



33 – 35 Warradale Road, Silverdale: Biodiversity Assessment Report

FINAL REPORT

Prepared for Siteplus Pty Ltd

7 July 2015

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Glossary

APZ	Asset Protection Zone
CBD	Central Business District
DA	Development Application
DCDB	Digital Cadastral Database
DIWA	Directory of Important Wetlands of Australia
DoE	Department of the Environment
DTDB	Digital Topographic Database
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cmwltth)</i>
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
GIS	Geographic Information System
IBRA	Interim Biogeographical Rationalisation of Australia
KTP	Key Threatening Process
LEP	Local Environment Plan
LGA	Local Government Area
NES	National Environmental Significance
NOW	NSW Office of Water
NSW	New South Wales
NV Act	<i>Native Vegetation Act 2003 (NSW)</i>
NW Act	<i>Noxious Weed Act 1993 (NSW)</i>
OEH	Office of Environment and Heritage (NSW)
PCT	Plant Community Types (as defined by the NSW OEH's Vegetation Information System Classification Database)
PFC	Percentage Foliage Cover

SALIS	Soil and Land Information System
SEPP	State Environmental Planning Policy
study area	Areas zoned R2 Low Density Residential and IN2 Light Industrial
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)
VIS	Vegetation Information System
WM Act	<i>Water Management Act 2000</i> (NSW)

Summary

As part of a Development Application (DA) to Wollondilly Shire Council (Council), Biosis was commissioned by Siteplus Pty Ltd (on behalf of TJ and RF Fordham Pty Ltd) to prepare a Biodiversity Assessment Report for 33 – 35 Warradale Road, Silverdale (Lot 5, DP 261728) (Figure 1). Biodiversity offsets are required due to impacts to Shale Sandstone Transition Forest in the Sydney Basin Bioregion critically endangered ecological community (CEEC). This report has been prepared in support of an application to offset losses of native vegetation and species habitat that will result from the project under the NSW Biobanking Scheme, and has been prepared in accordance with the NSW Biobanking Assessment Methodology (OEH 2014).

The proposed development will involve the subdivision of the study area into 87 residential lots, within land zoned as R2 Low Density Residential in the east and southwest of the study area, and development of a light industrial area, within land zoned as IN2 Light Industrial in the northwest of the study area.

The study area is located approximately 800 metres southeast of Warragamba, and approximately 55 kilometres west-southwest of the Sydney CBD (Figure 1). It encompasses 12.67 hectares of private land and the adjacent road reserves (0.64 hectares). It is currently zoned R2 Low Density Residential and IN2 Light Industrial under the Wollondilly Local Environment Plan (LEP).

The study area is within the:

- Sydney Basin Interim Biogeographical Rationalisation of Australia (IBRA) Region.
- Cumberland and Burragorang IBRA Subregions.
- Silverdale Slopes and Kurrajong Fault Scarp Mitchell Landscapes.
- Wollondilly Local Government Area (LGA).

Ecological values

Key ecological values identified within the study area include:

- 10.83 hectares of native vegetation across two plant community types (PCTs), including:
 - 3.26 hectares of HN556 – Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest, equivalent to the Shale Sandstone Transition Forest CEEC.
 - 7.258 hectares of HN564 – Red Bloodwood - Grey Gum woodland.
- Habitat for a number of threatened species.
- Vegetation along Megarritys Creek, to be retained within a proposed Biobank site, forms part of a fauna habitat linkage.
- The study area forms part of a large patch of vegetation greater than 1000 hectares in size.

Impact avoidance, minimisation and mitigation

The design of the development during the Planning Proposal phase sought to avoid and minimise impacts to sensitive ecological features identified by Hayes Environmental (2012), whilst siting residential development adjacent to existing residential areas.

Additional measures undertaken to avoid and minimise impacts have been provided to further reduce and mitigate impacts arising from the development. A full list of impact avoidance, minimisation and mitigation measures is outlined in Section 6.1.2.

Residual impacts arising from the proposed development include:

- The permanent removal of approximately 3.26 hectares of HN556 - Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest, equating to the CEEC Shale Sandstone Transition Forest.
- The permanent removal of approximately 7.58 hectares of HN564 - Red Bloodwood - Grey Gum woodland.
- The retention of 7.02 hectares of native vegetation within the proposed Biobank site.
- The retention of habitat connectivity and aquatic habitat along Megarritys Creek.

PCT HN556 – Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest is a red flag area. Impacts to this PCT have resulted in an application for a red flag variation (Section 6.2.2).

Biodiversity credits

Credit requirements arising from the proposed development are outlined below.

PCT code	Plant community type name	Red flag	Ecosystem credits required
HN556	Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion	Yes	177
HN564	Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin Bioregion	No	333

No species credits were generated by the assessment. A full credit report is provided in Appendix 5.

Government legislation and policy

An assessment of the project against key biodiversity legislation and policy is provided in Section 8. The outcomes of this assessment are summarised below:

- On the basis of potential for significant impacts on Shale Sandstone Transition Forest CEEC, the *Environment Protection and Biodiversity Conservation Act 1999* is likely to be triggered and referral of the proposed action to the Australian Government Minister for the Environment is recommended. This referral is currently being prepared.
- Approval for clearing of vegetation in land zoned E2 Environmental Conservation will require approval under the *Native Vegetation Act 2003* from Local Land Services will be required.
- Noxious weeds identified on site must be managed in accordance with the requirements of the *Noxious Weeds Act 1993*.

Stage 1 – Biodiversity Assessment

1. Introduction

1.1 Project background

As part of a Development Application (DA) to Wollondilly Shire Council (Council), Biosis was commissioned by Siteplus Pty Ltd (on behalf of TJ and RF Fordham Pty Ltd) to prepare a Biodiversity Assessment Report for 33 – 35 Warradale Road, Silverdale (Lot 5, DP 261728) (Figure 1). The project will be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The requirement for biodiversity offsets has resulted from mapping of *Shale Sandstone Transition Forest in the Sydney Basin Bioregion* (Shale Sandstone Transition Forest) within the study area. This vegetation community is listed as a critically endangered ecological community (CEEC) under the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Correspondence with Wollondilly Shire Council indicated that due to the degree of impact to this CEEC a Species Impact Statement may be required. Biobanking offers an alternative to a Species Impact Statement.

This report has been prepared in support of an application to offset losses of native vegetation and species habitat that will result from the project under the NSW Biobanking Scheme, and has been prepared in accordance with the NSW Biobanking Assessment Methodology (OEH 2014).

1.2 Development proposal

The proposed development will involve the subdivision of the study area into 87 residential lots, within land zoned as R2 Low Density Residential in the east and southwest of the study area, and development of a light industrial area, within land zoned as IN2 Light Industrial in the northwest of the study area. Current Asset Protection Zones (APZs) around residential buildings will be maintained within the proposed development footprint (Figure 2).

In addition to the proposed residential and industrial areas a number of roads will be constructed providing access to Warradale Road and Silverdale Road. Access from Silverdale Road will pass follow the current Government Road alignment, requiring partial clearing of vegetation in this area. Part of the road system will pass through a small section of land zoned E2 Environmental Conservation (see below).

Some limited development within land zoned E2 Environmental Conservation, will be required. Two drainage reserves will be constructed to treat stormwater. These areas will be located around existing waterbodies. Access to the study area from Silverdale Road will require construction of a road through a small section of the Biobank site, immediately adjacent to the northern drainage reserve. Two fire trails will also be developed within the western section of the Biobank site to provide access for fire fighting operations.

It is proposed to offset losses in biodiversity values through the retention of the majority of land zoned E2 Environmental Conservation within a proposed Biobank site. The proposed Biobank site is centred on Megarritys Creek, and will retain connectivity to the north, south and west of the study area, and will be used to partially offset losses of vegetation and fauna habitat (Figure 2).

1.3 Site description

The study area is located approximately 800 metres southeast of Warragamba, and approximately 55 kilometres west-southwest of the Sydney CBD (Figure 1). It encompasses 12.67 hectares of private land and the adjacent road reserves (0.64 hectares). It is currently zoned R2 Low Density Residential and IN2 Light Industrial under the Wollondilly Local Environment Plan (LEP).

The study area is within the:

- Sydney Basin Interim Biogeographical Rationalisation of Australia (IBRA) Region.
- Cumberland and Burragorang IBRA Subregions.
- Silverdale Slopes and Kurrajong Fault Scarp Mitchell Landscapes.
- Wollondilly Local Government Area (LGA).

The study area is located immediately adjacent to areas of residential development to the south and east, with areas of remnant bushland located to the north and west. A former waste recycling facility is located to the northwest of the study area.

Megarritys Creek forms a second order stream within the centre of the proposed Biobank site, with the headwaters of this creek located within the Biobank site, immediately north of Warradale Road. Two first order tributaries of Megarritys Creek, joins the main channel within the proposed Biobank site with one tributary flowing from within the study area and another flowing from off-site into the Biobank site. Megarritys Creek flows out of the proposed Biobank site and joins with the Warragamba River approximately 2.5 kilometres north of the study area. The riparian corridor of Megarritys Creek is largely vegetated and a forms part of a habitat corridor, connecting vegetated areas south of Lake Burragorang with areas to the north.

The study area is located on the outskirts of the Cumberland Plain, in areas where the gently undulating rises associated with the Wianamatta Shales become dissected, eroding into the underlying Hawkesbury Sandstone. Soil landscapes within the study area include the Blacktown soil landscape, along highest most the eastern boundary of the study area, the Gynea soil landscape, as an intermediate between areas of higher elevation in the east and west and a central waterway, and the Hawkesbury soil landscape, centred on this central waterway (NSW Soil and Land Information System (SALIS)).

The study area supports a mix of remnant vegetation and cleared land. Where present, vegetation in this area reflects the underlying geology and soils, with areas of Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin where underlying shales influence vegetation composition. Smooth-barked Apple - Red Bloodwood - Sydney Peppermint heathy open forest in sandstone gullies of western Sydney, Sydney Basin is located along Megarritys Creek, with areas of Red Bloodwood - Grey Gum woodland on the edges of the Cumberland Plain, Sydney Basin occurring as an intergrade between these two plant community types (PCTs).

Vegetation within the eastern portion of the study area is significantly disturbed through past clearing, use of the study area by recreational vehicles and dumping of rubbish. Government Road traverses the study area from east to west. A significant number of informal tracks have been created across the study area, and are being used by recreational vehicles, including motorbikes and four-wheel-drive vehicles. Tracks vary in width from 5 metres to 12 metres in width and generally lack any vegetation. Three dams are present, one large and two minor, and were located on drainage lines in the east of development site.

1.4 Information sources

1.4.1 Publications and databases

In order to provide a context for the study area, information about flora and fauna from within five kilometres (the 'locality') was obtained from relevant public databases. Records from the following databases were collated and reviewed:

- DoE Protected Matters Search Tool for matters protected by the EPBC Act.
- NSW BioNet - the database for the Atlas of NSW Wildlife, Office of Environment and Heritage (OEH).
- BirdLife Australia, the New Atlas of Australian Birds 1998-2013 (BA).

Other sources of biodiversity information:

- Relevant vegetation mapping, including:
 - Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands (SCIV) (Tozer et al. 2010).
 - OEH Vegetation Information System (VIS) Mapping through the Spatial Information eXchange (SIX) Vegetation Map Viewer.
- NSW Vegetation Information System (VIS): Classification Version 2.1.

The following reports were also reviewed:

- Lot 5 DP 261728, Warradale Road, Silverdale. Proposed Rezoning: Flora and Fauna Assessment (Hayes Environmental 2012).
- Report on Geotechnical Assessment. Proposed Residential Subdivision, 33-35 Warradale Road, Silverdale (Douglas Partners 2013)

1.4.2 Spatial data

A site plan (13106.DA.P01 Revision I) detailing the subdivision layout was supplied by Siteplus. Data was converted into shapefile format and imported into ArcGIS.

Basemap data was obtained from NSW Land and Property Information (LPI) 1:25000 digital topographic database (DTDB), with cadastral data obtained from LPI digital cadastral database (DCDB). Mapping of stream order was undertaken manually, using the Hydroline layer within the DTDB.

The following spatial datasets were utilised during the development of this report:

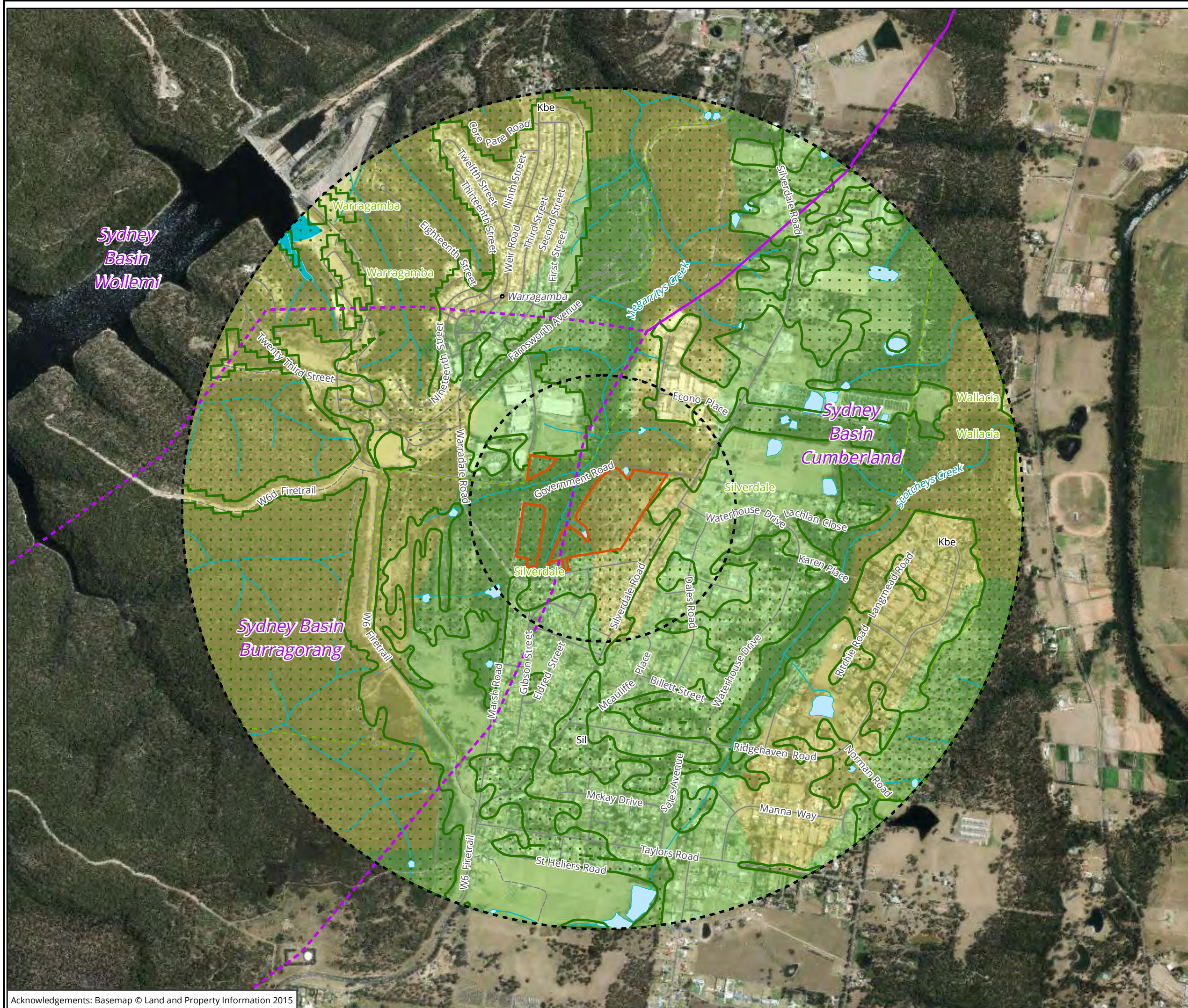
- Catchment data was obtained from the Catchment Boundaries of New South Wales dataset.
- Mitchell Landscapes Version 3.0.
- Interim Biogeographic Regionalisation of Australia (IBRA) Version 7.
- Directory of Important Wetlands (DIWA).
- State Environmental Planning Policy (SEPP) 14 Wetlands.
- Spatial data associated with Tozer et al. (2010) vegetation mapping.
- NSW Soil and Land Information System (SALIS).
- Aerial photography was obtained from NearMap (date: November 2014 to January 2015).

1.5 Additional legislative requirements

The project has been assessed against key biodiversity legislation and government policy, including:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Threatened Species Conservation Act 1995* (TSC Act)
- *Fisheries Management Act 1994* (FM Act)
- *Water Management Act 2000* (WM Act)
- *Native Vegetation Act 2003* (NV Act)
- *Noxious Weeds Act 1993* (NW Act)
- Wollondilly Local Environment Plan 2011 – <http://www.legislation.nsw.gov.au/>

Further information is provided in Section 2.



Legend

Development site

Assessment circles

IBRA Sub-region

Vegetation in the outer assessment circle

Mitchell landscape v3

Kbe, Kurrajong Fault Scarp

Sil, Silverdale Slopes

Figure 1: Locality map - Warradale Road, Silverdale, NSW

0 150 300 450 600 750
Metres

Scale: 1:15,000 @ A3
Coordinate System: GDA 1994 MGA Zone 56

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