per lot contribution to 14 road and intersection upgrades as per TMAP		State/Regional upgrades as per TMAP		DLL VPA	Monetary or WIK																																	
TMAP Upgrade 37		Illawarra Highway/Yellow Rock Road		DLL VPA	WIK		■																															
TMAP Upgrade 29		Illawarra Highway/Broughton Avenue		DLL VPA	Monetary or WIK								■																									
9b. Shellharbour City Council																																						
Per lot contribution to 4 road and intersection upgrades as per TMAP		Council roads as per TMAP		DLL WIK VPA	Monetary or WIK																																	
TMAP Upgrade 32		Calderwood Road from Project to Tripoli Way		DLL VPA	Monetary or WIK															■																		
TMAP Upgrade 33		Calderwood Project North-South Road southern section		DLL VPA	WIK			■																														
TMAP Upgrade 34		Calderwood Project North-South Road central section		DLL VPA	WIK								■																									
TMAP Upgrade 35		Calderwood Project North-South Road northern section		DLL VPA	WIK									■																								
Transport infrastructure within development		DLL through sub-division process		DLL	Commercial Agreement		■																															
9c. Wollongong City Council																																						
Per lot contribution to 4 road and intersection upgrades as per TMAP		Council roads as per TMAP		DLL VPA	Monetary or WIK															■																		
Transport infrastructure within development		DLL through sub-division process		DLL	Commercial Agreement															■																		

Figure 24 – Implementation and Delivery Proposal

4.0 Future Approvals Regime

In determining to approve the Calderwood Concept Plan, the Minister determined that under section 75P(1)(b) of the Environmental Planning and Assessment Act 1979, approval to carry out the project or any particular stage of the project is to be subject to the provisions of Part 4 of the Act, unless it meets the criteria for Part 3A in Schedule 1 of the Major Development SEPP.

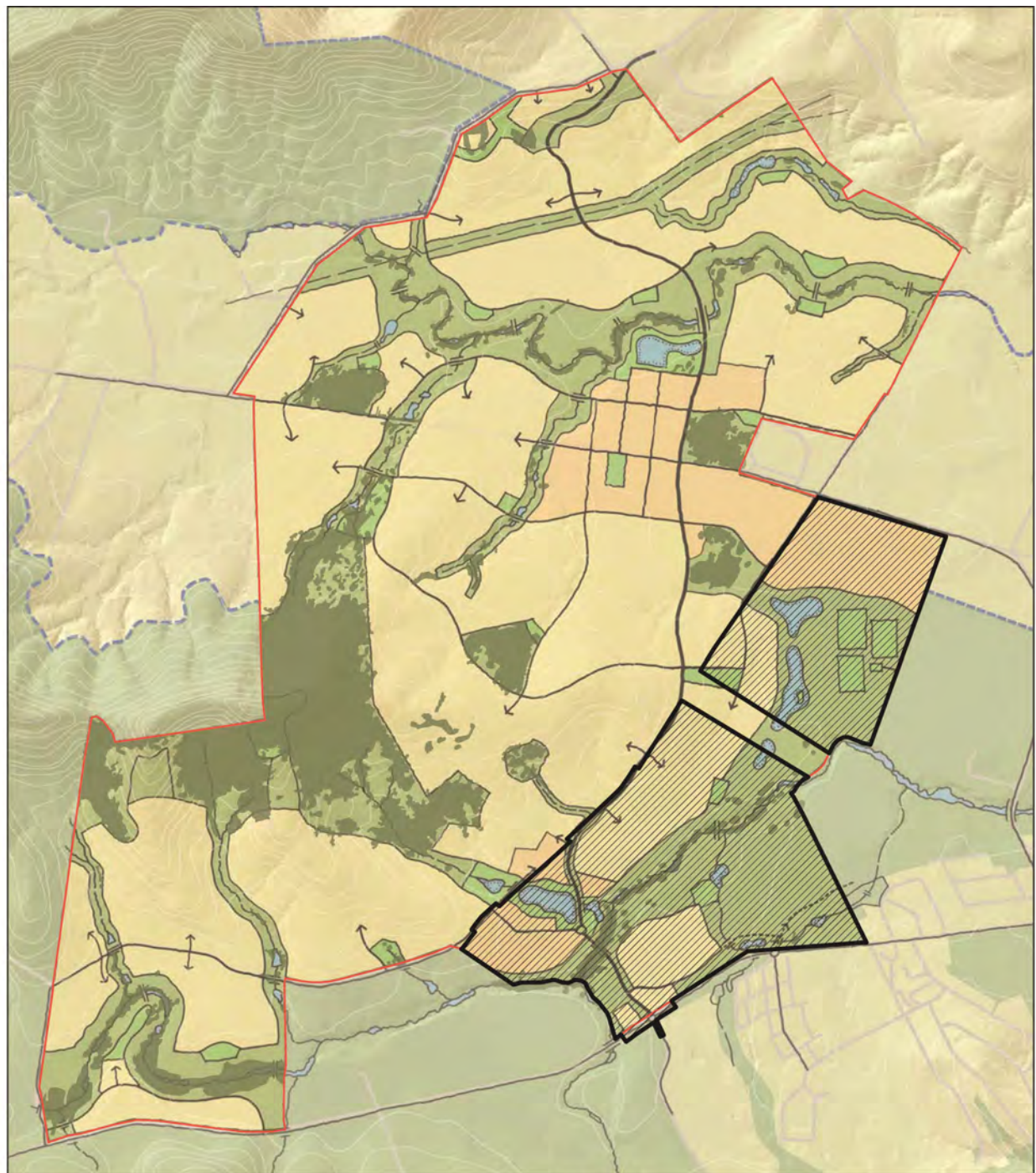
Stage 1 of the Calderwood Urban Project has been declared to be development that is subject to assessment and determination under Part 3A. The Stage 1 Project Application site is shown on **Figure 25**.

In accordance with Term of Approval A2(3) of the approved Concept Plan (and Section 75P(2)(a) of the EP&A Act), where there is an approved Concept Plan, any approval given under Part 4 of the Act by Council must be consistent with the Concept Plan.

Term of Approval A5 of the approved Concept Plan provides that in the event that the Council is the consent authority for any future applications on the site, any reports specified in the Statement of Commitments to be submitted to the Director General for approval, shall be instead be required to be approved by the Council.


Term of Approval A6 of the approved Concept Plan provides that if any of the terms of approval specify that an agreement is to be made between the proponent and a government agency or council, all parties to the agreement are to act reasonably. If no agreement is reached within 3 months of the commencement of negotiations, the issue can be referred to the Director General for a decision. Full details of the discussions and the dispute are to be provide in order for the Director General to make a full decision.

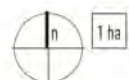
Table 7 below provides a summary of the inter relationship between the Part 3A and Part 4 development approvals process in the circumstances in which a Concept Plan has been approved. **Table 7** also highlights the inter relationship between the Concept Plan approval and authorisations / approvals etc that may be required under other legislation. The following table is provided for information purposes only.



Part 3A Area

Part 3A | Calderwood Urban Development Project

 Area Subject to Part 3A
(Stage 1 Project Application Area)



Subject to verification and detailed site survey 1:20,000 @ A4 10m Contours February 2011

Figure 25 – Existing Part 3A Area (Stage 1)

Table 7 – Summary of relationship between Part 3A and Part 4 approvals following Concept Plan**Concept Plan approval followed by DA**

Section 75V(2) – the following authorisations are required, but once a development consent has been granted cannot be refused if necessary for carrying out the project and must be substantially consistent with the development consent:

- the concurrence under Part 3 of the Coastal Protection Act 1979 of the Minister administering that Part of the Act,
- a permit under section 201, 205 or 219 of the Fisheries Management Act 1994,
- an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977,
- a permit under section 87 or a consent under section 90 of the National Parks and Wildlife Act 1974,
- an authorisation referred to in section 12 of the Native Vegetation Act 2003 (or under any Act to be repealed by that Act) to clear native vegetation or State protected land,
- a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948,
- a bush fire safety authority under section 100B of the Rural Fires Act 1997,
- a water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.

Section 75V(2) – authorisations are required, but once a development consent has been granted, cannot be refused and must be substantially consistent with the development consent:

- an aquaculture permit under section 144 of the Fisheries Management Act 1994,
- an approval under section 15 of the Mine Subsidence Compensation Act 1961,
- a mining lease under the Mining Act 1992,
- a production lease under the Petroleum (Onshore) Act 1991,
- an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act),
- a consent under section 138 of the Roads Act 1993,
- a licence under the Pipelines Act 1967.

Section 75P(2):

- the determination of DAs under Part 4 is to be generally consistent with the terms of the approval of the concept plan,
- any consent granted under Part 4 is to be subject to such conditions as the Minister directs for the purpose of fulfilling the obligations in a statement of commitments submitted by the proponent (in which case those conditions cannot be modified without the approval of the Minister and a person cannot appeal to the Court under this Act in respect of the direction or any such conditions imposed by the consent authority),
- the project or that stage of the project is not integrated development for the purposes of Part 4,
- any further environmental assessment under Part 4 is to be undertaken in accordance with the requirements determined by the Minister when approving the concept plan (despite anything to the contrary in that Part).

5.0 Statement of Commitments

Table 8 is the Statement of Commitments that apply to the future stages of the development as approved as part of the Concept Plan.

The recommendations of the various consultants reports submitted with the March 2010 EAR and the August 2010 PPR are incorporated into the approved Statement of Commitments.

This includes the full recommendations of all specialist sub consultants studies that were documented at Section 7.0 of the March 2010 EAR. Specifically, a number of recommendations made in relation to the following technical disciplines are included:

- Transport and accessibility
- European heritage
- Landscape and visual impact
- Bushfire protection
- Social and community initiatives
- Sustainability initiatives.
- Water cycle management
- Contamination
- Ecological and riparian
- Flood mitigation
- Indigenous heritage

It is noted that the majority of mitigation measures identified by the various technical supporting documents, and the recommendations made with respect to appropriate management of the environmental impacts of the proposed development have either been incorporated as a fundamental component of the approved Concept Plan, or are reflected in the land use zoning and development controls that have been incorporated into the Schedule 3 SEPP Amendment

The Statement of Commitments also includes commitments that respond to a range of issues raised by public agencies in submissions as was identified at Section 2 and at Appendix A of the August 2010 PPR.

Table 8 – Final Statements of Commitment

Subject	Commitment	Responsibility / Timing
State infrastructure contributions	<p>1</p> <p>The Proponent will enter into a Voluntary Planning Agreement with the Minister for Planning for the delivery of infrastructure and facilities for the Calderwood Urban Development Project area. The Proponent will:</p> <ul style="list-style-type: none"> - make a net monetary contribution of \$5,647 per dwelling to the State government; and - dedicate a total of 13 hectares of land to the Department of Education and Training free of cost to accommodate 1 high school site of 6 hectares and 2 primary school sites of 3 hectares each, and a special needs unit of 1 hectare co-located with one of the primary schools; <p>The offer to enter into the VPA is made on the basis set out in the formal proposal to enter into a Voluntary Planning Agreement made in writing to the Director General of the Department of Planning on 31 July 2010, a copy of which is included at Appendix D of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix J of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010). The final location of the education land will be determined by agreement with the Department of Education and Training.</p>	VPA to be finalised prior to registration of first residential subdivision.
Johnston's Spur Conservation Area	<p>2</p> <p>The Proponent will dedicate that part of the Johnston's Spur conservation area identified as Item E2 06 on the Land Ownership Options Plan included at Appendix H of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix I of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) to the Department of Lands free of cost and "under reserve" on a stage by stage basis, subject to the agreement of the Department of Lands to take ownership of this land. If the Department of Lands does not agree to take ownership of this land, the Proponent will identify a suitable alternative public or private land ownership option at the relevant subdivision stage. Any land to be transferred into public ownership in accordance with this commitment will be subject to an identified management regime. The land will only be transferred upon completion of any agreed embellishment and a suitable period of maintenance (eg 3 years).</p>	Proponent
Environmental reserves	<p>3</p> <p>The Proponent will dedicate the environmental reserves identified as Items E2 04 and E2 05 on the Land Ownership Options Plan included at Appendix H of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix I of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) to the Department of Lands free of cost and "under reserve" on a stage by stage basis, subject to the agreement of the Department of Lands to take ownership of this land. If the Department of Lands does not agree to take ownership of this land, the Proponent will identify a suitable alternative public or private land ownership option at the relevant subdivision stage. Any land to be transferred into public ownership in accordance with this commitment will be subject to an identified management regime. The land will only be transferred upon completion of any agreed embellishment and a suitable period of maintenance (eg 3 years).</p>	Proponent
Riparian Land	<p>4</p> <p>The Proponent will dedicate the riparian corridor and adjoining open space/drainage lands identified as Items E2 01, 02 and E2 03, and RE1 01-02, RE1 04, RE1 09, RE1 12, RE1 15, RE1 22 and RE1 28 on the Land Ownership Options Plan included at Appendix H of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix I of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010 to the Department of Lands free of cost and "under reserve" on a stage by stage basis, subject to the agreement of the Department of Lands to take ownership of this land.</p> <p>If the Department of Lands does not agree to take ownership of this land, subject to the underlying land use zone, the Proponent will identify a suitable alternative public or private land ownership option at the relevant subdivision stage. Any land to be transferred into public ownership in accordance with this commitment will be subject to an identified management regime. The land will only be transferred upon completion of any agreed embellishment and a suitable period of maintenance (eg 3 years).</p>	Proponent

Subject	Commitment		Responsibility / Timing
Local infrastructure contributions	5	The Proponent will enter into a Voluntary Planning Agreement with the relevant Council for the delivery of local infrastructure and facilities for the Calderwood Urban Development Project area, if agreed by the council.	Proponent
	6	The Proponent will dedicate the land required for a public purpose as identified at Appendix I of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix K of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) on a stage by stage basis to the relevant council free of cost, subject to Council's agreement to take ownership of that land and subject to obtaining a satisfactory planning approval. If the relevant council does not agree to take ownership of this land, subject to the underlying land use zone, the Proponent will identify a suitable alternative public or private land ownership option at the relevant subdivision stage.	To be demonstrated at the time of release of the relevant subdivision certificate.
	7	The Proponent will carry out the works in kind identified at Appendix I of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix K of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010 and dedicate those works on a stage by stage basis to the relevant council free of cost, subject to Council's agreement to take ownership of those works and subject to obtaining a satisfactory planning approval. If the relevant council does not agree to take ownership of the works in kind, the Proponent will identify a suitable alternative public or private land ownership option for these works at the relevant subdivision stage.	To be demonstrated at the time of release of the relevant subdivision certificate.
	8	The Proponent will identify the level of embellishment / works for each work in kind item identified at Appendix I of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix K of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) at the User Brief, Concept and Detailed Design stages to the relevant Council for agreement.	To be demonstrated by the proponent at the time of any relevant detailed application
	9	The Proponent will be responsible for works in kind, including design, construction, certification, authority approvals, construction and initial maintenance of each of the work in kind items identified on the Schedules at Appendix I of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix K of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010) prepared by JBA Urban Planning Consultants Pty Ltd dated August 2010.	Proponent, ongoing.
	10	The Proponent will maintain any open space and drainage works that are to be dedicated to a public authority for a period of 3 years from the date of practical completion of the works, unless otherwise agreed by the Proponent and the relevant authority.	Proponent, ongoing.
	11	The Proponent will maintain any buildings that are to be dedicated to a public authority for a period of 3 months from the date of practical completion of the works, unless otherwise mutually agreed by the Proponent and the relevant authority.	Proponent, ongoing.
	12	The Proponent will provide any maintenance and handover plans as required for the ongoing management of any land that is transferred to a public authority.	To be prepared by the Proponent approximately 12 months prior to transfer of land to any public authority
Albion Park Bypass / Tripoli Way Extension	13	Deleted. Refer to Modification B4 of Concept Plan approval.	
	14	Deleted. Refer to Modification B4 of Concept Plan approval.	
	15	Deleted. Refer to Modification B4 of Concept Plan approval.	
	16	Deleted. Refer to Modification B4 of Concept Plan approval.	

Subject	Commitment		Responsibility / Timing
	17	Deleted. Refer to Modification B4 of Concept Plan approval.	
Urban design / controls	18	The Proponent will prepare a Consolidated Development Control Strategy to the satisfaction of the Director General of the Department of Planning incorporating the Development Control Strategy included at Appendix BB of the SSS Study and Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd dated March 2010 as amended by the following Statements of Commitment .	To be submitted to the Department of Planning prior to the submission of any detailed application proposing subdivision or built form works beyond the Stage 1 Project Application Note: The Consolidated Development Control Plan is included at Appendix F of the Consolidated Concept Plan.
	19	The detailed design of relevant future development, including the design of streets, subdivision and built form will be generally in accordance with the Consolidated Development Control Strategy prepared in accordance with Statement of Commitment 18.	To be demonstrated by the proponent at the time of any relevant detailed application
	20	The detailed design of subdivision, including proposed residential lot sizes, will be generally consistent with the development controls relating to the future Character Areas included at Appendix G of the Preferred Project Report prepared by JBA Urban Planning Consultants Pty and dated August 2010. The revised provisions at Appendix G are to be incorporated into the Consolidated Development Control Strategy referred to in Commitment 18.	Refer to Commitment 18 Note: The Consolidated Development Control Plan incorporating this commitment included at Appendix F of the Consolidated Concept Plan.
	21	The Proponent will prepare a Public Domain Plan addressing landscape treatment of streets to distinguish between public and private spaces, street hierarchy and integration of public art into the public domain. A requirement to prepare a Public Domain Plan at the time of any relevant detailed application is to be incorporated into the Consolidated Development Control Strategy prepared in accordance with Statement of Commitment 18. The Proponent notes that embellishment works to the public domain, including User Brief, Concept and Detailed Design Stages, form part of the offer made in respect of local contributions (refer to Appendix I of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Section 4 and Appendix K of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010). Street furniture, selection of materials and finishes and provision of public art will be dealt with via the works, facilities and services approvals process.	Refer to Commitment 18 Note: The Consolidated Development Control Plan incorporating this commitment is included at Appendix F of the Consolidated Concept Plan.
	22	Future detailed applications will provide details of proposed measures designed to support active waste management and waste minimisation, particularly during construction. A requirement to provide active waste management and waste minimisation details with subsequent applications is to be incorporated into the Consolidated Development Control Strategy prepared in accordance with Statement of Commitment 18.	To be demonstrated by the proponent at the time of any relevant detailed application. Note: The Consolidated Development Control Plan incorporating this commitment is included at Appendix F of the Consolidated Concept Plan.

Subject	Commitment		Responsibility / Timing
Sustainability	23	To assist in achieving a 10% shift in mode share the Proponent will adopt the travel demand measures (Measures 1 to 7), active transport principles (Measures 8 to 13) and the public transport principles (Measures 14 to 16) as set out in the Transport Accessibility Study and Transport Management and Accessibility Plan (TMAP) prepared by Cardno and included at Appendix K of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix T of the SSS and Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd dated March 2010).	Proponent, ongoing.
	24	The proponent will consider opportunities for the establishment of both solar farm(s) and co (or tri) generation as part of the Project, particularly for the Town Centre and employment precincts.	Proponent, ongoing.
	25	Future detailed applications will address energy sustainability and demonstrate measures to reduce the demand for energy and the efficient design of the urban form to capitalise on the natural features of the site.	To be demonstrated by the proponent at the time of any relevant detailed application.
	26	Future detailed applications will accord with BASIX requirements. Future detailed applications will provide details relating to specific measures proposed to assist in achieving this target as relevant.	To be demonstrated by the proponent at the time of any relevant detailed application.
Engineering Infrastructure & Utility Services	27	Proposals in respect of the supply of water, sewerage, stormwater, gas, electricity and telephone services within the site, including the adoption of technologies to reduce the demand or need for servicing and the supply of sustainable services, are to be generally in accordance with the Engineering Infrastructure & Utility Services Study prepared by Cardno included at Appendix M of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix Y of the SSS and Concept Plan Environmental Assessment Report prepared by JBA dated March 2010).	To be demonstrated by the proponent at the time of any relevant detailed application.
Ecology and riparian	28	Riparian corridors that have been determined to have a requisite hydrological function will be retained generally in accordance with the Concept Plan Proposed Riparian Corridor Network drawing included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010).	To be demonstrated by the proponent at the time of any relevant detailed application.
	29	A riparian corridor of 92 metres total width will be provided to Marshall Mount Creek and to Macquarie Rivulet in accordance with the Concept Plan Proposed Riparian Corridor Network included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010).	To be demonstrated by the proponent at the time of any relevant detailed application.
	30	A riparian corridor of 48 metres total width will be provided to streams extending from the main valley floor environmental corridors to Johnston's Spur in accordance with the Concept Plan Proposed Riparian Corridor Network included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010).	To be demonstrated by the proponent at the time of any relevant detailed application.
	31	Vehicular crossings, and pedestrian and cycle pathway crossings of riparian corridors will be generally in accordance with the principles shown on the Concept Plan Road Layout and Hierarchy Plan included at Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010. (a) The design and construction of watercourse crossings and ancillary works, such as roads, will consider the potential impacts of the crossing structure on the hydrologic, hydraulic and geomorphic functions of a watercourse, crossings will be designed and constructed in order to maintain the integrity of the existing channel as be sympathetic with the ecological values of the watercourse as identified in the Geomorphology Assessment, Water Cycle Management Study and Flora and Fauna Assessments included in the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as being included in the Concept Plan Environmental Assessment Report prepared by JBA Urban	To be demonstrated by the proponent at the time of any relevant detailed application.

Subject	Commitment	Responsibility / Timing
	<p>Planning Consultants Pty Ltd dated March 2010. Bed level crossings or bridges which fully span the watercourse channel provide the best opportunities for maintaining natural channel functions. However, alternative structures such as box culverts which can achieve the riparian functions will also be considered.</p> <p>(b) The design and construction of works and activities within a watercourse, including any stormwater outlets will aim to be as 'natural' as possible yet provide a stable transition from a constructed drainage system to a natural flow regime. A watercourse 'rehabilitation' design philosophy rather than a 'construction' philosophy will be applied. The design and construction footprint, and the extent of disturbances within riparian land will be minimised while achieving the desired discharge function and outcome. In order to minimise the impacts of in-stream works on the hydrologic, hydraulic and geomorphic functions on a watercourse, all works and activities should be designed and constructed to maintain the integrity of the existing channel, as well as being sympathetic with the ecological values of the watercourse as identified in the Geomorphology Assessment, Water Cycle Management Study and Flora and Fauna Assessments included in the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as being included in the Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd dated March 2010).</p> <p>(c) When considering the placement of utilities in or across watercourses the design and construction footprint and the extent of disturbances proposed in the watercourse and riparian area will be appropriately minimised.</p>	
	32 The final location of any crossings, and pedestrian and cycle pathways within riparian corridors, and utility services infrastructure, will take into consideration vegetation that is proposed to be retained and protected as shown on the Concept Plan Environmentally Significant Land drawing included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010) .	To be demonstrated by the proponent at the time of any relevant detailed application.
	33 Any public open space / drainage land beyond the riparian corridors referred to at Commitments 28-30 will be designed to contribute to riparian outcomes by providing appropriate landscaping.	To be demonstrated by the proponent at the time of any relevant detailed application.
	34 Any proposed revegetation within the retained Core Riparian Zones shown on the Concept Plan Riparian Corridor Network included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010) will demonstrate consistency with the Concept Plan Flood Mitigation Plan included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010) and the principles of the Landscape and Open Space Masterplan included at Appendix G of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix CC of the Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants dated March 2010).	To be demonstrated by the proponent at the time of any relevant detailed application
	35 Vegetation Management Plans (VMP)s will be prepared for all works with land that has been identified as Concept Plan Environmentally Significant Land and within the Core Riparian Zones shown on the Concept Plan Riparian Corridor Network included at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix L of the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010) generally in accordance with the principles of the Landscape and Open Space Masterplan included at Appendix G of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix CC of the Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants dated March 2010).	To be demonstrated by the proponent at the time of any relevant detailed application

Subject	Commitment	Responsibility / Timing
	36 Where Environmentally Significant Land and / or Core Riparian Zones are to be transferred into public ownership, the Proponent will rehabilitate that land in accordance with the VMPs to a suitable condition prior to any handover. Details of the rehabilitation to be undertaken in relation to each area of land, and of the likely ongoing maintenance requirements relating to weed management, bush regeneration and any asset protection zone maintenance of that land, are to be submitted with the relevant detailed application.	To be demonstrated by the proponent at the time of any relevant detailed application
	37 A detailed survey will be carried out in an appropriate season for <i>Pterostylis gibbosa</i> (Illawarra Greenwood) prior to any works commencing within potential habitat for that species. Potential habitat for the species is the Lowland Wollybutt-Melaleuca. Following the further detailed survey work, any specific mitigation measures determined as required are to be addressed in the relevant detailed application(s).	To be demonstrated by the proponent at the time of any relevant detailed application
	38 Mature remnant habitat trees will be individually assessed prior to detailed design in the area identified on Figure 7 of the Flora and Fauna Assessment prepared by Ecological Australia and included at Appendix P of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Appendix Q of the SSS Study and Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd and dated March 2010). Individual trees considered to provide significant habitat will be retained and incorporated into the design wherever practicable.	To be demonstrated by the proponent at the time of any relevant detailed application
	39 Where any spillways/outlets are proposed from stormwater detention basins / wetlands directly into the main arms of Marshall Mount Creek and Macquarie Rivulet, their design will have regard to facilitating colonisation by native fish species.	To be demonstrated by the proponent at the time of any relevant detailed application
	40 Wherever feasible the installation of services such as water, sewerage and gas pipeline across Marshall Mount Creek and Macquarie Rivulet will be combined with vehicular crossings to minimise potential impact on fish passage by trenching.	To be demonstrated by the proponent at the time of any relevant detailed application
	41 Future relevant detailed applications will be accompanied by a flood impact statement that verifies that the proposal is consistent with the Flood Mitigation Plan included in the approved Concept Plan including, as relevant to the scope of development proposed: <ul style="list-style-type: none"> - Vegetation roughness increased through selective species planting within Core Riparian Zones only where it can be demonstrated that no adverse impacts on flood levels will result, - Adoption of the 1% AEP flood level (incorporating the climate change scenario identified in) plus 500 mm free board as the Flood Planning Level for the development, - Provision of safe evacuation routes during the 1% AEP flood event for any development on land located within the PMF, - Design of any new bridge deck above the 1% AEP flood level to allow uninterrupted road traffic throughout the development during events up to and including the 1% AEP flood, and - Design and location of all major spine roads within the development at or above the PFM level. 	To be demonstrated by the proponent at the time of any relevant detailed application
Flood mitigation	42 The flood impact statement for any future application proposing the staged cut or fill of land within the area of the approved bulk earthworks shown on the approved Flood Mitigation Plan will also verify that the proposal is consistent with approved bulk earthworks strategy and does not introduce unacceptable interim flooding impacts on land outside the Project site boundary.	To be demonstrated by the proponent at the time of any relevant detailed application
	43 Future detailed applications are to address the following matters (as relevant to the works proposed): <ul style="list-style-type: none"> - depth, volume and finished levels of any excavation and filling, - the extent of any proposed watercourse modification or enlargement, - use of natural solutions along watercourses rather than hard engineering solutions wherever practicable, - relevant measures to protect the function and stability of Marshall Mount Creek and Macquarie Rivulet. 	To be demonstrated by the proponent at the time of any relevant detailed application

Subject	Commitment	Responsibility / Timing
Drainage and stormwater	44 Future relevant detailed applications will demonstrate consistency with the approved Concept Plan Water Cycle Management Strategy prepared by Cardno and included at Appendix L of the Consolidated Concept Plan prepared by JBA Urban Planning Consultants dated March 2011 (previously referenced as being included in the Concept Plan Environmental Assessment prepared by JBA Urban Planning Consultants dated March 2010 to ensure that peak flows entering the site riparian system will not increase as a result of the development.	To be demonstrated by the proponent at the time of any relevant detailed application
	45 A combination of proprietary litter/sediment traps, and water quality control ponds / artificial wetlands be provided for stormwater quality management, located in ways sympathetic to the other environmental constraints of the site.	To be demonstrated by the proponent at the time of any relevant detailed application
	46 The detailed design of development will comply with the NSW Government BASIX criteria for water supply management	To be demonstrated by the proponent at the time of any relevant detailed application
	47 At the detailed design stages of the development, a Soil and Water Management Plan is to be prepared to outline the methods through which stormwater runoff is controlled throughout the construction phase. This may include the use of the proposed wetlands as temporary sediment basins (where possible) and the provision of rock dams and filter fabric fencing (above and below the works are respectively). The Soil and Water Management Plan is to: <ul style="list-style-type: none"> - Propose arrangements for regular periodic and event based water quality monitoring and reporting throughout the construction period with particular emphasis on monitoring during larger rainfall events when sediment export is most likely; - Propose arrangements for ensuring compliance with the Soil and Water Management Plan by constructing agents and contractors operating on site. 	To be demonstrated by the proponent at the time of any relevant detailed application
	48 During detailed design the longevity of proposed water bodies will be assessed. The potential for algal growth is also to be assessed during detailed design and the likelihood for algal growth reduced through incorporation of suitable hydraulic residence times (ie increased water body turnover) and incorporation of suitable subsurface macrobytes.	To be demonstrated by the proponent at the time of any relevant detailed application
Indigenous Heritage	49 Salvage through collection and relocation of surface artefacts is recommended for CP-IF-01, CP-IF-02, CP-S-01, CP-S-02, CP-IF-03, CP-S-03, CP-IF-04, CP-IF-05, CP-S-04, CP-IF-06, CP-IF-07, CP-IF-08, CP-S-05, CP-IF-09, CP-IF-10, CP-IF-11, CP-IF-12, CP-S-07, CP-IF-13, CP-S-08, CP-IF-14, CP-IF-15, CP-IF-16, CP-S-10, CP-S-12, CP-S-15, CP-IF-17 and CP-IF-18 if they are to be impacted by development.	To be carried out by the proponent prior to the commencement of any relevant works
	50 The development and implementation of a programme of test excavation and reporting is required to clarify the archaeological potential of CP-S-09/CP-PAD-02, CP-S-09/CP-PAD-03, CP-S-11/CP-PAD04 and CP-S-14/CP-PAD-05, if they are to be impacted by development. The development and implementation of a programme of salvage excavation and reporting is recommended if it is warranted by the results of the test excavation programme.	To be prepared by Proponent prior to any relevant works commencing
	51 The development and implementation of a programme of salvage excavation and reporting is to be undertaken for CP-S-09/CP-PAD-02, CP-S-09/CP-PAD-03, CP-S-11/CP-PAD04 and CP-S-14/CP-PAD-05, if it is warranted by the results of the test excavation programme.	Proponent, if required.
	52 The development and implementation of a Care and Control of artefacts strategy, devised through consultation with appropriately recognised groups, is recommended for all collected and excavated archaeological material retrieved during the abovementioned surface collection, testing and/or salvage excavation works. Such a strategy should be agreed and finalised with the Aboriginal stakeholders prior to any archaeological site works commencing. The Care and Control of artefacts strategy will address the need for lodgement of known Aboriginal objects at an appropriate professional location.	To be prepared by Proponent prior to any archaeological site works commencing
	53 The two properties located at 269 North Macquarie Road and 342 Calderwood Road are to be assessed for their archaeological potential if any relevant works are proposed.	To be demonstrated by the proponent at the time of any relevant detailed application

Subject	Commitment	Responsibility / Timing
	54 If additional unrecorded Aboriginal archaeological material is encountered during development, works within the relevant location must cease immediately to allow an archaeologist to make an assessment of the finds. The archaeologist may need to consult with NSW DECCW and registered stakeholder groups concerning the significance of any such material.	Proponent, if required.
	55 As required by the <i>NSW Heritage Act 1977</i> (amended), in the event that historic relics are encountered, works within the relevant location must cease immediately to allow an archaeologist to make an assessment of the finds. The archaeologist may need to consult with the Heritage Branch Department of Planning concerning the significance of any historic cultural material encountered.	Proponent, if required.
	56 Copies of the finalised report will be provided to relevant groups and NSW DECCW, and that the completed site cards (see Appendix D.3 of the Aboriginal Archaeological and Cultural Heritage Assessment) be provided to the DECCW AHIMS Registrar as per Section 91 of the <i>NP&W Act</i> .	To be demonstrated by the proponent at the time of any relevant detailed application
	57 A two hectare parcel incorporating the Marshall Mount House and Barn and its garden, scribing a line outside the existing trees and bushes, including some of the grassed slope is to be retained.	To be demonstrated by the proponent at the time of any relevant detailed application
European Heritage	58 Open space is to be provided to the east of Marshall Mount House and Barn to retain a view from Marshall Mount Road to the house, including the existing Oak Tree.	To be demonstrated by the proponent at the time of any relevant detailed application
	59 The Moreton Bay Fig and the Oak Tree within the garden curtilage of Marshall Mount House and Barn is to be inspected and assessed by an aborist with a view to ensuring their retention and protection.	To be demonstrated by the proponent at the time of any relevant detailed application
	60 The detailed design of residential development at the southern and eastern interface of Marshall Mount House and Barn is take into consideration height and lot size to provide a sense of openness evoking the historic rural context of the House and view sharing.	To be demonstrated by the proponent at the time of any relevant detailed application
	61 Future detailed subdivision design is to consider the use of radial streets in the vicinity of Marshall Mount House to create view corridors down the hill side, and deep setbacks to dwellings fronting Marshall Mount Road to open views to and from the east.	To be demonstrated by the proponent at the time of any relevant detailed application
	62 The Marshall Mount Methodist Cemetery, which is to be retained in private ownership, is to be situated within a future park or surrounded by a private open space buffer to retain, as much as possible, an atmosphere of contemplation and peacefulness appropriate to a memorial place. The nature of any new buffer between the cemetery and new development is to demonstrate an appropriate integration between the cemetery and the new community that will form around it.	To be demonstrated by the proponent at the time of any relevant detailed application
	63 The future detailed subdivision design adjoining the Methodist Cemetery will consider opportunities to provide visual links from the cemetery towards Johnston's Spur and the escarpment.	To be demonstrated by the proponent at the time of any relevant detailed application
	64 Should any European historical archaeology be discovered during any site excavation works, the required steps under the relics provisions of the NSW Heritage Act and contacts will be followed.	To be demonstrated by the proponent at the time of any relevant detailed application

Subject	Commitment		Responsibility / Timing
	65	If the Proponent is undertaking the relevant works, the detailed design of any road works/ upgrading works required to be undertaken to Marshall Mount Road, Marshall Mount Road North and / or the new intersection of Marshall Mount Road and Marshall Mount Road North is to ensure an appropriate curtilage and setting is provided between Marshall Mount School, Residence and Progress Hall and the roadway.	To be demonstrated by the proponent at the time of any relevant detailed application
	66	Maximum excavation depths are to be identified (for any development involving excavation) within the properties shown on Figure 20 of the Consolidated Concept Plan prepared by JBA dated March 2010 (previously referenced as Figure 18 of the Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd and dated March 2010). During the detailed design process, potential conflict with Potential Acid Sulphate Soils / Acid Sulphate Soils will be avoided wherever possible by adoption of the following site specific management strategies: <ul style="list-style-type: none"> - Avoiding any disturbance of PASS by adjusting the design invert levels for the wetlands; - Ensuring, where possible, the design maintains a significant depth of water and soil cover over PASS to prevent acid generation; - Maintain a minimum water level in the wetlands by installing water level control devices. (This aims to dilute any acidity, and contain any acidity in the soil profile by maintaining a relatively constant watertable level around the wetland); - The potential strategic addition of limestone/recycled concrete to the wetland to neutralise any acidity that either enters the wetland or forms in the wetland; - Monitor water and spoil during construction ; - Neutralise excavated material if necessary with fine aglime; and - Ongoing Monitoring of wetland for identified period immediately following construction. 	To be demonstrated by the proponent at the time of any relevant detailed application
Acid sulphate soils	67	Future detailed applications will include a commitment that if, during construction activities, any Potential Acid Sulphate Soils or Acid Sulphate Soils are disturbed on site, an Acid Sulphate Soil Management Plan will be prepared and certified as appropriate by a suitably qualified PA	To be demonstrated by the proponent at the time of any relevant detailed application
	68	Development within the areas shown as 'Less Stable Land' and 'Moderately Unstable Land' on Figure 21 of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Figure 17 of the Concept Plan Environmental Assessment Report prepared by JBA Urban Planning Consultants Pty Ltd and dated March 2010) is to demonstrate good engineering practice for hillside slopes.	To be demonstrated by the proponent at the time of any relevant detailed application
Geotechnical	69	Future detailed applications will include a commitment, that where cuts greater than 2 metres in depth are proposed in areas located below RL 20, during detailed design and construction activities a suitably qualified PCA will certify that wetland base levels are appropriately positioned relative to the level of the ground water table, lining of wetlands has been provided if necessary, and, should the base of the wetlands intercept the groundwater table, then the groundwater table will be temporarily lowered to facilitate construction.	To be demonstrated by the proponent at the time of any relevant detailed application
Groundwater	71	Field investigation is to be undertaken at the time of any future application relating to land within an 'Area of Concern' identified on Figure 22 of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as Drawing 10 at Appendix A of the Contamination Assessment prepared by Douglas Partners and included at Appendix FF of the Concept Plan Environmental Assessment Report prepared by JBA) demonstrating suitability of the land for the development proposed." Appropriate scopes of work and sample quality plans are to be prepared for each Area of Concern. Consideration is to be given to the engagement of a DECW accredited auditor prior to commencement of fieldwork.	To be demonstrated by the proponent at the time of any relevant detailed application
Contamination	72	Prior to any proposed demolition works, a Hazardous Materials assessment is to be undertaken for any building proposed to be removed. This will allow the creation of a register of hazardous materials, which will directly influence the method of demolition.	To be demonstrated by the proponent at the time of any relevant detailed application

Subject	Commitment		Responsibility / Timing
	73	Prior to the commencement of any earthworks, an Unexpected Finds Protocol relating to the potential existence of isolated occurrences of contamination is to be developed.	To be demonstrated by the proponent at the time of any relevant detailed application
	74	Bushfire Asset Protection Zones at known areas of bushland / development interface are to be in accordance with the bushfire protection measures required by the Acceptable Solutions of Planning for Bushfire Protection 2006 as generally illustrated at Appendix C of the Consolidated Concept Plan prepared by JBA dated March 2011 (previously referenced as revised Concept Plan Drawing included in the Preferred Project Report prepared by JBA Urban Planning Consultants dated August 2010). The final placement of Asset Protection Zones will be as required in relation to the nature of the specific land use at each interface segment.	To be demonstrated by the proponent at the time of any relevant detailed application
Bushfire	75	The proponent will implement a Community Development Strategy including: <ul style="list-style-type: none"> - distribution of resident information packages through a welcome program, - engagement of a community development worker, - establishment of a Community Initiatives Fund to encourage and support community initiatives, programs and activities that will enhance the life of the community and quality of life of its residents. 	Refer to Statement of Commitment 5
Social and Community Initiatives	76	The first stage of development will include early provision for retail facilities that provide for convenience shopping, and assist in the establishment of a sense of place, subject to consent for such facilities being given in the relevant application.	To be demonstrated by the proponent at the time of the detailed application relating to the first stage of residential subdivision
	77	An on-going program of information to and consultation with the surrounding community is to be implemented as planning for the site continues. This will include regular updates (for example via a project website) or press articles to keep people informed of progress, and further consultation with key stakeholders around the detailed design of the development.	Proponent, ongoing.