Environmental Assessment Report
Part 3A Project Application

Edmondson Park South - Stage 1

Residential Subdivision and Infrastructure Works

Submitted to
NSW Department of Planning
On Behalf of Landcom

September 2010 ■ 10279

JBA Urban Planning Consultants Pty Ltd ABN 84 060 735 104 ACN 060 735 104 w jbaplanning.com.au
Level 7, 77 Berry Street North Sydney NSW 2060 t +61 2 9956 6962 ■ 29 Beach Street Wollongong NSW 2500 t +612 4225 7680

Reproduction of this document or any part thereof is not permitted without prior written permission of JBA Urban Planning Consultants Pty Ltd.

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

This report has been prepared by: Andrew Wilson

Signature  Date: September 2010

Contents

Figures

Tables

Appendices – Volume 1 (Reports)

Contents

Appendices – Volume 2 (A3 Plans)

Statement of Validity

Prepared under Part 3A of the Environmental Planning and Assessment Act, 1979 (as amended)

Environmental Assessment prepared by	
Name	Andrew Wilson
Qualifications	Bachelor of Urban and Regional Planning
Address	Level 7, 77 Berry Street, North Sydney
In respect of	Project Application for Stage 1 Residential Subdivision and Infrastructure Works
Project Application	
Applicant name	Landcom
Applicant address	Level 2, 330 Church Street Parramatta NSW 2150 PO Box 237 Parramatta NSW 2124
Land to be developed	Edmondson Park Stage 1 Part Lot 2 DP1144667, Part Lot 1 DP831149, Lot 1 DP831148, Part Lot 3 DP 246213, Part McDonald Road
Proposed development	Residential Subdivision and Infrastructure Works.
Environmental Assessment	An Environmental Assessment (EA) is attached.
Certificate	I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge: ▪ It is in accordance with the Environmental Planning and Assessment Act and Regulation. ▪ It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
Signature	
Name	Andrew Wilson
Date	17 September 2010

Executive Summary

Landcom has lodged a Part 3A Project Application for the approval of the Minister for Planning for the Stage 1 Subdivision and Infrastructure Works at Edmondson Park South in the Southwest Growth Centre. This Environmental Assessment Report has been prepared for the Project Application in accordance with the Director-General's Environmental Assessment Requirements.

The Edmondson Park South Stage 1 Site

The Edmondson Park precinct is the first urban release area in the Southwest Growth Centre of Sydney. Edmondson Park South is the subject of a Part 3A Concept Plan for a new diverse and sustainable urban community covering an area of 605.4 hectares. This Project Application for Stage 1 at Edmondson Park South covers an area of 39.945 hectares. Land outside of the Stage 1 area is also the subject of infrastructure works proposed in this Project Application.

The former use and development on the Stage 1 land was for an army camp (the Ingleburn Army Camp) up until the 1990s when it was identified as surplus to Defence requirements. Since this time it has been progressively vacated and there remain remnant military structures scattered through-out the site. The site is in the process of being purchased from the Commonwealth Government by Landcom.

The topography of the Stage 1 land includes a relatively flat to gently undulating northern half with slopes ranging from 0-10 degrees, and a steeper southern half with slopes up to 15 degrees down to the south towards the M5 motorway. The Stage 1 land straddles two catchments: the northern segment is located within the Maxwells Creek catchment draining to the east, and the southern (steeper) area is located within the Bunbury Curran Creek catchment draining to the south.

The vegetation on the Stage 1 land comprises predominantly scattered native trees of Shale Plains Woodland, a sub-community of Cumberland Plain Woodland, amongst cleared grazing land of native and exotic pastures, with denser patches of native trees along natural drainage corridors. The north east corner of the site includes a patch of native Alluvial Woodland which is part of the community River-Flat Eucalypt Forest on Coastal Floodplains.

Proposed Stage 1 Subdivision and Infrastructure Works

The Project Application seeks approval for the detailed design and construction of the Stage 1 Subdivision and Infrastructure Works at Edmondson Park South comprising the following:

- **Subdivision of the land in Stage 1** to create:
  - 206 residential lots;
  - 15 environmental living lots;
  - 8 super lots for future subdivision;
  - 3 lots for public open space to be dedicated to Campbelltown City Council;
  - roads for dedication to Campbelltown City Council.
- **Infrastructure and early works in Stage 1** comprising roads and traffic management, utility services reticulation, stormwater management, open space embellishment and landscaping of streets, earthworks, demolition of existing structures and tree removal.
- **Infrastructure and early works outside Stage 1** comprising lead in mains for sewer, electricity, recycled water, gas and telecommunications, stormwater management, demolition of existing structures and tree removal, earthworks, and construction of an acoustic wall, and new intersection to existing Macdonald Road.

Strategic and Statutory Planning Considerations

The Stage 1 Project Application is consistent with the relevant planning strategies and policy instruments including the following:

- Metropolitan Strategy and Draft South West Sub-Regional Strategy;
- State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (subject to the zoning amendments proposed in the accompanying State Significant Study and Part 3A Concept Plan for Edmondson Park South);
- State Environmental Planning Policy (Major Development) 2005;
- State Environmental Planning Policy No.19 – Bushland in Urban Areas;
- State Environmental Planning Policy No.55 – Remediation of Land;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy (BASIX) 2004; and
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
- Greater Metropolitan Regional Environmental Plan 2 - Georges River Catchment.

Environmental Assessment

The Stage 1 Project Application for Subdivision and Infrastructure Works at Edmondson Park South has environmental planning merit in the following respects:

- It is consistent with the urban design principles established in the Part 3A Concept Plan for Edmondson Park South, particularly in providing an accessible and connected grid network of streets with good linkages internally and to the future town centre, transport network, and community facilities at Edmondson Park South, and in providing three parks landscaped with native vegetation and a low scale and form of housing development that respects nearby heritage items.
- It is consistent with the existing Biodiversity Certification Order and Conservation Agreement applying to the Edmondson Park precinct.
- Transport infrastructure initiatives are included in accordance with the Concept Plan for Edmondson Park South including pedestrian cycle path network, bus stops, and road infrastructure upgrades.
- The road network with the proposed road and traffic management works has capacity to accommodate traffic generated by Stage 1.
- There are no heritage items located in Stage 1 or impacted by the Stage 1 Project Application.
- A water cycle management plan consistent with the principles of Water Sensitive Urban Design is included to ensure the quantity and quality of stormwater leaving the Stage 1 site meets statutory requirements and pre-development flow levels.
- There is no flood risk as the Stage 1 residential lots will is above the 100 year ARI flood level.
- Bushfire protection measures are implemented in the form of asset protection zones and, if needed construction standards, in accordance with the NSW Planning for Bushfire Protection guidelines.

- Geotechnical constraints in the form of soil salinity and erodibility will be managed through measures in soil and water management plans developed prior to construction, and the risk of unstable slopes is very low and able to be managed.
- The site is subject to remediation being conducted by the Commonwealth Government to remove any contamination and make it suitable for residential use, and the risk of unexploded ordinance is negligible.
- Community infrastructure contributions are being provided for by way of Material Public Benefit and Works in Kind for parks, road works, riparian corridors, cycleways and bus shelters which are to be constructed and dedicated to Campbelltown City Council.
- A construction management plan will be prepared prior to the commencement of works to manage the methods and impacts of construction activities.

Justification

Given the environmental planning merits described above and the commitments made by the proponent to manage and mitigate any environmental impacts, the Stage 1 Project Application for Edmondson Park South is justified and submitted for the approval of the Minister for Planning.

1.0 Introduction

This Environmental Assessment Report (EAR) supports a Project Application for the Stage 1 Subdivision and Infrastructure Works at Edmondson Park South in the South West Growth Centre of Sydney (hereafter referred to as Stage 1). It is submitted to the Minister for Planning for approval under Part 3A of the Environmental Planning and Assessment Act 1979 (EP&A Act).

JBA Planning has prepared this EAR on behalf of the proponent and landowner, Landcom. It has been prepared in accordance with the Director–General's Environmental Assessment Requirements (DGRs) for the Project Application included at **Appendix A**.

The Edmondson Park precinct is currently the subject of a Concept Plan Application submitted to the Minister for approval under Part 3A of the EP&A Act. This Project Application for Subdivision and Infrastructure Works in Stage 1 – Edmondson Park South is consistent with the Concept Plan.

This EAR describes the site and proposed Stage 1 development of Stage 1, and includes an environmental assessment in accordance with the DGRs. This EAR should be read in conjunction with the supporting technical documents provided by the expert consultant team which are appended.

An expert project team has been formed to deliver the project and includes:

Proponent	Landcom
Engineering and Project Management	J. Wyndham Prince
Urban Planning	JBA Planning
Urban Design	Cox Richardson
Surveyor	Vince Morgan Surveyors
Landscape Architecture	Hassell
Geotechnical Science/ Engineering	Golder Associates
Water Management	J. Wyndham Prince
Transport and Traffic Engineering	Aecom
Ecology –flora and fauna	Ecological Australia
Acoustic Engineering	Wilkinson Murray
Non-indigenous Heritage	Tanner Architects
Aboriginal Heritage	Kelleher Nightingale Consulting
Bushfire	McKinlay Morgan and Associates Pty Ltd

2.0 Site Description

2.1 Location

The Edmondson Park precinct is located within the South West Growth Centre of Sydney to the north-west of the M5 Motorway and lies approximately 40 km to the south west of Sydney CBD. The location of the site is shown in **Figures 1** and **2**.

Stage 1 of Edmondson Park South covers an area of 39.945 hectares located entirely within the Campbelltown City Council area. As shown in **Figure 2**, the site is generally bounded by Zouch Road to the west, the M5 motorway to the south and part of Macdonald Road to the east. Land areas outside of Stage 1 are also the subject of infrastructure works proposed in this Project Application - **see Figure 2**.

2.2 Legal Description and Ownership

The legal description and current ownership of the land in Stage 1 is detailed in **Table 1** below.

Table 1 – Lot Description and Ownership

Property Description	Ownership
Lot 2 DP1144667	The Commonwealth of Australia (being purchased by Landcom)
Lot 1 DP831149	The Commonwealth of Australia (being purchased by Landcom)
Lot 1 DP831148	The Commonwealth of Australia (being purchased by Landcom)
Lot 3 DP 246213	The Commonwealth of Australia (being purchased by Landcom)
Part Macdonald Road	Campbelltown City Council

2.3 Existing Development

The majority of the site was formerly used as an army camp (the Ingleburn Army Camp) up until the 1990s when it was identified as surplus to Defence requirements. Since this time it has been progressively vacated. Remnants of military facilities (i.e. cottages, former building slabs, internal roads, training facilities etc) associated with the site's former Defence use are scattered through-out the site. There are a number of vacant cottages / houses previously used by Defence personnel.

2.4 Topography and vegetation

The Edmondson Park precinct is at the top of the Georges River catchment and the three sub-catchments - Maxwells Creek, Bunbury Curran Creek and Cabramatta Creek - with associated riparian zones and some woodland habitat (notably Cumberland Plain).

The area covered by the Stage 1 Project Application for Edmondson Park South includes a relatively flat to gently undulating northern half with slopes ranging from zero to ten degrees. The southern half slopes more steeply (up to 15 degrees) in a north south direction towards the M5 to around 40 m AHD. One major drainage channel downstream of the centre of the site, flows from west to east. Stage 1 straddles two catchments: the northern segment is located within the broader Maxwells Creek catchment and drains to the east while the southern (steeper) area is located within the Bunbury Curran Creek catchment and drains to the south. Both creeks drain into and form part of the Georges River catchment.

The land covered by the project application predominantly consists of scattered trees amongst cleared grazing land, and patches of native vegetation on the northeast corner and along natural drainage corridors. The majority of the native vegetation on the site is Shale Plains Woodland, a sub-community of Cumberland Plain Woodland. This community is dominated by Grey Box (*Eucalyptus moluccana*) with Native Blackthorn (*Bursaria Spinosa*) the major shrub species. The north east corner of the site includes Alluvial Woodland (part of the TSC Act listed community River-Flat Eucalypt Forest on Coastal Floodplains), dominated by a thick canopy of *Casuarina glauca*. Various weed species and derived native grassland are also present on the site.

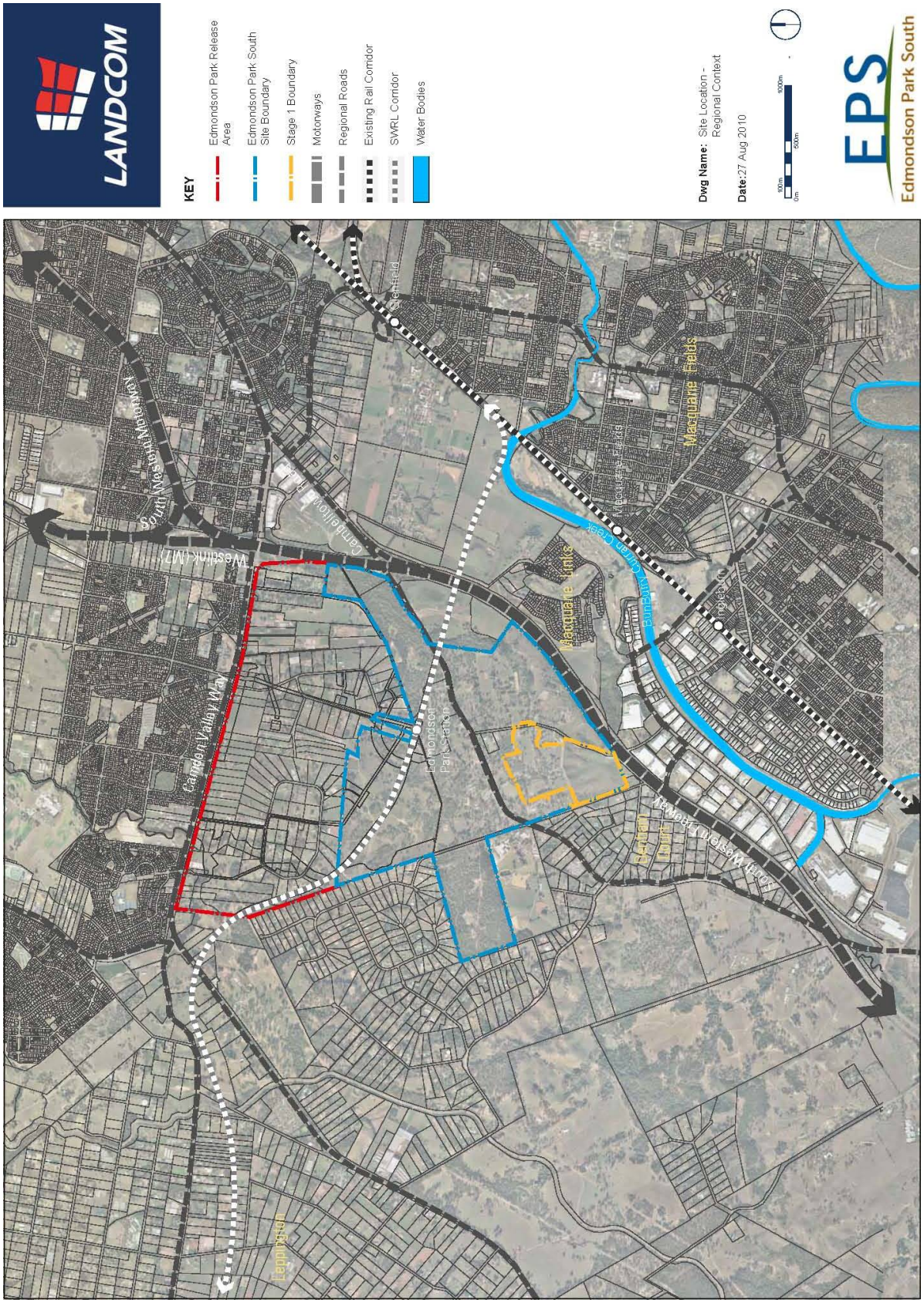

Figure 1 – Location plan

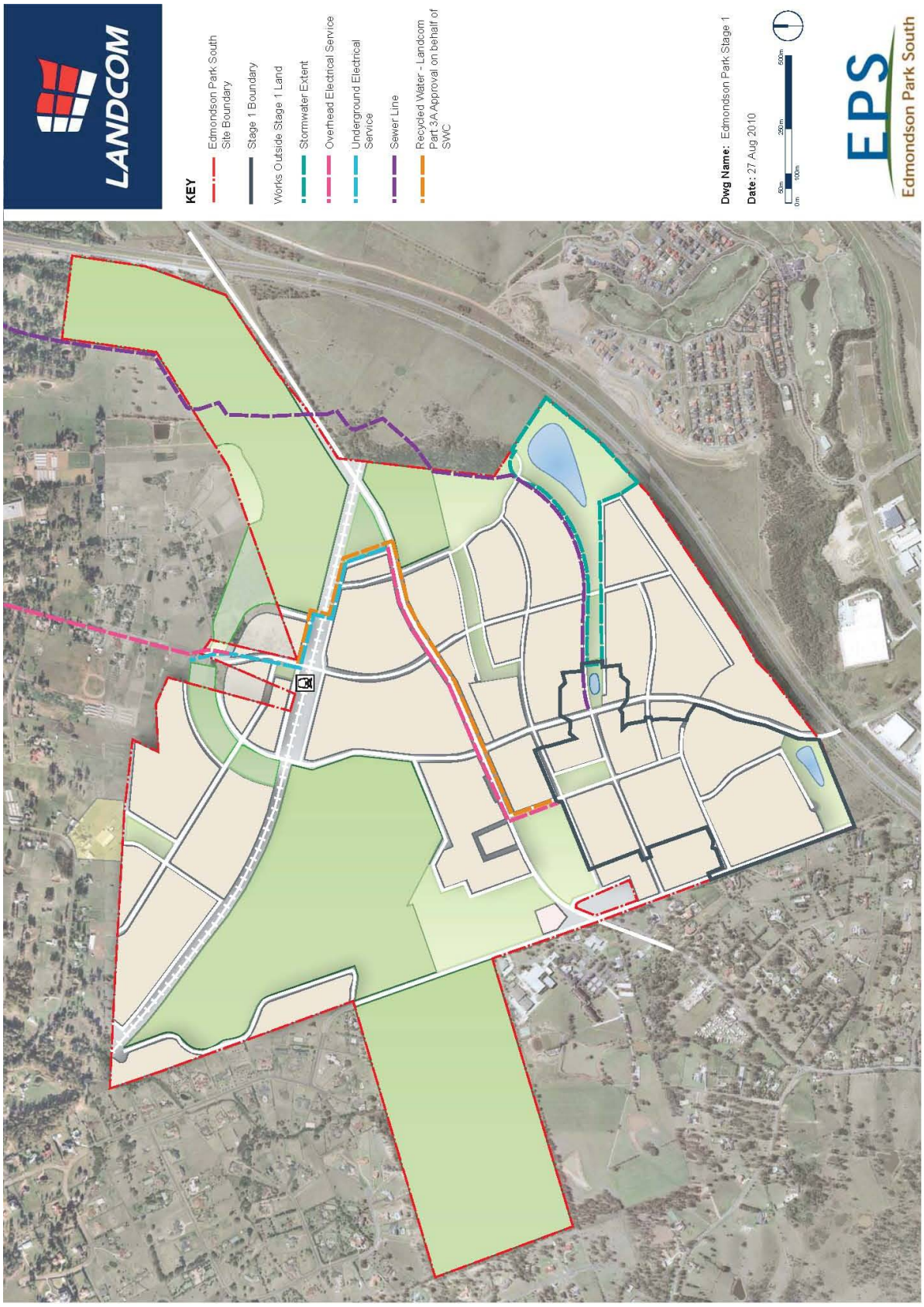

Figure 2 – The Stage 1 site

3.0 Edmondson Park Concept Plan

A Concept Plan for Edmondson Park has been submitted for the approval of the Minister for Planning to determine the vision and planning framework for a new diverse and sustainable development of the urban release area. It establishes a structure plan and the broad planning parameters for the site to be used in the preparation and assessment of future applications for the detailed design, construction and management of development at Edmondson Park.

The vision for Edmondson Park is that it will:

- be a mixed use, mixed income transit-oriented urban development;
- have accessible and connected urban places;
- provide a new town centre with a mix of retail, commercial and community uses and a new train station and rail line with a rail/bus interchange;
- provide a series of community spaces with a distinct identity incorporating public art;
- provide a cycleway network that links destination points and open spaces;
- interpret and celebrate significant heritage places;
- incorporate a new 150 hectare Regional Park conserving Cumberland Plain Woodland and providing recreation activities; and
- implement environmental sustainability initiatives in water conservation, energy efficiency and waste management.

The Concept Plan establishes the overall planning framework for Edmondson Park including:

- land use type and distribution;
- a mix of housing types and densities (approximately 3,200 dwellings);
- concept location of and approximately 35,000 – 45,000 m^2 of retail / business / commercial floor space within the new Edmondson Park Town Centre;
- identification and location of open space and drainage corridors, environmental conservation lands (to form the new Regional Park), and local active and passive recreation facilities, including levels of embellishment;
- expanded Ingleburn North Primary School and new combined Primary/High School to the north of the site;
- road network layout, and pedestrian and cycleway network layout;
- pedestrian bridge over the south western railway;
- Campbelltown Road corridor including the establishment of key intersection locations and configuration;
- utilities (including power, telecommunications and gas), infrastructure strategy, potable water strategy, sewer concept plan and water cycle management plan;
- location and dimensions of Bushfire Asset Protection Zones;
- appropriate interpretation of European and Aboriginal heritage located on the site;
- remediation works;
- decommissioning of the existing Sewerage Treatment Plant (STP); and
- demolition.

It is envisaged that Edmondson Park will be developed progressively over a 15-20 year period. The staging and delivery plan will include the progressive delivery of necessary infrastructure, services and facilities, having regard for market demand. The first stage of development is a subdivision for approximately 265 lots and associated infrastructure and establishment of a regional park.

4.0 Proposed Stage 1 Subdivision and Infrastructure Works

4.1 Overview

This Project Application seeks approval for the subdivision, detailed design and construction of Stage 1 at Edmondson Park South set out below.

Subdivision of the land in Stage 1

Subdivision of Lot 2 DP1144667; Lot 1 DP831149; Lot 1 DP831148 and Lot 3 DP246213 as shown in the Draft Plans of Subdivision prepared by Vince Morgan Surveyors and J. Wyndham Prince included in **Volume 2 – Appendix L** of this report, to ultimately create:

- 206 residential lots;
- 15 Environmental Living lots;
- 8 super lots for future subdivision;
- 3 lots for public open space to be dedicated to Campbelltown City Council; and
- roads for future dedication to Campbelltown City Council,

Infrastructure and early works within the Stage 1 land

Infrastructure and early works comprising:

- tree removal;
- earthworks including excavation, cut and fill;
- design and construction of physical infrastructure, including roads, stormwater drainage and utility reticulation, traffic management works, establishment of open space areas;
- retaining walls as determined during detailed design;
- design and construction of staged stormwater water quantity and quality infrastructure to achieve objectives required by the Water Cycle Management (WCM) strategy for the greater site;
- demolition of all existing structures;
- erosion and sediment control to areas of roadworks and bulk earthworks including provision of temporary sedimentation ponds and diversion drains;
- design and construction of an ornamental pond;
- landscaping of road reservations; and
- embellishment of open space.

Infrastructure and early works outside the Stage 1 land

Infrastructure and early works comprising:

- construction of the sewer lead in from the Sydney Water carrier main at Ash Road;
- upgrade of overhead mains and construction of electrical lead-in feeders from the existing zone substation at Prestons;
- connection to utility services, recycled water, electricity, gas and telecommunications in Campbelltown and Macdonald Roads;
- connection to existing stormwater drainage;

- tree removal;
- earthworks including excavation, cut and fill;
- design and construction of physical infrastructure, including roads, stormwater drainage and utility reticulation, traffic management works, including the connection to the existing Macdonald Road;
- design and construction of staged stormwater water quantity and quality infrastructure to achieve objectives required by the Water Cycle Management (WCM) strategy for the greater site;
- erection of an acoustic wall;
- extension or relocation of existing services including recycled water, gas, telecommunication, power;
- demolition of all existing structures;
- proposed new intersection to existing Macdonald Road; and
- construction of a gravity sewer line through the future Regional Park.

The Project Application seeks approval for the Engineering Drawings including roads, cut/fill, stormwater management, and soil and water management plans prepared by J. Wyndham Prince which are included at A3 size in **Volume 2** of the **Appendices**.

It is intended to seek staged Construction Certificates as necessary to facilitate the efficient delivery of each phase of the development works.

4.2 Proposed Subdivision

Draft Plans of Subdivision prepared by Vince Morgan Surveyors are included at **Appendix L** of this report. The 10 initial residue lots will be progressively sub-divided through the Stage 1 sub-stages (see Section 4.9). Eight (8) super lots will remain for sub-division and development in the future.

The land use areas to be created through the Stage 1 subdivision are set out in **Table 2**.

Table 2 – Overview of Stage 1 Project Application Land Use Areas

Land Use	Area (ha)
Residential lots	9.7306
Environmental Living lots	7.4191
Open Space and Riparian Corridor	5.135

The distribution of lot types in each sub-stage is shown in **Table 3** and the proposed range of residential lot sizes is in **Table 4**. Staging is shown in the plans by J. Wyndham Prince at **Appendix L**.

Table 3 – Subdivision stage and lot type

Stage	Residential	Environmental Living	Public open space
1a	30		2
1b	45		
1c	73		
1e	58		
1f		15	1

Table 4 – Residential lot sizes

Area range	No. of lots	% of total lots
>255 to <300	1	0.5
>300 to <450	50	22.6
450 to 500	108	48.8
>500 to 600	43	19.5
>600	4	1.8
Environmental Living	15	6.8
Total	**221**	**100**

4.3 Open Space and Landscaping

The Stage 1 Project Application includes 5.135 hectares of open space / parks proposed to be dedicated to Campbelltown City Council (see **Table 5**).

Table 5 – Areas of open space / parks

Open Space / Park	Area (ha)
Entry (Gateway) Park	0.528ha
Local Park	1.183ha
South West Park	3.424ha
Total	**5.135ha**

The Project Application seeks approval for the landscaping as described in the Landscape Concept prepared by Hassell included at **Appendix B.** The key landscape principles for Edmondson Park are as follows:

- Create an overall landscape setting that responds to the site's natural assets including natural systems, topography and vegetation.
- Protect fauna and flora habitats.
- Protect and enhance watercourses and riparian vegetation.
- Create parks and streets that celebrate the natural landscape and the needs of the surrounding community.
- Create parks and streets that are of a high quality and which promote local character and identity.
- Provide pedestrian and cycleway connections through the conservation lands and with regional beyond the site.
- Provide large shady trees as relief from the new urban environment.

The Landscape Concept at **Appendix B** includes planting and materials schedules and describes the proposed landscape treatments for Stage 1 for:

- streetscapes, footpaths and cycleways including tree planting, understorey planting, and median planting;
- parks including treatment of entry (gateway) park, local park, and southwest park.

4.4 Stormwater Management Works

The Stage 1 Project Application seeks approval for the construction of the stormwater management measures described in the Water Cycle Management Plan prepared by J. Wyndham Prince at **Appendix C**, including the following:

- Surface runoff from lots and roads directed to the piped drainage system along roads in the Stage 1 subdivision directed to the Maxwells Creek riparian corridor to the east and Southwest detention basin off Macdonald Road.
- Maxwells Creek riparian corridor of stormwater treatment measures including:
  - ornamental pond in the Entry / Gateway Park (within Stage 1 land);
  - two raingarden/ temporary sediment/detention ponds (outside Stage 1 land);
  - regional detention basin (outside Stage 1 land).
- Southwest detention basin with discharge to existing drainage system in Macdonald Road (within Stage 1 land).

4.5 Utility Services

A Utility Services Infrastructure Report has been prepared by J Wyndham Prince setting out the consultation undertaken with relevant service providers and detailing the arrangements for the provision of utility services to the Stage 1 lots (see **Appendix D**). The situation is summarised below.

Potable Water

There is adequate capacity within the existing potable water network to service 250 – 300 lots, therefore there will be no need for lead in water main works to fully service Stage 1. The servicing of all lots within Stage 1 will be by way of extension of the network by normal in street pipe reticulation from Macdonald Road to connections within each proposed new allotment.

Recycled Water

All lead in recycled water infrastructure will be delivered by Sydney Water within a timeframe which services all Stage 1 lots. Landcom will service each individual future allotment by extension of the recycled water pipe network by normal in street reticulation from Macdonald Road to connections with each proposed lot.

Sewer

No existing sewer is available to the Stage 1 site. The subdivision and creation of the Stage 1 lots will be subject to Sydney Water's issue of a Section 73 Certificate which will be dependent on the extension of the existing sewer network (Maxwellss Creek Carrier) from the Ash Road Carrier. This main is 2,900m downstream adjoining Camden Valley Way. Having constructed this sewer lead in main the servicing of Stage 1 lots will be by means of normal gravity pipe and access chamber networks. The servicing of the proposed Environmental Living lots within Stage 1 will be via a connection to existing sewer adjoining the M5 to the south of the site.

The sewer carrier main design approval process with Sydney Water will be extensive and subject to Landcom securing written permissions to enter from all affected property owners.

Electricity

Integral Energy has advised that there is inadequate electrical supply to service all of the lots in Stage 1. In order to service Stage 1 it will be necessary for Landcom to construct HV lead in mains from the Prestons zone substation along Croatia Avenue to the proposed Town Centre substation site. Upon energisation there will be sufficient supply to service 300 lots.

In addition to the offsite augmentation works, the electrical reticulation network will be extended from the Macdonald Road frontage to provide connections to individual Stage 1 lots including normal cabling, ducting, road crossings, HV substations, house connection boxes and street lighting..

Landcom will enter into an agreement with Integral Energy as to the location and transfer of a suitable parcel of land to accommodate the future zone substation close to the proposed Edmondson Park South Town Centre.

Telecommunications

Arrangements will be made with a suitable telecommunications provider to extend the existing optical fibre network to service connections to each new lot within Stage 1.

Gas

There is an existing main with capacity to service Stage 1 within Macdonald Road. Each new allotment will be serviced with a gas connection by extension of the existing reticulation network from Macdonald Road.

4.6 Earthworks

The Stage 1 Project Application seeks approval for the earthworks as shown in the Cut/Fill Plans in **Volume 2 – Appendix M** of this report. The proposed earthworks are to facilitate the proposed stormwater management plan, facilitate roadworks and improve lot gradings.

4.7 Demolition and Tree Removal

Demolition

The Stage 1 Project Application seeks approval for the demolition of six cottages, ancillary building structures and former roads.

Tree removal

The Stage 1 Project Application seeks approval for the removal of trees and vegetation on and adjacent to the Stage 1 land which is certified to be cleared for development (see Section 7.3 for an explanation of 'certified land'). Stage 1 involves the clearing of 2.27ha of native vegetation, and the modification of 2.33ha native vegetation immediately adjacent to the site which is mapped on the northeast corner of Stage 1 for bushfire protection purposes. Stage 1 will also involve the clearing of scattered trees across the remainder of the Stage 1 certified land where necessary to accommodate roads, infrastructure, earthworks and house siting on allotments. Trees that are in a healthy and safe condition are proposed to be retained in the proposed open space parklands and where possible on housing allotments.

The Stage 1 Project Application also proposes the removal and subsequent revegetation of up to 0.29ha of native vegetation on non-certified land in the Regional Park outside the Stage 1 area to make way for the construction of the main sewer line.

4.8 Works outside the Stage 1 area

The Stage 1 Project Application seeks approval for the construction of the following infrastructure outside the Stage 1 subdivision area as shown in the appended plans:

- erection of an acoustic wall;
- sewer line connection to Ash Road to the north;
- stormwater treatment measures in Maxwells Creek riparian corridor to the east;
- overhead and underground electrical service from Prestons Zone substation; and
- recycled water main from Croatia Avenue, Edmondson Park North.

4.9 Staging of Subdivision and Construction

Stage 1a

Subdivision of Lot 1 DP831148, Lot 1 DP831149, Lot 2 DP1144667 and Lot 3 DP246213 to create:

- 30 Residential lots;
- 2 Public Reserves;
- 10 residue lots (being Lots 32 - 41 for further sub-division in subsequent stages); and
- dedication of Public Roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision approval and registration process including:

- Proposed new intersection to existing Macdonald Road;
- Lead in road from Macdonald Road to access those roads adjoining the proposed 31 new allotments;
- Bulk earthworks including remediation of any uncontrolled filling to facilitate roadworks and improved lot gradings;
- Tree removal to facilitate roadworks and bulk earthworks;
- Demolition of existing structures;
- Erosion and sediment control to areas of roadworks and bulk earthworks including provision of temporary sedimentation ponds;
- Design and construction of water quality and on site detention control facilities including 2 temporary sedimentation ponds, inlet and outlet structures, and earthworks bunding to provide on site detention basin controls
- Design and construction of an ornamental water body adjoining the Stage 1 entry off Macdonald Road to provide a higher order aesthetic improvement to the residential area and surrounding open space;
- Design, construction and dedication of an area of local pocket park including amenities, play equipment and landscape embellishment;
- Design and construction of lead in sewer carrier main from the existing Ash Road carrier adjoining Camden Valley Way through the Tree Valley Golf Course, adjoining land, and through the proposed regional park corridor, under the SWRL, and through and adjoining riparian corridors to the Stage 1 boundary.

- Design and construction of the lead in High Voltage electrical feeder via Croatia Avenue then under the SWRL, through the future town centre to a proposed nearby zone substation site;
- Extension of existing and proposed local utility services infrastructure throughout the proposed road network to service the subdivision of Stage 1a (31 residential lots) including potable water, recycled water, sewer, electrical, telecommunications, and gas;
- Design and construction of revegetation and landscaping works to improve the visual amenity of the proposed development.

Stage 1b

Subdivision of Lot 32 (being part of Lot 1 DP831148, Lot 1 DP831149 & Lot 2 DP1144667) to create:

- 45 Residential lots; and
- dedication of public roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision and approval and registration process including:

- Roadworks
- Stormwater drainage;
- Interallotment drainage;
- Bulk earthworks;
- Tree removal;
- Erosion and sedimentation control;
- Utility service reticulation to lots including potable water, recycled water, sewer, electrical, telecommunications, and gas; and
- Revegetation and landscaping works.

Stage 1c

Subdivision of Lot 33 (being part of Lot 1 DP831148, Lot 1 DP831149 & Lot 1 DP1144667) to create:

- 73 Residential lots;
- 3 residue lots (super lots); and
- dedication of public roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision and approval and registration process including:

- Roadworks;
- Stormwater drainage;
- Interallotment drainage;
- Bulk earthworks;
- Tree removal;
- Erosion and sedimentation control;
- Utility service reticulation to lots including potable water, recycled water, sewer, electrical, telecommunications, and gas; and
- Revegetation and landscaping works.

Stage 1d

Subdivision of Lot 34 (being part of Lot 1 DP831148, Lot 1 DP831149 & Lot 1 DP1144667) to create:

- 1 Residue lot; and
- dedication of public roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision and approval and registration process including:

- Roadworks;
- Stormwater drainage;
- Interallotment drainage;
- Bulk earthworks;
- Tree removal;
- Erosion and sedimentation control;
- Utility service reticulation to lots including potable water, recycled water, sewer, electrical, telecommunications, and gas; and
- Revegetation and landscaping works.

Stage 1e

Subdivision of Lot 35 (being part of Lot 1 DP831148, Lot 1 DP831149 & Lot 1 DP1144667) to create:

- 58 Residential lots; and
- dedication of public roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision and approval and registration process including:

- Roadworks;
- Stormwater drainage;
- Interallotment drainage;
- Bulk earthworks;
- Tree removal;
- Erosion and sedimentation control;
- Utility service reticulation to lots including potable water, recycled water, sewer, electrical, telecommunications, and gas; and
- Revegetation and landscaping works.

Stage 1f

Subdivision of Lot 39 (being part of Lot 1 DP831148, Lot 1 DP831149 & Lot 1 DP114467) to create:

- 15 Environmental Living lots;
- 1 Public Reserve; and
- dedication of public roads.

Design and construction of road and drainage works and utility services to facilitate the subdivision and approval and registration process including:

- Roadworks & modified rural residential profile;
- Stormwater drainage including roadside grassed swales for longitudinal drainage and surface inlet pits and pipes;
- Onsite detention and water quality basin facilities within adjoining areas of open space discharging to adjoining Macdonald Road;
- Minor tree removal;
- Some site regrading and lot filling earthworks;
- Concrete driveway access to lots adjoining steep sections of Zouch Road and providing perimeter emergency access between cul-de-sacs and Zouch Road;
- Erosion and sedimentation control;
- Utility service reticulation to lots including potable water, recycled water, sewer, electrical, telecommunications, and gas; and
- Revegetation and landscaping works.

5.0 Consultation with Government Agencies

Consultation has been undertaken with the community, Councils and relevant Government agencies during the preparation of supporting technical studies, investigations and the formulation of development proposals for both the Concept Plan and the Stage 1 Project Application.

5.1 Public authorities

In accordance with the DGRs, the following public authorities, including all relevant utility providers were consulted:

- Department of Planning Strategic Assessments and Strategies and Land Release;
- Campbelltown City Council
- Liverpool City Council
- Department of Environment, Climate Change & Water
- Commonwealth Department of Environment, Water, Heritage and the Arts
- Department of Education and Training
- Roads and Traffic Authority
- Transport Construction Authority
- Railcorp
- NSW Transport
- NSW Office of Water
- NSW Rural Fire Service
- Sydney Water
- Integral Energy
- Jemena
- Telstra and other service providers
- Rural Fire Service
- Local Aboriginal Land Councils

A summary of consultation undertaken with public agencies has been prepared by Landcom and is included at Appendix F to the EAR for the Concept Plan. A Community Consultation Strategy prepared by Landcom / Manidis Roberts is also included at Appendix F to the Concept Plan. The summary of consultation and Community Consultation Strategy relate to both the Concept Plan and Stage 1 Project Applications.

In addition, a Planning Focus Meeting was held by the Department of Planning prior to issue of the DGRs. The Planning Focus Meeting involved a number of key agencies including the Department, DECCW, Liverpool and Campbelltown City Councils, NSW Transport, RTA, Office of Water, Department of Education and Training, and the Commonwealth Department of Environment, Water, Heritage and the Arts.

A number of formal consultation meetings have been held with both Liverpool and Campbelltown Councils. Consultation with both of the Councils is ongoing, in relation to a number of matters, including local development contributions.

5.2 Aboriginal consultation

Aboriginal community stakeholders have been consulted as part of the preparation of the Aboriginal Cultural Heritage Assessment (Concept Plan) and Stage 1 Report by Kelleher Nightingale Consulting Pty Ltd (see **Appendix G)** This included the Tharawal and Gandangara Local Aboriginal Land Councils.

Identification of Aboriginal community stakeholders was undertaken in accordance with the DECCW draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, July 2005)* and *Interim Aboriginal Community Consultation Guidelines (2004).* This required notification of the relevant Local Aboriginal Land Councils, the Registrar of Aboriginal Owners and Native Title Services, the Native Title Services Corporation Limited as well as an invitation for Aboriginal stakeholders to register their interest in the project via public notices placed in The Liverpool Champion. In addition, letters introducing the project were sent to the DECCW, Liverpool City Council and Campbelltown City Council. Further consultation with Aboriginal community stakeholders will occur on an ongoing basis. Stakeholder groups notified will be provided with a copy of the Cultural Heritage Assessment.

6.0 Strategic and Statutory Planning Considerations

The following key planning strategies and policy instruments are relevant to the Stage 1 Project Application:

- Metropolitan Strategy and Draft South West Sub-Regional Strategy;
- State Environmental Planning Policy (Sydney Region Growth Centres) 2006;
- State Environmental Planning Policy (Major Development) 2005;
- Liverpool Local Environmental Plan 2008;
- Campbelltown Local Environmental Plan 2002;
- Greater Metropolitan Regional Environmental Plan 2 – Georges River Catchment
- State Environmental Planning Policy No.19 – Bushland in Urban Areas;
- State Environmental Planning Policy No.55 – Remediation of Land;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy (BASIX) 2004
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008; and

In addition, a number of existing buildings / structures on the site are identified as being of heritage value under the Environment Protection & Biodiversity Conservation Act (EPBC Act) and/or Register of the National Estate.

The Edmondson Park South Concept Plan Environmental Assessment Report provides an assessment of the Concept Plan proposal in relation to key planning strategies and policy instruments. An assessment of the proposal against the provisions of existing SEPPs and Section 117 Directions is provided at Appendix R of that EAR.

The Stage 1 Project Application is consistent with the Concept Plan proposal and is therefore considered to comply with or meet all relevant requirements. Key matters of specific relevance to the Stage 1 Project Application development are summarised below.

6.1 Metropolitan Strategy and Draft South West Sub-Regional Strategy

The Strategic Justification for the Edmondson Park South project is addressed in the Environmental Assessment Report accompanying the Concept Plan and State Significant Site proposals. This includes consideration of the overall project in relation to the Sydney Metropolitan Strategy and the Draft South West Sub-Regional Strategy.

The South West Sub-Regional Strategy aims to ensure that adequate land is available and appropriately located to sustainably accommodate the projected housing and employment needs of the region's population over the next 25 years.

Edmondson Park was the first precinct released in the South West Growth Centre. The commencement of the works proposed in this Stage 1 Project Application will provide a catalyst for development within the wider release area, which is currently unable to proceed pending the delivery of significant new lead in services infrastructure.

Specifically, the Stage 1 Project Application works deliver the:

- connection to the Sydney Water sewer carrier main at Ash Road;
- overhead and underground electrical service from Prestons Zone substation; and
- recycled water main from Croatia Avenue, Edmondson Park North.

This services infrastructure comprises a significant component of the lead in infrastructure required to allow development within the Edmondson Park Precinct to proceed.

The project will also support and promote transit oriented development in proximity to the new South West rail line, and establish the new 150 hectare Regional Park securing long term agreed conservation outcomes within the South West Growth Centre.

6.2 Existing and proposed land use zoning

The site forms part of the Edmondson Park Precinct within the South West Growth Centre under the SEPP (Sydney Region Growth Centres) 2006. The boundaries of the Edmondson Park Precinct, and the relative boundaries of the subject site are shown on **Figure 1**.

The Edmondson Park Precinct has been released for urban development. The Growth Centres SEPP establishes Liverpool Local Environmental Plan 2008 (LLEP 2008) and Campbelltown (Urban Area) Local Environmental Plan 2002 (CLEP 2002) as the relevant local environmental planning instruments for the land.

Under LLEP 2008 and CLEP 2002, the Edmondson Park precinct has been rezoned for a combination of urban and environmental purposes including the creation of a new 150 hectare regional park to be retained in State government ownership. For that part of the land that is currently owned by the Commonwealth, the land use zoning provisions that allow for future urban development under LLEP 2008 and CLEP 2002 have been 'delayed'. Until such time as the 'delayed' rezoning provisions come into effect, the Defence land remains zoned for Defence purposes.

Under CLEP 2002, the Stage 1 area of works is zoned partly:

- 2(c) Higher Density Residential
- 6(a) Local Open Space
- 3(c) Neighbourhood Business
- 5A Special Uses (School)
- 7(d5) Environmental Protection 1 ha minimum and
- 5 Special Uses Roads.

The lead in infrastructure, including the sewer carrier main, recycled water main and electrical services will also cross land zoned under Liverpool LEP 2008, including the E1 National Parks and Nature Reserves.

An amendment to both the current and the 'delayed' rezoning provisions under Liverpool LEP 2008 and Campbelltown LEP 2002 is proposed as part of the State Significant Site listing that will facilitate implementation of the Concept Plan for Edmondson Park South. The rezoning proposal includes refinements to the open space and drainage corridors zoned 6(a) Local Open Space under Campbelltown LEP 2002 that are within the Stage 1 Project Application area of works.

It is intended that the State Significant Site listing will establish an appropriate statutory relationship to the Growth Centres SEPP so as to maintain the existing Biodiversity Certification Order that has been conferred on the SEPP under the Threatened Species Conservation Order.

6.3 State Environmental Planning Policies

SEPP (Major Development) 2005

State Environmental Planning Policy (Major Development) 2005 identifies development to which Part 3A of the EP&A Act applies and requires approval from the Minister for Planning. The proposed development falls into a class of major development described in the SEPP.

On 5 July 2010, the Minister for Planning declared the development of Edmondson Park South as a major project to which Part 3A of the EP&A Act applies, and authorised the submission of the Concept Plan. This Project Application is submitted in accordance with the terms of the Concept Plan.

SEPP 19 – Bushland in Urban Areas

The general aim of this Policy is to protect and preserve bushland within the urban areas referred to in the SEPP, which included Liverpool and Campbelltown LGAs. The policy states that when preparing draft local environmental plans councils shall give priority to retaining bushland, unless it is satisfied that significant environmental, economic or social benefits will arise which outweigh the value of the bushland. The policy also provides mechanisms to prepare Plans of Management for bushland zoned or reserved for public open space purposes.

The management of bushland in the Stage 1 Project Application for Edmondson Park South is made in accordance with the existing Biodiversity Certification Order and Conservation Agreement as described below in Section 7.3 of this report.

SEPP 55 – Remediation of Land

SEPP 55 provides controls and guidelines for the remediation of contaminated land. In particular, this policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. Before determining a development application that changes the use of land, a planning authority must consider whether the land is contaminated and be satisfied that it is suitable in its current state or will be suitable, after remediation for the proposed development.

Contaminated land is being remediated by the Department of Defence and is addressed in Section 7.11 of this report.

SEPP (Infrastructure) 2007

The SEPP Infrastructure 2007 (ISEPP) provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The SEPP supports greater flexibility in the location of infrastructure and service facilities along with improved regulatory certainty and efficiency.

The Stage 1 Project Application includes infrastructure works as described in Section 4 of this report and is not inconsistent with the ISEPP.

SEPP (BASIX) 2004

The SEPP BASIX operates in conjunction with Environmental Planning and Assessment Amendment (Building Sustainability Index: BASIX) Regulation 2004 to ensure the implementation of water conservation and energy efficiency targets in the design and construction of housing in NSW. SEPP (BASIX) will apply to future applications for the design and construction of housing in Stage 1 at Edmondson Park South.

SEPP (Exempt and Complying Development Codes) 2008

The SEPP streamlines assessment processes for development that complies with specified development standards including dwelling houses. The policy provides exempt and complying development codes that have State-wide application including the General Exempt Development Code which identifies types of development that are of minimal environmental impact that may be carried out without the need for development consent; and the General Housing Code which identifies types of complying development including dwelling houses on lots of at least 450 m^2 that may be carried out in accordance with a complying development certificate issued by either an accredited private certifier or Council.

The General Housing Code in the SEPP will apply to the design and construction of housing in Stage 1 on allotments of at least 450 m^2.

Greater Metropolitan Regional Environmental Plan 2 – Georges River Catchment

The Georges River Catchment REP establishes principles and provisions to ensure the maintenance and improvement of water quality and river flows within the Georges River Catchment and the delivery of ecologically sustainable development. The REP aims to establish a consistent and coordinated approach to environmental planning and assessment for land along the Georges River and its tributaries. General and specific planning principles are to be applied to development proposals.

The Edmondson Park South Water Cycle Management Plan has been developed to meet the requirements and principles for the Georges River Catchment and the drainage infrastructure works that are proposed as part of the Stage 1 Project Application, which are consistent with the Water Cycle Management Plan, will deliver key components of it.

7.0 Environmental Assessment

This section of the report provides an assessment of the environmental planning issues associated with the Stage 1 Project Application for Edmondson Park South in accordance with the Director-General's Environmental Assessment Requirements (DGRs). Table 6 shows where the DGRs are addressed in this EAR

7.1 Director General's Environmental Assessment Requirements

Table 6 - Director General's Environmental Assessment Requirements

Director General's requirements		Location in Report
General requirements		
1.	Executive summary	Executive. Summary
2.	Description of the project	Section 4
3.	Site analysis and description of existing environment	Sections 2
4.	Justification for the project	Sections 7 and 9
5.	Consideration of relevant statutory and non-statutory planning provisions	Section 6
6.	Draft Statement of Commitments	Section 8
7.	Statement of Validity	Preface
8.	Quantity surveyors report	See Appendix A to EAR for Concept Plan
Key assessment requirements		
	Urban design, development controls and land uses	Sections 4.1 & 7.2
	Biodiversity	Section 7.3; Appendix E
	Regional Park	N/A
	Traffic/ Transport	Section 7.4; Appendix F
	Staging of development	Section 4.9; Appendix L
	Heritage	Sections 7.5 & 7.6; Appendix G & H
	Surface water, groundwater quality and riparian corridors	Sections 4.4 & 7.7; Appendix C
	Flooding	Section 7.8; Appendix C
	Bushfire risk assessment	Section 7.9; Appendix I
	Noise	Section 7.10: Appendix J
	Geotechnical and contamination	Section 7.11: Appendix K
	Topography and site preparation	Section 4.6; Appendix M
	Ownership/maintenance of Public Domain	Section 7.13
	Utilities	Section 4.5; Appendix D
	Social infrastructure/ contributions	Section 7.13
	Ecologically Sustainable Development	Section 7
	Site preparation works	Section 4.6; Appendix M
	Subdivision	Section 4.2; Appendix L
	Construction impacts	Section 7.14
	Public Domain	Section 4.3; Appendix B

7.2 Urban Design

The Concept Plan for Edmondson Park South includes a series of urban design principles driving the planning and development of the site covering:

- Town centre focus of activity;
- Transit oriented, accessible and connected development;
- Community places;
- Parklands of native bushland;
- Heritage interpretation.

The Stage 1 Project Application is consistent with the urban design principles and layout of the Concept Plan. In particular, it provides an accessible and connected grid network of streets with good linkages internally and to the future town centre, transport network, and community facilities at Edmondson Park. It also provides three parks landscaped with native vegetation, and a low scale and form of housing development that respects nearby heritage items.

7.3 Biodiversity

An Ecological Assessment of the impacts of the Stage 1 works prepared by Ecological Australia is at **Appendix E**. Edmondson Park is within the area covered by a Biodiversity Certification Order and a Conservation Agreement as described below.

Biodiversity Certification Order

As part of the Growth Centres, Edmondson Park is subject to a Biodiversity Certification Order under the NSW *Threatened Species Conservation Act 1995*. Edmondson Park contains both certified and non-certified (Regional Park) lands under the Biodiversity Certification Order. The Biodiversity Certification Order prevents clearing of native vegetation on non-certified lands unless it is in accordance with a plan of management, or agreed to by NSW Department of Environment, Climate Change and Water (DECCW). Certified lands can be cleared without further environmental impact assessment under the NSW *Threatened Species Conservation Act 1995* and the *Environmental Planning and Assessment Act 1979*.

Conservation Agreement

The Edmondson Park Precinct is also subject to a Conservation Agreement under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* between the Minister for the Environment, Heritage and the Arts, the NSW Minister for Climate Change and the Environment, and the NSW Minister for Planning. The Conservation Agreement relates to a Biodiversity Conservation Plan and includes the establishment of the Regional Park (150 hectares), sympathetic management of open space containing Cumberland Plain Woodland, and an offset package that results in an agreed net benefit to the conservation of biodiversity. Stage 1 of Edmondson Park South is within the area subject to the Conservation Agreement. As there are no specific requirements in the Agreement for protection or management of lands within Stage 1, the Stage 1 land is effectively exempt from further assessment under the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act)

Impact of works

Stage 1 is located within 'certified' lands. It will result in the loss of 1.8 ha of Existing Native Vegetation (ENV) and the modification of 2.3 ha of ENV immediately adjacent to the site. The area of ENV being modified requires thinning of the canopy and management of the understorey to comply with bushfire asset protection requirements. As all lands within Stage 1 are 'certified' under the Biodiversity Certification Order, and the proposed tree removal in and adjacent to Stage 1 can be approved and carried out without the need for impact assessment.

The construction of the sewer line through the Regional Park requires the clearing and subsequent revegetation of approximately 0.3 ha of mapped ENV, conservatively estimated as a 10 metre wide disturbance corridor, but which could be limited to a width of around 6 metres in sensitive areas. The sewer main is located on 'non-certified' land and thus clearing and revegetation proposed as part of the construction requires the agreement of DECCW. The proposed sewer alignment would impact on approximately 1,100 m^2 of 'A' class Cumberland Plain Woodland, as well as approximately 1,800 m^2 of Alluvial Woodland, which is not protected under the EPBC Act.

The Ecological Assessment concludes that the construction of a sewer line will result in a small scale (0.3 ha) temporary disturbance that will be fully revegetated, and will not result in a material difference to the conservation outcomes. This area will be completely rehabilitated post-construction and the alignment will enable a gravity main to be constructed, so reducing ongoing environmental impacts and risks associated with the operation of a pump station.

The proposed subdivision works will require the use of earthmoving equipment and result in significant ground disturbance. Accordingly, it is not considered practical to retain trees within the urban development area. Trees will, however, be retained within the Open Space areas and to the centre north of the site where thinning of an area of ENV will occur.

In summary, the Stage 1 Project Application is generally consistent with the Conservation Agreement. It includes a relatively minor change to the land identified for riparian open space corridor purposes under the Conservation Agreement, however this change does not materially affect the Conservation Plan or the Biodiversity Management Actions under the Conservation Agreement as the land in question does not contain Cumberland Plain Woodland.

Management and mitigation

The proponent will implement through construction management plans and other mechanisms a suite of measures to reduce the potential impacts on areas of ecological value adjacent to the site, including:

- fencing to keep contractors out of the Regional Park and Open Space areas;
- signage identifying the location of critically endangered ecological communities and notifying liability for prosecution under State and Commonwealth legislation;
- installation of sediment control devices;
- use of sterile cover crops in spray grass applications;
- regular weed management along interfaces;
- provision of an environmental site induction for contractors on site; and
- inclusion of environmental protection requirements in contracts.

7.4 Traffic and Transport

The Traffic Management and Accessibility Plan (TMAP) for the Edmondson Park Concept Plan, prepared by AECOM (see **Appendix F),** addresses the range of matters identified in the DGRs including an extensive list of sustainable travel measures to reduce car dependency. The AECOM report also examines the road network, intersection layout and treatment, pedestrian and cycle networks as well as the public transport network. All are designed to provide linkages to key destination points and transport hubs, and maximise accessibility between proposed land uses in Edmondson Park.

The Stage 1 development requires the delivery of a number of road network and intersection improvements to cater for the traffic generated by the development. A new intersection is to be constructed along Macdonald Road to provide vehicular traffic to Stage 1, and the internal road network, footpaths and cycleways will be built to service the development. AECOM has undertaken further work specifically in relation to Stage 1 covering the impacts of:

- Stage 1 on the road network; and
- construction traffic.

The report also sets out the package of sustainable traffic and transport measures for the successful delivery of Stage 1.

7.4.1 Impacts on road network

Notwithstanding the initiatives to improve public transport use, the development of Edmondson Park will result in increased vehicular trips and increased usage of the road system in the vicinity. Forecasts of increases in traffic flows to 2012 were estimated using a spreadsheet model and assessed through detailed intersection modelling.

Approximately 6% of trips will travel to / from the south via Campbelltown Road and Macdonald Road resulting in approximately 10 additional trips at Campbelltown Road and Macdonald Road south of the study area. As this is less than 1% and 2% of existing traffic on Campbelltown Road and Macdonald Road respectively, it is considered that the Stage 1 development will have a negligible impact on Campbelltown Road and Macdonald Road south of the site.

Given that the majority of the Stage 1 traffic will travel to / from the north via Campbelltown Road, the following key intersections associated with the Stage 1 development were modelled:

- Campbelltown Road / Macdonald Road (signals);
- Campbelltown Road / Ingleburn Gardens Access Road (signals); and
- Macdonald Road / Stage 1 development access road (priority controlled).

The modelling results show that the performance of these intersections with Stage 1 development traffic is adequate without the need for upgrades to existing intersection layouts in the 2012 AM and PM peak hours. The intersections along Campbelltown Road are approaching capacity, however this is due increases in background traffic flows with the Stage 1 development having a negligible impact.

7.4.2 Construction traffic impacts

Construction traffic volumes and routes for Stage 1 are not able to be determined at this point but are expected to be of a scale similar to the residential development in Rouse Hill (Eastern Precinct) which forecasts construction traffic volumes of 50 trucks per day or up to 10 trucks per hour. This quantum of traffic is less than that generated by the Stage 1 development, and is therefore considered to have a negligible impact on the local road network.

To manage the impacts of construction traffic on the locality, a detailed construction traffic management plan will form part of the Construction Management Plan (CMP) for the development. The CMP is included in the Statement of Commitments at Section 8 of this report.

7.4.3 Proposed traffic and transport measures

In accordance with the commitments made in the Concept Plan, the proponent will implement a package of sustainable measures to facilitate the successful delivery of Stage 1. These include:

- sustainable travel strategies (consistent with the Concept Plan);
- Infrastructure improvements to provide easy pedestrian and cyclist access via an internal shared pedestrian/cycle path network connecting to public transport services at Macdonald Road initially;
- public transport infrastructure, including well-designed bus stops to provide safe and convenient use of public transport services;
- transport service improvements, including the implementation of a new bus service connecting the development with Liverpool;
- road infrastructure upgrades to provide access to the site via a new intersection at Macdonald Road as above.

7.5 Aboriginal Heritage

An Aboriginal Heritage Management Plan for the whole of the Edmondson Park Precinct was prepared by Australian Museum Business Services on behalf of Liverpool and Campbelltown Councils in October 2003. The Heritage Management Plan describes the processes and management outcomes of a Phase One Aboriginal Heritage Assessment to guide future planning policies for the land.

Consultation for the rezoning process and development of the Aboriginal Heritage Management Plan has been undertaken with the Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Title Claimants Aboriginal Corporation.

The 2003 Management Plan takes a strategic approach to the management of Aboriginal archaeology across the wider release area including the identification of areas of archaeological significance and cultural sensitivity within Phase One, and the formulation of conservation management guidelines to address these sites and landscape (Phase Two). The strategies contained within the Management Plan and adopted by Liverpool and Campbelltown City Councils will ensure that appropriate measures are in place to guide future development.

An Aboriginal Cultural Heritage Assessment Report prepared by Kelleher Nightingale Consulting Pty Ltd has been prepared for the Stage 1 Project Application in accordance with the existing Aboriginal Heritage Management Plan and draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (DEC, July 2005) and Director General's Requirements. The Assessment Report is included at **Appendix G**.

The Assessment Report finds that much of the Stage 1 land displays substantial ground disturbance as a result of previous land use, most notably as Defence lands, and that five (5) Aboriginal heritage archaeological sites are identified within the Stage 1 Project Application area.

The majority of the Stage 1 Project Application impacts on archaeological sites of low significance. Two significant sites are impacted by the Stage 1 Project Application.

Although the archaeological sites exhibit low levels of archaeological significance, Aboriginal knowledge holders made it clear that most of these sites still hold cultural value. Consultation with the local Aboriginal community has identified that the broader Edmondson Park Release Area holds considerable cultural value. It was considered to be representative of a greater landscape used by Aboriginal people over time, rather than simply a number of individual sites. Consultation is ongoing in accordance with the consultation requirements specified by the Director General's Requirements.

In recognition of this, the Stage 1 Project Application has aimed to limit most impacts and where appropriate mitigate impacts. The Aboriginal Cultural Heritage Assessment Report recommends that the following general management strategy outcomes be implemented based on an integration and assessment of identified Aboriginal cultural heritage values with the proposed development as well as consistency with the Aboriginal Heritage Management Plan for the release area:

- archaeological salvage excavation to mitigate impacts on significant archaeological sites;
- salvage collection of surface artefacts for other impacted sites;
- management policies for Aboriginal heritage;
- procedures for handling human remains;
- procedures for proposed changes to approved projects; and
- processes for continued consultation with Aboriginal stakeholders.

Specific mitigation strategies for each archaeological site are outlined in the appended Aboriginal Cultural Heritage Assessment Report.

The Aboriginal Cultural Heritage Assessment Report concludes that the Stage 1 project offers an opportunity for a positive outcome for Aboriginal heritage. Information obtained through the salvage excavation of the archaeologically significant locations will greatly enhance the cultural and archaeological understanding of the area and allow for significant interpretation of past events within this cultural zone.

7.6 Non-indigenous Heritage

The Ingleburn Army Camp was one of Australia's major army camps from 1939 to the 1970s, and has considerable historic and social significance. The majority of the Stage 1 site is on the former camp and remnants of military facilities associated with the former Defence use are scattered throughout the site, as described in the Statement of Heritage Impact prepared by Tanner Architects at **Appendix H**. The Edmondson Park precinct as a whole contains a number of heritage items including the following:

- Ingleburn Army Camp, listed in the Register of the National Estate and Campbelltown (Urban Area) LEP 2002;
- Ingleburn Military Heritage Precinct, Campbelltown Road, Campbelltown, listed in Liverpool LEP 2008;
- Prefabricated Cottages, Ingleburn Village, Bass Road, Ingleburn Village listed in Liverpool LEP 2008;
- Ingleburn Village site and Lecture Hall Building (Nissen Hut), listed in Liverpool LEP 2008;
- Mess Hall at Ingleburn Army Camp, listed in Campbelltown (Urban Area) LEP 2002; and
- Mont St Quentin Oval including entry gates listed in Campbelltown (Urban Area) LEP 2002.

The area covered by the Stage 1 Project Application does not contain any of the above listed heritage items and does not include any work to a listed heritage item. The Mont St Quentin Oval and entry gates and Mess Hall are located in close proximity to the northern boundary of the Stage 1 land. The Mess Hall is not a consideration for this application as it proposed to be demolished by the Department of Defence under Commonwealth processes.

The Statement of Heritage Impact finds that the Stage 1 subdivision does not impact on the relationship between the Ingleburn Military Heritage Precinct and the Mont St Quentin Oval. It concludes that the Oval and entry gates will not be impacted by the proposed subdivision or by the proposed future low scale form of housing which is considered sympathetic to the heritage item.

The existing street layout has not been maintained, however, devices such as street and place that make specific reference to the history and uses of the site will provide interpretation that is integral to the site. A Heritage Interpretation Strategy will be prepared prior to the commencement of Stage 1 works in accordance with the Statement of Commitments in the Concept Plan for Edmondson Park.

In addition, consistent with the Concept Plan, archaeological supervision will be established at the time works commence.

7.7 Surface Water, Groundwater Quality and Riparian Corridors

The Concept Plan for Edmondson Park addresses the management of the quantity and quality of surface and groundwater and riparian corridors. Within this context a Water Cycle Management Plan was prepared by J. Wyndham Prince (JWP) to specifically detail the measures proposed for the Stage 1 area of Edmondson Park (see **Appendix C).**

The JWP report details the procedures and the results of investigations used to develop a Stage 1 Water Cycle Management Plan for Stage 1 that incorporates Water Sensitive Urban Design (WSUD) principles. The objective was to assess the adequacy, in terms of detention and treatment capacity, of the proposed treatment measures to ensure the quantity and quality of stormwater leaving Stage 1 meets statutory requirements. The work included:

- a hydrologic analysis to determine the peak 5 and 100 year ARI pre-development and post-development flows;
- determining the minimum detention storage requirements to restrict Stage 1 post-development flows to pre-development levels within both the Maxwells Creek and Bunbury Curran Creek catchments;
- a water quality analysis to determine the minimum treatment device areas required to achieve Growth Centres Commission (GCC) environmental water quality targets;
- a water quality assessment of the proposed Stage 1 interim treatment devices to demonstrate compliance and consistency with the Concept Plan; and
- concept designs for the water quality treatment and detention devices required for Stage 1.

The Water Cycle Management Plan is illustrated in **Figure 4** and summarised below. To maintain stormwater quality at the required levels, the strategy involves a treatment train consisting of at lot treatment, street level treatment and subdivision/development treatment measures. The treatment train approach involves the removal of various types of pollutants by a number of devices acting in series.

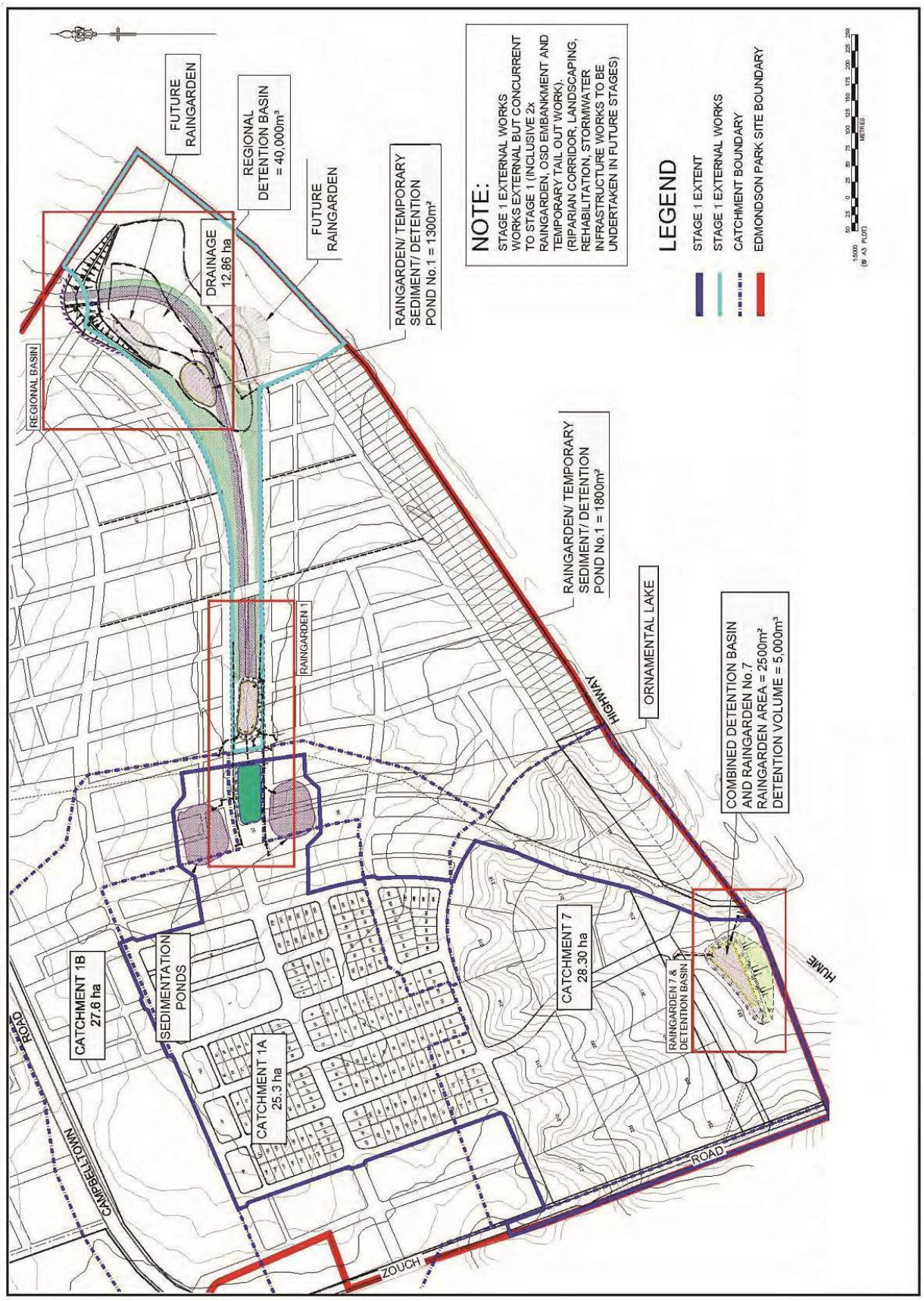

Figure 3 - Water Cycle Management Plan (Source: J. Wyndham Prince)

7.7.1 Water Quality

Water quality will be managed via:

- On Lot Treatments (such as, appropriate waterwise landscaping practices; water efficient fittings and appliances in all dwellings; minimisation of impervious areas; reticulated recycled water).
- Street Level Treatments (using proprietary gross pollutant traps).
- Precinct Scale Treatments, involving, in the short to medium term sediment basins located on future development stages, and, in the longer term, bio-retention raingardens, located within the public reserves and adjacent to the riparian corridors.

A 3,000 m^2 ornamental pond, configured as an open water body aesthetic feature, is to be located at the head of the Maxwells Creek riparian corridor. The pond will be designed to receive and convey limited flood flows which surcharge from the pipe system in the upstream catchment in a 100 ARI event, and will form part of the flow management arrangement across existing Macdonald Road.

In the short to medium term, sedimentation ponds will be constructed to manage construction runoff from the Stage 1 development area. In the longer term, three bio-retention raingarden systems will be constructed within the riparian corridor fringes of the Stage 1 development to facilitate the removal of suspended solids and nutrients from the urban catchment - two to service the Maxwells Creek catchment (1,800m^3 and 1,300m^3) and the third for the Bunbury Currans Creek catchment (2,500m^3).

The raingardens, consisting of a loamy sand media bed with a densely vegetated surface of native sedges and/or grasses, will be designed to receive, convey and treat 3 month ARI flows from the upstream catchment. Treatment is attained by detention of flows, direct filtration and nutrient stripping by bio-films which establish on the surface of the media bed.

The performance of the water quality system for Stage 1 was modelled using MUSIC. The model predicted that target reductions for total suspended solids, total nutrients and TP will be achieved, thus meeting the GCC Development Code and Georges River Stormwater Management Plan water quality objectives.

The construction of the raingardens will be deferred until approximately 80% of housing is completed in the catchment. The final timing will be agreed with Campbelltown City Council, who will ultimately own and maintain the stormwater infrastructure. In the meantime, the sedimentation ponds will manage flows from the Stage 1 development area.

7.7.2 Water Quantity

The management of water quantity will involve two regional detention basins:

- within Maxwells Creek to treat the central portion of Stage 1 with a storage volume of 45,000m^3; and
- within the Bunbury Curran Catchment, adjacent to the Hume Highway with a storage volume of 5,000m^3, to manage flows from the rural residential (Environmental Living) area of the site.

The detention basins will restrict post development discharges to pre-development levels for the 5 and 100 year Average Recurrence Interval (ARI) storm events, and minimise the impact of the development by reducing storm flows prior to discharge to the riparian corridors downstream of the site.

They will limit flows discharging to Maxwells Creek and Bunbury Curran Creek to pre-development levels storm flows of up to the 100 year ARI.

The performance of the devices was modelled (using XP-RAFTS) under Stage 1 catchment conditions. The results demonstrated that the basins will attenuate peak post development flows to pre development levels for the 5 and 100 year ARI conditions (see JWP report for further information on detention basin performance).

The final basin works (embankment and outlet structures) for both basins will be delivered as part of Stage 1.

7.7.3 Ownership and management of stormwater infrastructure

All water quality and quantity devices will be located within public reserves or road ways. The future transfer of ownership of the land and these devices will form part of an agreement between Landcom and Campbelltown City Council.

Proper management and maintenance of the water quality control systems will ensure long term, functional stormwater treatment. Regular maintenance of the stormwater quality treatment devices will be necessary to control weeds, remove rubbish, and monitor plant establishment and health. Some sediment build-up may occur on the surface of the raingardens and need to be removed to maintain the high standard of stormwater treatment.

The proponent will prepare a site-specific Operation and Maintenance manual for the system to provide information on the best management practices for the long-term operation of the treatment devices. The manual will provide site-specific management procedures for:

- the maintenance of the GPT structures including rubbish and sediment removal;
- management of raingardens, including plant monitoring and replanting guidelines;
- monitoring and replacement of the filtration media and general maintenance (i.e. weed control, sediment removal).
- management of the ornamental pond including removal of rubbish and plant monitoring as required.

This initiative forms part of the Statement of Commitments in Section 8 of this report.

7.7.4 Riparian corridors

The width, use and management of riparian corridors are dealt with in the Concept Plan and are not currently part of Stage 1.

7.8 Flooding

The management of any potential flooding in the Stage 1 area is covered in the Water Cycle Management Plan prepared by J.Wyndham Prince (at **Appendix C**). The report concludes that there is no flood risk associated with the Stage 1 site and the development will comply with the Flood Development Manual.

JWP has based its assessment on a detailed SOBEK hydraulic model of the Maxwells Creek floodplain developed by Webb McKeown and Associates for Landcom in 2007. The study concluded that the Maxwells Creek drainage corridor downstream of Macdonald Road is affected by flooding in the 100 year ARI and PMF storm events. As the majority of the identified flood affected areas will form part of the proposed riparian corridors and not be filled there will be no impact on the identified flood levels.

All lots will be located outside the 100 year ARI flood and the floor levels of dwellings will have a minimum freeboard of 500mm to comply with the Flood Development Manual and Campbelltown City Council requirements. Throughout the development, 100 year ARI flooding will be managed by a combination of an appropriately designed pipe drainage system and containment of surcharge flows (greater than pipe capacity) within the road reserves. Flows in road reserves will be limited to comply with Campbelltown City Council requirements.

7.9 Bushfire Risk Assessment

A Bushfire Risk Assessment prepared by McKinlay Morgan and Associates Pty Ltd is included at **Appendix I**. The findings of the assessment makes the following findings.

Existing bushfire hazard

The north east corner of the area covered by this Stage 1 Project Application contains land mapped by Campbelltown City Council as Bushfire Prone Land (Type 1 Vegetation – Woodlands and Forests) and as Bushfire Buffer - being 100 metres wide. This mapped bushfire prone land comprises a total area of 4.33 hectares including 2.4 hectares located outside the northeast corner of the Stage 1 site.

Following the development of Stage 1 including the clearing and modification of the bushfire hazard in the northeast corner of the Stage 1 site, the bushfire hazard will be the 2.4 hectares outside the Stage 1 area. The vegetation remaining in the local park in Stage 1 after development will be approximately 0.6 hectares and as such would not be classified as bushfire prone land.

In consideration of Table 2.1 PBP 2006 and previous studies, the vegetation identified as bushfire prone land is classified as 'woodland' and comprises indigenous and exotic species. The effective slope is considered to be level or slightly upslope of the allotments considered most at risk.

Bushfire protection measures

The bushfire protection measures proposed in the Stage 1 Project Application include:

- asset protection zones including the modification and management of the residual vegetation to the north east of the Stage 1 land as an “Inner Protection Area”; and
- building design and construction to be in accordance with AS3959-2009 if required consistent with the exposure to bushfire risk at the time of construction.

The Stage 1 Project Application and proposed bushfire protection measures are in accordance with the NSW Planning for Bushfire Protection 2006 guidelines.

7.10 Noise

The DGRs require that there be no unacceptable impacts from noise associated with the design, construction, operation and maintenance of the proposal and, particularly, from the proposed South West Rail Link and existing and proposed roads. The proponent is also required to assess the impacts of construction noise. Accordingly, a Noise and Vibration Impact Assessment was undertaken by Wilkinson Murray to address these matters (see **Appendix J**). The assessment was undertaken in accordance with the *Environmental Criteria for Road Traffic Noise* (EPA 1999)(ECRTN) and *Development Near Rail Corridors and Busy Roads - Interim Guideline* (Department of Planning).

As discussed in this section, the assessment demonstrates that noise impacts associated with the development of Stage 1 can be managed or mitigated through the extension of the acoustic wall along the M5 and dwelling location and design.

7.10.1 Rail noise and vibration

The land the subject of this project application is not affected by noise or vibration from the proposed South West Rail Link.

7.10.2 Impacts of traffic noise on new development

Traffic noise from the M5, Macdonald Road and Campbelltown Road (to be upgraded to 4 lanes by the RTA) could all potentially impact on residences in the Stage 1 area. Accordingly, the Stage 1 areas were modelled to determine likely noise levels based on 2026 forecast traffic levels (ie at full development). The model assumed the extension by 250 metres to the north of the existing 5 metre high acoustic barrier along the M5 (that is 80 metres beyond the Macdonald Road flyover), and the presence of houses in the Stage 1 area as per the proposed subdivision plan.

In the General Residential area the assessment concluded that noise levels will not exceed the daytime (60dBA) or night time (55dBA) noise criteria and that therefore noise mitigation measures will not be required for residences in this area.

In the Environment Living area the 60dBA noise criterion is exceeded for some of the land adjacent to the M5 motorway and Macdonald Road even with the presence of the extended acoustic barrier. Wilkinson Murray recommends that the houses in this area be assessed on an individual basis with respect to the need for mechanical ventilation. However, special glazing to habitable rooms is not envisaged.

This matter will be addressed in dwelling design and is included in the Statement of Commitments in Section 8 of this report.

7.10.3 Impacts of traffic noise on existing development

The noise assessment also considered the noise contribution from Stage 1 on existing residences located to the west of the site on Campbelltown Road. Wilkinson Murray has concluded that the acoustic impacts on these residences will be insignificant and well below the 2dBA 'allowance' specified by the ECRTN because the additional traffic on Campbelltown Road attributed to the development of Stage 1 is very low.

7.10.4 Construction noise

The assessment assessed the impacts of typical noise levels generated by construction equipment that would typically be used for the type of works proposed in Stage 1. The loudest construction period is expected to be during the earthmoving phases in various sections of the Stage 1 site. This could impact on existing rural residences to the south west of the site.

Wilkinson Murray's initial calculations show that the relevant construction noise criterion would be complied with. Notwithstanding this, the following noise mitigation measures will be implemented via the Construction Management Plan:

- Construction activities that are likely to be audible at any residence will not occur outside the hours of 7.00am-6.00pm Monday to Friday and 8.00am-1.00pm on Saturday.
- Location of out of hours site access.

- Noisy activities such as earthworks in close proximity to residences will where possible be programmed to avoid early mornings and Saturdays, and where practical, consideration will be given to surrounding residential receivers when planning the construction program.
- Spoil quantities will be managed to avoid additional truck movements provide additional fill or remove excess spoil.
- Diesel powered machines such as trucks, bobcats and excavators will be switched off if not required for more than a few minutes rather than left idling unnecessarily.
- Machines used on site will be maintained in good condition to minimise noise emissions. Excessively loud machines will be repaired, modified or removed from the site.
- Sound pressure level measurements will be conducted on all plant prior to works beginning on-site.
- A representative from the construction contractor will be available to respond to questions and complaints from the community in a timely manner.
- Reverse alarms will be controlled to the minimum sound level consistent with safety by replacing, shielding or relocating the alarm unit on noisy machines.

7.11 Geotechnical and soil conditions

Numerous investigations have been undertaken into the geotechnical, hydrogeological and soil characteristics of the site. These have been reviewed by Golder Associates and reported as a preliminary assessment (see **Appendix K** for the Preliminary Geotechnical Investigation and Contamination/UXO Assessment).

The assessment identified that there are unlikely to be risks associated with subsurface conditions, actual or potential Acid Sulfate Soils, or with groundwater levels (data indicates depths of 5m to 8.5 and 4m to 6m below existing surface levels). However, potential geotechnical constraints to the development of the site have been identified in relation to:

- salinity;
- soil erodibility/dispersion; and
- slope stability (in the southern part of the site).

None render the site unsuitable for development and each is discussed below.

7.11.1 Salinity

Golder Associates' review of salinity maps and previous investigations indicate that parts of the site are varyingly impacted by saline soils and groundwater. Soil salinity was observed to increase with depth in both residual soils (from relatively higher ground) and alluvial soils (from low lying areas and creek alignments). Soils in the upper 1 metre in the residual profile are likely to be less saline than in the alluvial profile.

The results of limited groundwater sampling indicate that saline groundwater conditions exist within the shale bedrock and low lying areas associated with creeks and drainage depressions. Laboratory analysis of water samples from dams indicates the water is likely to be non-saline or marginally saline, whereas groundwater at depths exceeding about 2.5m, especially in areas underlain by alluvium, is likely to be saline to brackish.

Given the above, Golder advises that construction and design of slabs and other structures will need to consider salinity issues that could occur as a result of irrigation or the introduction of surface water features. These could result in a rise in the groundwater level in turn introducing the more saline groundwater to shallower depths. The movement of soils and vegetation removal or disturbance can also greatly influence the behaviour of salinity in soil and groundwater.

Given the above, a site specific Soil and Water Management Plan will be implemented to properly manage salinity at the site - see below.

7.11.2 Soil erodibility

Golder Associates' review of a previous assessment, including laboratory analysis, indicated that the majority of samples collected to depths up to 1.0 m BESL were considered to be dispersive or potentially dispersive with residual soils (from relatively higher ground) generally more dispersive than alluvial soils (low lying areas and creek alignments). Dispersive soils are susceptible to erosion.

Because there may be localised non-dispersive soils within the site Golder has recommended that a detailed investigation be carried out to delineate the boundaries between dispersive and non-dispersive soils. Landcom will implement this recommendation as part of the Soil and Water Management Plan referred to below.

7.11.3 Slope stability

Overall, soil slope instability is likely to be a low risk, given the shallow cover of soil over rock and where slope angles are less than 15°. However, there are steeper slopes in the southern part of site where previously undertaken testing indicates shallow rock (0.7 to 1.7 m depth) .

Golder has recommended that detailed investigations should be part of the detailed design stage to formulate site specific geotechnical models and obtain specific design inputs and considerations, and that the slope stability and proposed cut and fill of individual areas should be assessed in accordance with the 'Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning' by the Australian Geomechanics Society (Geomechanics, Vol 42, No.1, 2007).

7.11.4 Management of potential geotechnical constraints

The above potential constraints do not impede the development of the site for the proposed residential and open space land uses, however, Golder Associates recommends that they be managed during the development to minimise the potential environmental and economic impacts.

Accordingly, Landcom will prepare a Soil and Water Management Plan for the development of Stage 1 (in accordance with the preliminary Soil and Water Management Plan at in the report at **Appendix K**). The plan will document proposed management strategies specific, but not limited, to salinity, soil erosion and surface water management during and post construction. The key objects of the soil and water management plan will be to:

- minimise erosion and sediment loss before, during and after construction;
- minimise water pollution due to erosion, siltation and sedimentation;
- maximise re-use of onsite materials; and
- reduce and manage salinity so that impacts on future buildings and vegetation are reduced to an acceptable level.

7.12 Contamination and unexploded ordinance

Numerous investigations have been undertaken into the presence of contamination and unexploded ordinance (UXO) on the site. These have been reviewed by Golder Associates and reported in the Preliminary Geotechnical Investigation and Contamination/UXO Assessment (see **Appendix K**).

7.12.1 Site contamination

Investigations carried out by others have identified localised areas of contamination on the site typically associated with the storage of petroleum hydrocarbons in Underground Storage Tanks (USTs), storage of pesticides ('poisons shed'), maintenance and transport compounds (Petroleum, Oils and Liquid (POL) storage), burial pits and construction materials (asbestos).

The previous investigations involved an independent DECCW accredited Site Auditor reviewing investigation reports, remedial strategies and validation reports where remediation works have been completed. The areas affected by the 'poisons shed' and USTs have been the subject of remediation and validation programs and have been certified as suitable for residential use.

It is understood that additional detailed investigation works are currently being undertaken by the Department of Defence across the larger Defence site including the Stage 1 area. On completion of current investigation and remediation works by Defence, a Site Audit Statement indicating that the site is suitable for the intended land use will be provided.

Site suitability

Based on the results of investigations, remediation and validation works and the Draft Summary Site Audit (prepared by a NSW EPA Accredited Contaminated Land Site Auditor - reported by Coffey, 2003), Golder considers that the site is suitable for the proposed residential land use, subject to:

- the results of current investigations being carried out and remediation works (if any); and
- review of all investigations and remediation works by a NSW DECCW accredited contaminated Land Site Auditor and provision of a Site Audit Statement in accordance with the *Contaminated Land Management Act 1997*, confirming the site is suitable for the intended land use.

Management of unidentified contamination

Identified areas of environmental concern have been investigated and remediated. Any potential, and as yet, unidentified contamination within the site will be managed as follows:

- Ongoing investigations (where required) in accordance with relevant NSW EPA/DECCW Guidelines including but not limited to NSW EPA Site Auditor Guidelines;
- Remediation of any additional impacted areas identified through current investigations;
- Preparation of validation reports; and
- Provision of a Site Audit Statement (SAS) by a NSW DECCW Accredited Contaminated Land Site Auditor and in accordance NSW EPA Site Auditor Guidelines with respect to the Site suitability for the proposed development.
- Implementation of an Unexpected Finds Protocol, which will be developed by the Department of Defence prior to the issue of a Site Audit Statement.

7.12.2 Unexploded ordinance

The Stage 1 area generally incorporates former living quarters (residential properties), maintenance areas and storage areas and did not include training activities which could result in the presence of Unexploded Ordinance (UXO) and Small Arms Ammunition (SAA).

It is understood that an independent review of potential UXO will be carried out by a suitably qualified UXO consultant engaged by the Department of Defence prior to development of the site. Where UXO is encountered a clearance certificate will be provided.

Site Suitability

Based on the results of investigations carried out to date Golder Associates considers that the site is suitable for the proposed residential land use as the areas where potential UXO are likely to be encountered are outside the Stage 1 site. Notwithstanding this, although the risk of UXO is considered low given the previous activities documented within the site, the potential is not negligible because of the historical military base land use.

Management of unexpected UXO

Although areas with potential for UXO are likely to be outside the site area, there is the potential for unexpected finds during development given the historical land use. Accordingly, an Unexpected Finds Protocol will developed prior to the issue of a Site Audit Statement. Protocols will document the procedures, management and reporting requirements where UXO and SAA are encountered, including:

- delineating the area establishing appropriate signage; and
- appointment of a UXO consultant accredited by the Department of Defence to assess the find, make safe or organise appropriate personnel to make safe and remove finds to an appropriate disposal facility.

7.13 Social Infrastructure & Contributions

The Edmondson Park South site is subject to the following infrastructure contributions plans:

7.13.1 State Development Contributions

The site is subject to the Special Infrastructure Contribution that applies to development in the North West and South West Growth Centres. The Special Infrastructure Contribution (SIC) is a contribution towards the funding of a range of regional infrastructure and services that have been identified as being required as a result of the development within the Growth Centres and provide a source of funding towards regional roads, heavy rail, bus services, educational services, health services, emergency services, Attorney General's services, conservation lands, and precinct planning and delivery.

The Proponent will meet its obligations with respect to the SIC in accordance with the Special Infrastructure Contribution Practice Note November 2008 by way of contribution, or provision of Material Public Benefit through the dedication of land and construction of works-in-kind.

7.13.2 Local Development Contributions

The Stage 1 Project Application is within the area covered by the Campbelltown City Council Section 94A Contributions Plan. The Plan imposes a levy of 1% on all development with a value more than $200,000. However, the S.94A plan does not contemplate future population growth associated with Greenfield Release Areas such as Edmondson Park, and Council has indicated that it is unlikely to support payment of section 94A levy given that it does not contemplate population growth within Edmondson Park.

Council acknowledges that the proponent is the only developer in the catchment and has agreed an infrastructure schedule with the proponent in lieu of contributions under section 94 or section 94A for development within Edmondson Park South.

Landcom intends to meet its obligations with respect to local development contributions via a combination of carrying out of works-in-kind, dedication of land free of cost and provision of material public benefits at a rate similar to the benchmark used in the Liverpool Contributions Plan 2008 that applies to the remainder of the Edmondson Park South site further to the north of Stage 1.

The proposed scope of local contributions are in the following table.

Table 7 – Local community infrastructure contributions

Contribution	Timing
Local Park Stage 1 ▪ Dedication of land ▪ Embellishment of park to provide - Large adventure playground - Fitness circuit - Seating and BBQ facilities - Interpretive plaques and sculptures - tree plantings and landscaping - bins - water refill stations - general lighting - bollard lighting	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for the final residential allotment in the Stage 1 Project Application.
Bunbury Curran Creek Water Quality Facility ▪ Dedication of land ▪ Embellishment as per Concept Plan	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for the final residential allotment in the Stage 1 Project Application.
Maxwells Creek South Water Quality Facility ▪ Construction of Water Quality and Quantity Facilities in accordance with the Concept Plan ▪ Embellishment as per Concept Plan	▪ Construction to be completed prior to the release of the Subdivision Certificate for the final residential allotment in the Stage 1 Project Application. ▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for the final residential allotment in the adjoining residential precinct S2.

Contribution	Timing
LATM works ▪ Dedication & construction as agreed during the Construction Certificate process and subject to detailed design.	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate.
All roads fronting open space ▪ Dedication & construction as per Concept Plan and detailed design.	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for the final residential allotment in the adjoining residential stage.
Zouch Road fronting proposed allotments ▪ Construction of road (two laned asphalt) to existing turning facility, reconstruction of turning facility, driveway emergency access from turning facility to the southern edge of the Basin reserve in E4 zone.	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for stage 1F in the Project Application.
Drainage outlet connection to Council system in Macdonald Road ▪ As per Concept Plan	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for Stage 1f in the Stage 1 Project Application.
Construct Basin rain garden and other WSUD works in Environmental Living area (adjacent Freeway) ▪ As per Concept Plan	▪ Dedication and embellishment to be completed to be no later than the release of the Subdivision Certificate for Stage 1f in the Stage 1 Project Application.
Construct Basin rain garden and other WSUD works Maxwells Creek South ▪ As per Concept Plan	▪ Dedication and embellishment to be completed no later than the release of the Subdivision Certificate for the final residential allotment in the adjoining residential precinct S2
On and Off Road Cycleways ▪ As per Concept Plan	▪ Dedication and embellishment to be completed no later than the release of the Subdivision Certificate for the final residential allotment in the adjoining residential stage

7.13.3 Long term ownership and management

Under the Edmondson Park Conservation Agreement land designated as Public Open Space is to be transferred into the ownership of the relevant Council and must be managed in accordance with a Plan of Management prepared in accordance with *the Local Government Act 1993*. Accordingly, all public open space and riparian land within public open space identified under the Conservation Agreement is proposed for transfer into the ownership of the relevant Council.

The Edmondson Park Conservation Agreement identifies that Plans of Management will need to be developed by Liverpool and Campbelltown Councils within 2 years of sale of the Defence land. It also identifies that the Plans of Management relating to the land categorized as Public Open Space for Conservation will incorporate measures to retain CPW values through retention of trees, maintenance of the existing native understorey, and location passive and active facilities cognisant of existing CPW values.

The Proponent has made a commitment in the Concept Plan with respect to the preparation of draft Plans of Management for public open space lands that are to be dedicated to Council.

7.14 Construction Management

A Construction Management Plan will be prepared prior to commencement of works. The Plan will include measures to manage the methods and impacts of construction, and address the following matters:

- Management responsibility and reporting, and key personnel and responsibilities including workplace health and safety officers;
- Environmental management including management of:
  - construction traffic in accordance with the Transport Management and Accessibility Plan at **Appendix F**;
  - noise and vibration in accordance with the Noise and Vibration Impact Assessment at **Appendix J**;
  - erosion and sedimentation in accordance with the draft soil and water management plan appended to the Golder Associates' report at **Appendix K**;
  - air quality and dust; and
  - vegetation.
- Workplace health and safety policy and on-site safety requirements including risks and control methods, safe work method statements, traffic management, electrical power supply and safety, signs, protective equipment and clothing, fire prevention, communication, public safety, inspections and safety audits, site inductions and visitors, plant and equipment;
- Site emergencies including procedures for evacuation, fire, injury, crime, flood, storm, dust, first aid and incident reporting.
- Management of unexploded ordinance.

8.0 Draft Statement of Commitments

	Project Component	Environmental Outcome	Commitment	Timing for Completion
1.	**Traffic and transport**	Sustainable traffic management and transport system	Implement the package of traffic and transport measures in accordance with the Concept Plan for Edmondson Park South	Prior to completion of dwelling construction
2.	**Traffic and transport**	Management of traffic generated by construction activities	Prepare Construction Traffic Management Plan as part of the Construction Management Plan	Prior to commencement of construction
3.	**Non-indigenous Heritage**	Heritage conservation measures are incorporated into the development of Stage 1 Edmondson Park South	Prepare Heritage Interpretation Strategy in accordance with the recommendations of Tanner Associates at Appendix H of the EAR for the Stage 1 Project Application, and establish archaeological supervision at the time works commence.	Prior to commencement of construction
4.	**Aboriginal heritage**	Conservation measures implemented into the Stage 1 area	Implement the conservation measures in accordance with the Aboriginal Cultural Heritage Assessment Report prepared by Kelleher Nightingale Consulting at Appendix G of the EAR for the Stage 1 Project Application	Prior to commencement of construction
5.	**Surface and groundwater**	Quality of water discharged to the catchment meets statutory requirements	Implement Water Cycle Management Plan prepared by J. Wyndham Prince at Appendix C of the EAR for the Stage 1 Project Application.	Ongoing as per the plan
6.	**Surface and groundwater**	Post development flows attenuated to pre-development levels	Implement Water Cycle Management Plan prepared by J. Wyndham Prince at Appendix C of the EAR for the Stage 1 Project Application.	On completion of Stage 1 works
7.	**Surface and groundwater**	Long-term management and maintenance of stormwater infrastructure	Prepare site-specific operation and maintenance manual as per Water Cycle Management Plan prepared by J. Wyndham Prince at Appendix C of the EAR for the Stage 1 Project Application.	On completion of Stage 1 works
8.	**Flooding**	Compliance with the Flood Development Manual	Implement flood management measures as per Water Cycle Management Plan prepared by J. Wyndham Prince at Appendix C of the EAR for the Stage 1 Project Application.	On completion of Stage 1 works & as part of dwelling construction
9.	**Noise**	Mitigation of traffic noise	Extension by 250 metres of existing noise wall along M5 motorway as per report prepared by Wilkinson Murray at Appendix J of the EAR for the Stage 1 Project Application.	Prior to completion of first dwellings in Environmental Living area

	Project Component	Environmental Outcome	Commitment	Timing for Completion
10.	**Noise**	Mitigation of traffic noise	Assess need for mechanical ventilation in dwellings in Environmental Living area as per report prepared by Wilkinson Murray at Appendix J of the EAR for the Stage 1 Project Application.	With construction of dwellings in Environmental Living area
11.	**Soils**	Management of potential salinity	Prepare and implement Soil and Water Management Plan as per guidelines in Golder Associates report at Appendix K of the EAR for the Stage 1 Project Application.	Prior to commencement of construction
12.	**Geotechnical conditions**	Slope stability	Undertake detailed investigations as per the Golder Associates report at Appendix K of the EAR for the Stage 1 Project Application.	Prior to detailed design
13.	**Site contamination and UXO**	Unidentified contamination	Manage the site in accordance with protocols recommended by Golder Associates at Appendix K of the EAR for the Stage 1 Project Application.	Ongoing
14.	**Site contamination and UXO**	Unexpected UXO	Manage the site in accordance with protocols recommended by Golder Associates at Appendix K of the EAR for the Stage 1 Project Application.	Ongoing
15.	**Contributions to social infrastructure**	Social infrastructure is provided to support the Stage 1 Edmondson Park South community.	State and local contributions to social infrastructure are to be provided as specified in Section 7.12 of the EAR for the Stage 1 Project Application.	As specified in Section 7.12 of the EAR for the Stage 1 Project Application.
16.	**Construction management**	Construction activities and impacts on the environment and health are managed.	Prepare a Construction Management Plan as specified in Section 7.13 of the EAR for the Stage 1 Project Application, including the measures to mitigate impacts on interface areas in the Ecological Assessment at Appendix E of the EAR for the Stage 1 Project Application.	Prior to commencement of construction.

9.0 Conclusion & Justification

The Stage 1 Project Application for Edmondson Park South has environmental planning merit in the following respects:

- it is consistent with the urban design principles established in the Part 3A Concept Plan for Edmondson Park South, and particularly in providing an accessible and connected grid network of streets with good linkages internally and to the future town centre, transport network, and community facilities at Edmondson Park South, and in providing three parks landscaped with native vegetation and a low scale and form of housing development that respects the adjacent heritage items;
- it is consistent with the existing Biodiversity Certification Order and Conservation Agreement applying to the Edmondson Park precinct;
- transport infrastructure initiatives are included in accordance with the Concept Plan for Edmondson Park South including pedestrian cycle path network, bus stops, and road infrastructure upgrades;
- the road network with the proposed road and traffic management works has capacity to accommodate traffic generated by Stage 1;
- there are no heritage items located in Stage 1 or impacted by the Stage 1 Project Application;
- a water cycle management plan consistent with the principles of Water Sensitive Urban Design is included to ensure the quantity and quality of stormwater leaving the Stage 1 site meets statutory requirements and pre-development flow levels;
- there is no flood risk as Stage 1 is above the 100 year ARI flood level;
- bushfire protection measures are implemented in the form of asset protection zones and, if needed construction standards, in accordance with the NSW Planning for Bushfire Protection guidelines;
- geotechnical constraints in the form of soil salinity and erodibility will be managed through measures in soil and water management plans prepared prior to construction, and the risk of unstable slopes is very low and able to be managed;
- the site is subject to remediation being conducted by the Commonwealth Government to remove any contamination and make it suitable for residential use;
- community infrastructure contributions are being provided for parks, road works, riparian corridors, cycleways and bus shelters which are to be dedicated to Campbelltown City Council; and
- a construction management plan will be prepared prior to the commencement of works to manage the methods and impacts of construction activities.

Given the above planning merits, the Stage 1 Project Application for Subdivision and Infrastructure Works at Edmondson Park South is justified and submitted for the approval of the Minister for Planning.