

GAIA Australia

Bonshaw Solar Farm



*Preliminary Environmental
Assessment*

0450869_Final

July 2018

Bonshaw Solar Project

Preliminary Environmental Assessment

Prepared by:	<u>Eliza Collison</u>
Position:	<u>Project Manager</u>
Signed:	<u></u>
Date:	<u>13 July 2018</u>
Approved by:	<u>Paul Douglass</u>
Position:	<u>Partner</u>
Signed:	<u></u>
Date:	<u>13 July 2018</u>

GAIA Australia

July 2018

0450869_Final

www.erm.com

This disclaimer, together with any limitations specified in the report, apply to use of this report. This report was prepared in accordance with the contracted scope of services for the specific purpose stated and subject to the applicable cost, time and other constraints. In preparing this report, ERM relied on: (a) client/third party information which was not verified by ERM except to the extent required by the scope of services, and ERM does not accept responsibility for omissions or inaccuracies in the client/third party information; and (b) information taken at or under the particular times and conditions specified, and ERM does not accept responsibility for any subsequent changes. This report has been prepared solely for use by, and is confidential to, the client and ERM accepts no responsibility for its use by other persons. This report is subject to copyright protection and the copyright owner reserves its rights. This report does not constitute legal advice.

CONTENTS

1	INTRODUCTION	
1.1	OVERVIEW	1
1.2	SITE LOCATION	1
1.3	PURPOSE OF THE REPORT	2
1.4	THE PROPONENT	2
2	PROJECT DESCRIPTION	
2.1	PROJECT DESIGN	4
2.2	PROJECT TIMEFRAME	5
2.3	CAPITAL INVESTMENT	5
3	PERMISSIBILITY AND STRATEGIC PLANNING	
3.1	COMMONWEALTH LEGISLATION	7
3.1.1	ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999	7
3.1.2	NATIVE TITLE ACT 1993	7
3.2	NEW SOUTH WALES LEGISLATION	8
3.2.1	ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979	8
3.2.2	OTHER NSW LEGISLATION	9
3.3	PLANNING POLICIES	10
3.3.1	STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011	10
3.3.2	STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007	11
3.3.3	STATE ENVIRONMENTAL PLANNING POLICY NO. 44 – KOALA HABITAT PROTECTION	11
3.3.4	STATE ENVIRONMENTAL PLANNING POLICY NO 33 (HAZARDOUS AND OFFENSIVE DEVELOPMENT)	11
3.4	LOCAL PLANNING INSTRUMENTS	12
3.4.1	INVERELL LOCAL ENVIRONMENT PLAN	12
3.5	DRAFT NSW LARGE-SCALE SOLAR ENERGY GUIDELINE 2017	12
4	PRELIMINARY ENVIRONMENTAL ASSESSMENT	
4.1	BIODIVERSITY	14
4.1.1	APPROACH	14
4.1.2	VEGETATION COMMUNITIES AND HABITATS	14
4.1.3	FLORA	16
4.1.4	FAUNA	17
4.1.5	WETLANDS AND WATERCOURSES	18
4.2	HERITAGE	21
4.3	VISUAL	24
4.4	NOISE	27
4.5	TRAFFIC AND TRANSPORT	27
4.6	SOIL AND WATER ASSESSMENT	27
4.7	HAZARDS AND RISKS	28
4.7.1	BUSHFIRE RISK	28
4.7.2	ELECTROMAGNETIC FIELDS	28
4.7.3	CONTAMINATED LAND	28

CONTENTS

4.7.4	SOCIAL AND ECONOMIC ISSUES	29
4.8	DECOMMISSIONING AND REHABILITATION	29
5	JUSTIFICATION AND ALTERNATIVES	
5.1	STRATEGIC JUSTIFICATION	30
5.1.1	NATIONAL	30
5.1.2	STATE	30
5.1.3	LOCAL	31
5.2	ALTERNATIVES CONSIDERED	31
6	STAKEHOLDER ENGAGEMENT	
6.1	STAKEHOLDER IDENTIFICATION	33
6.2	SURROUNDING COMMUNITY	37
6.3	INVERELL SHIRE COUNCIL	37
6.4	ELECTRICITY DISTRIBUTOR	37
7	CONCLUSION	
8	REFERENCES	
	LIST OF TABLES	
TABLE 1.1	CADASTRE DETAILS OF THE PROJECT AREA	1
TABLE 3.1	IDENTIFIED MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE	7
TABLE 3.2	OTHER NSW LEGISLATION	9
TABLE 3.3	INVERELL LEP 2012 MAPPING	12
TABLE 4.1	PRELIMINARY ASSESSMENT OF ENDANGERED ECOLOGICAL COMMUNITIES LIKELY TO OCCUR WITHIN THE PROJECT AREA	16
TABLE 4.2	PRELIMINARY ASSESSMENT OF ABORIGINAL ARTEFACTS	22
TABLE 6.1	STAKEHOLDER IDENTIFICATION AND CONSULTATION	34
	LIST OF FIGURES	
FIGURE 1.1	SITE LOCALITY	3
FIGURE 2.1	INDICATIVE PROJECT LAYOUT	6
FIGURE 3.1	INVERELL LEP ZONING MAP	13
FIGURE 4.1	VEGETATION COMMUNITIES	19
FIGURE 4.2	ENVIRONMENTAL FEATURES	20
FIGURE 4.3	HERITAGE ITEMS	23
FIGURE 4.4	MAPPED POTENTIAL DWELLINGS	25
FIGURE 4.5	SITE VISIBILITY ANALYSIS	26
	ANNEXES	
ANNEX A	LEP MAPPING	
ANNEX B	PMST SEARCH	
ANNEX C	NSW WILDLIFE ATLAS ONLINE DATABASE SEARCH	
ANNEX D	BUSHFIRE PRONE LAND	
ANNEX E	CONTAMINATED LAND SEARCH	
ANNEX F	AHIMS SEARCH	

1 INTRODUCTION

1.1 OVERVIEW

GAIA Australia (GAIA) is proposing to develop a large scale solar photovoltaic (PV) generation facility and associated infrastructure with a capacity of 500 MW at Bonshaw in the Inverell Shire of New South Wales (NSW) (referred to as the Bonshaw Solar Farm) (the 'Project'), shown in *Figure 1.1*.

The Project will have a Capital Investment Value (CIV) greater than \$30 Million AUD, and as such the Project is deemed State Significant Development (SSD) in accordance with clause 20 of Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* and will be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). GAIA is requesting Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) to accompany the SSD application.

The proposed infrastructure includes PV units, battery storage, two site office options and overhead/underground cabling between allotments, substation and switchyard. The solar farm site is located on approximately 1097 hectares (ha) (the Project Area) and is proposed to connect directly to Transgrid's existing Dumaresq Substation, further discussed in *Section 2.1*.

1.2 SITE LOCATION

The proposed Bonshaw Solar Farm is located in the Inverell Local Government Area (LGA) approximately 16 km south of Bonshaw and 66 km north of Inverell. The Project Area, as shown in *Figure 1.1*, is approximately 1097 ha with elevations ranging from 329 m to 500 m Australian Height Datum (AHD). Cadastre details involved in the Project Area are outlined in *Table 1.1*

Table 1.1 *Cadastre Details of the Project Area*

Lot Numbers	DP Number
Part Lot 200	DP 879480
Part Lot 1, Lot 2	DP 1039185
Part Lot 29, Lot 27	DP 750075

All landholders in the Project Area have been consulted and provided in principle support to be finalised with landholder agreements. Based on indicative design and imminent lease agreements between GAIA and the project landholders, no subdivision is proposed on the lots identified within the project boundary. Should it be required, subdivision will be addressed within the environmental impact statement (EIS) and will be the subject of further

consultation with the NSW Department of Planning and Environment (DP&E) and Inverell Shire Council.

Proposed access to the site is via Bruxner Highway (three access points) and Glenrock Road (one access point) as discussed in Section 2.1. Bruxner Highway is a regional road north of the Project Area becomes a State Road East of Tenterfield. Glenrock Road and Rocky Creek Road are local roads east and west of the Project Area respectively. Connection of the Bonshaw Solar Farm will be to the 330 kV TransGrid Dumaresq Substation located on the boundary of the Project Area (shown in Figure 2.1).

1.3 *PURPOSE OF THE REPORT*

Environmental Resources Management Australia Pty Ltd (ERM) has been engaged by GAIA to prepare a Preliminary Environmental Assessment (PEA) for the Project to accompany a request to Department of Planning and Environment (DP&E) for SEARs in relation to the proposal. The SEARs will identify the requirements for the EIS that will be prepared to accompany the SSD application.

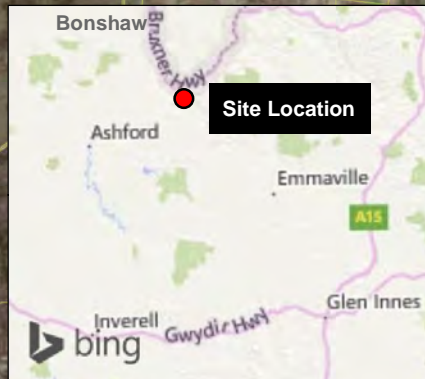
Specifically, this report has been prepared to:

- describe the key components of the Project;
- identify the applicable planning provisions;
- identify and assess the expected environmental impacts associated with the Project;
- provide sufficient justification for the Project compared to alternative options;
- outline consultation proposed; and
- obtain the SEARs to proceed with the development application process.

1.4 *THE PROPONENT*

GAIA Australia (GAIA AU) was established in 2015 to take the load in renewable energy developments in Australia, with a clear target and vision to become an active large scale solar farm developer in NSW. GAIA AU is partnered with GAIA Korea, a renowned infrastructure developer in Korea with a focus on renewable energy development sector in Australia.

GAIA is committed to working closely with all stakeholders to ensure success in this project and providing environmental and economic benefit to Australia. GAIA AU as a company is committed to the principles of social responsibility and will apply these principles through the whole process of development from planning to operation.



Site Location

NSW

QLD

Rocky Creek Road

Part Lot
200 DP879480

Part Lot 1
DP1039185

Lot 2
DP1039185

Lot 27
DP750075

Part Lot
29 DP750075

Riverton Road

Bruxner Highway

Beardy River Road

Back Creek Road

DUMARESQ RIVER

Glenrock Road

Legend

- Main Road
- Local Road
- Site Boundary
- Cadastral Land Parcels

Source: Imagery - ESRI World Imagery 2016
Cadastral - NSW DCDB and QLD DCDB

Site Locality

Drawing No: 0450869m_BS_PEA_G001_R1.mxd
Date: 20/06/2018
Drawn By: GR

Bonshaw, NSW

Drawing Size: A4

Reviewed By: EC

Client: GAIA Australia

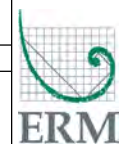
Coordinate System: GDA 1994 MGA Zone 56

0 0.5 1 1.5 2km



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

1.1



2.1

PROJECT DESIGN

The Project will involve the construction, operation and maintenance of a solar PV generation facility and associated infrastructure with a capacity of up to 500 MW, supplying electricity to the national electricity grid. The actual footprint of the development is approximately 700 ha within the Project Area. The proposed potential development footprint is shown in *Figure 2.1*. This area would be refined by further detailed investigations, assessments, planning and design during the EIS phase.

The Project would include:

- a network of PV modules in a fixed or tracking arrangement;
- a site office (two proposed options);
- three potential access tracts from Bruxner Highway and one from Glenrock Road;
- underground or overhead cabling for connection between arrays and inverters and transformers;
- parking and internal access tracks;
- perimeter security fencing;
- battery storage; and
- two grid connection options to the 330 kV TransGrid Dumaresq Substation, on the boundary of the Project Area.

The proposed locations of supporting infrastructure and site access points are shown in *Figure 2.1* and grid connection options in *Error! Reference source not found.*. The location within the Project Area of the PV modules, cabling, battery storage and substation and switchyard infrastructure is subject to further detailed design during the preparation of the EIS.

It is anticipated that a battery storage system (BSS) will be installed as part of the project, with this location being as close to the Dumaresq Substation as possible to minimise losses. The specific technology, MW rated capacity and MWh of storage for the proposed BSS will be determined during the detailed design stage of the project. This is likely to be driven by commercial and financial considerations along with government policy given the current focus on ensuring reliability of renewable energy. The BSS will be located in a secure compound and further assessed within the EIS.

2.2

PROJECT TIMEFRAME

The proposed development will be undertaken in stages including:

- site preparation involving access roads, security fencing, office buildings and foundations;
- construction of supporting structures, cables, PV modules, substation and switchyard;
- connection to the grid and monitoring system setup;
- operation; and
- decommissioning at the end of the operational life, involving the removal of all above ground infrastructure and returning the site to its existing land capability.

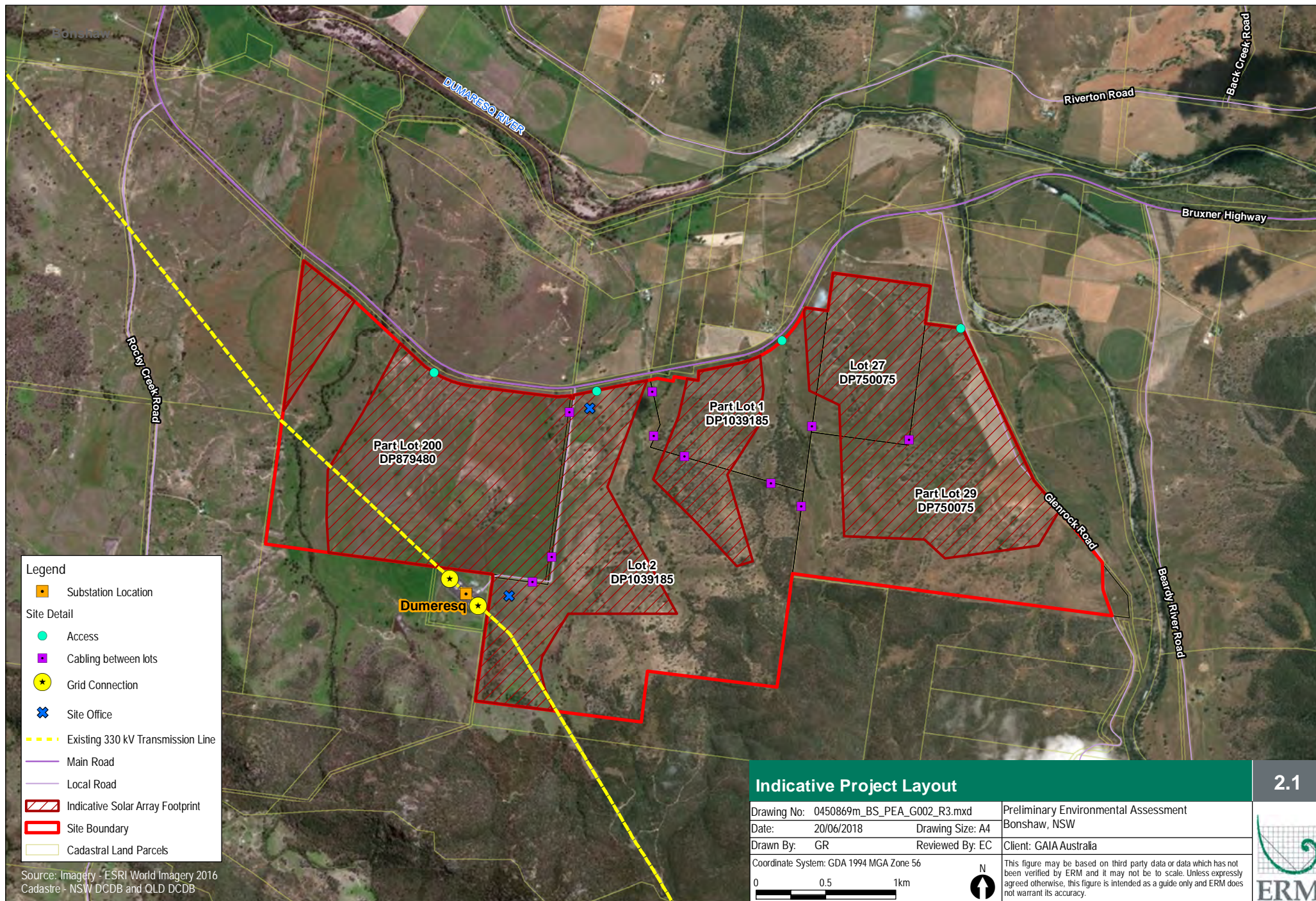
The site preparation and construction is expected to take approximately 9-12 months.

There will be two stages involved with the construction. Stage 1 has a proposed capacity of 200 MW capacity, commencing construction mid-2019. Stage 2 is an addition 300 MW, construction is planning to commence 2021. The project is likely to be operational for approximately 25 years.

2.3

CAPITAL INVESTMENT

Based on the Projects initial design and costs associated with numerous similar large-scale solar photovoltaics within NSW (Australian Renewable Energy Agency, n.d.) the estimated gross capital expenditure cost of the proposal would be approximately \$700 million AUD.



Indicative Project Layout

Drawing No: 0450869m_BS_PEA_G002_R3.mxd
 Date: 20/06/2018
 Drawn By: GR

Drawing Size: A4
 Reviewed By: EC

Coordinate System: GDA 1994 MGA Zone 56

Preliminary Environmental Assessment
 Bonshaw, NSW
 Client: GAIA Australia

0 0.5 1km



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



2.1

Legend

Substation Location

Site Detail

Access

Cabling between lots

Grid Connection

Site Office

Existing 330 kV Transmission Line

Main Road

Local Road

Indicative Solar Array Footprint

Site Boundary

Cadastral Land Parcels

Source: Imagery - ESRI World Imagery 2016
 Cadastre - NSW DCDB and QLD DCDB

3.1 COMMONWEALTH LEGISLATION

3.1.1 *Environmental Protection and Biodiversity Conservation Act 1999*

A referral to the Commonwealth Department of Environment and Energy (DoEE) is required for projects that are likely to significantly impact matters of national environmental significance protected under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). Matters of national environmental significance (MNES) are listed in *Table 3.1*.

A search of MNES was undertaken on 2 March 2018 using the EPBC Act Protected Matters Search tool of the Project Area with a 5 km buffer. The search results are presented in *Annex B* and summarised in *Table 3.1*. The results are discussed in *Section 4.1* and *4.2*.

Consultation will be undertaken with DoEE, once baseline ecological information is available, during the preparation of the EIS to determine whether MNES are likely to be impacted.

Table 3.1 *Identified Matters of National Environmental Significance*

MNES	Result
World Heritage Properties	None
National Heritage Places	None
Wetlands of International Importance (listed under the Ramsar Convention)	3
Listed Threatened Species	35
Listed Threatened Ecological Communities	4
Listed Migratory Species	11
Commonwealth Marine Areas	None
The Great Barrier Reef Marine Park	None
Nuclear actions (including uranium mines)	N/A
A water resource, in relation to coal seam gas development and large coal mining development	N/A

3.1.2 *Native Title Act 1993*

The *Native Title Act 1993* provides a legislative framework for the recognition and protection of common law native title rights. Native title is the recognition by Australian law that Indigenous people had a system of law and ownership of their lands before European settlement. Where that traditional connection to land and waters has been maintained and where government acts have not removed it, the law recognises this as native title.

One active Native Title claim (Comeroi People #NC2011/006) is currently registered within the LGA, located on the western side of Rocky Creek Road adjacent to the Project Area. The Project Area is not included in this Native Title claim and it does not present any significant constraints on the future development of the Project Area.

3.2.1

Environmental Planning and Assessment Act 1979

The principal NSW planning legislation is the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EP&A Act provides a system of environmental planning and assessment administered by the NSW Department of Planning and Environment (DP&E). The EP&A Act establishes when and how a development or activity is to be assessed and who is the relevant approval or determining authority.

Section 4.36 (2) of the EP&A Act states that “a *State environmental planning policy may declare any development, or any class or description of development, to be State significant development*”.

Part 2 Clause 8 of the State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP) states that:

- (1) *Development is declared to be State significant development for the purposes of the Act if:*
 - (a) *the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
 - (b) *the development is specified in Schedule 1 or 2.*

Schedule 1 and 2 of the State and Regional Development SEPP contains an extensive list of developments that are considered State Significant Development (SSD). Schedule 1 Cl 20 identifies the following as SSD:

Electricity generating works and heat or co-generation

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that:

- (a) *has a capital investment value of **more than \$30 million**, or*
- (b) *has a capital investment value of more than \$10 million and is located in an environmentally sensitive area of State significance.*

The project is a development for the purpose of electricity generation using a solar energy source, and it is understood to have a capital investment value (CIV) of more than \$30 million. Based on a desktop assessment, the Site is not located in an environmentally sensitive area of State Significance (as defined in the State and Regional Development SEPP).

Permissibility of the project is given under clause 34 (7) of the Infrastructure SEPP as detailed further below.

The project meets both the requirements of clause 8 of the State and Regional Development SEPP as it is not permissible without development consent and is development specified in Schedule 1. Therefore, the project is SSD for the purposes of the EP&A Act.

3.2.2 Other NSW Legislation

Other applicable NSW legislation relevant to the Project is described in Table 3.2.

Table 3.2 Other NSW Legislation

Legislation	Relevance to Project
Roads Act 1993	<p>The Roads Act 1993 addresses authorities, function and regulation of activities relating to the use and type of roads.</p> <p>Approval under section 138 of the Roads Act is required to impact or carry out work on or over a public road. Section 4.42 of the EP&A Act provides that an approval under section 138 of the Roads Act cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent. Consultation with the Roads and Maritime Services (RMS) and Inverell Shire Council will be undertaken to determine access and necessary upgrading of access points to the proposed project.</p>
Biodiversity Conservation Act 2016	<p>The NSW Biodiversity Conservation Act 2016 (BC Act) commenced on 25 August 2017, which repealed the following:</p> <ul style="list-style-type: none"> • NSW Threatened Species Conservation Act 1995; • sections of the NSW National Parks and Wildlife Act 1974 (NPW Act); and • NSW Native Vegetation Act 2003. <p>The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Section 4.1 provides an assessment of biodiversity impacts.</p>
Heritage Act 1977	<p>The <i>Heritage Act</i> 1977 is administered by the Office of Environment and Heritage (OEH) and aims to protect the natural and cultural heritage of NSW. It provides blanket protection for surface and sub-surface relics and for heritage items of state significance listed on the State Heritage Register. The Act defers to local planning instruments under the EP&A Act for the protection of items of local significant. Section 4.2 provides an assessment of heritage impacts.</p>

Legislation	Relevance to Project
Water Management Act 2000	<p>The Project Area is covered by the NSW Border Rivers Unregulated and Alluvial Water Sharing Plan (WSP) and therefore the provisions of the <i>Water Management Act 2000</i> apply.</p> <p>Part 4.41 of the EP&A Act lists authorisations not required for State significant development. Included in this list is:</p> <p>(g) <i>a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the Water Management Act 2000.</i></p> <p>The Project will not interfere with the aquifer and hence will not require approval under this Act. Section 4.6 provides a preliminary soils and water assessment.</p>
Protection of the Environment Operations Act 1997	<p>The <i>Protection of the Environment Operations Act 1997</i> (POEO Act) is the primary piece of legislation regulating pollution control and waste disposal in NSW. Schedule 1 of the POEO Act defines scheduled activities for which an Environmental Protection Licence is required. Solar energy generation does not fall under the definition of electricity generation under Clause 17 of Schedule 1 of the POEO Act.</p>
Rural Fire Act 1997	<p>The <i>NSW Rural Fires Act 1997</i> (RF Act) aims to prevent, mitigate and suppress bush and other fires in local government areas of the NSW. Section 63(2) of the RF Act requires the owners of land to prevent the ignition and spread of bushfires on their land. Under Part 4.41 of the EP&A Act, a bush fire safety authority under Section 100B of the RF Act is not required for SSD that is authorised by a development consent. Section 4.8.1 assess the risk and mitigation measures of bushfire.</p>
Dangerous Goods (Road and Rail Transport) Act 2008	<p>The <i>Dangerous Goods (Road and Rail Transport) Act 2008</i> regulates the transport of dangerous goods by road and rail in order to promote public safety and protect property and the environment. The Project will involve the transportation of the storage batteries which are likely to be defined as dangerous goods.</p>

3.3 PLANNING POLICIES

3.3.1 State Environmental Planning Policy (State and Regional Development) 2011

As stated in Section 3.1.1, the State and Regional Development SEPP identifies development that is SSD. Schedule 1, Cl 20 includes:

*Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, **solar** or wind power) that:*

- (a) has a capital investment value of more than \$30 million.*

The project is a development for the purpose of electricity generation using a solar energy source, and will have a capital investment value of more than \$30 million.

3.3.2 *State Environmental Planning Policy (Infrastructure) 2007*

The Infrastructure SEPP provides development controls for infrastructure and services. Clause 34 (7) of the SEPP provides provisions for development that is permitted with consent. Clause 34 (7) states:

Solar energy systems

Except as provided by subclause (8), development for the purpose of a solar energy system may be carried out by any person with consent on any land.

Subclause (8) limits the use of photovoltaic electricity generating systems in residential zones. The Site is not within a residential zone and, therefore, is not affected by this subclause.

3.3.3 *State Environmental Planning Policy No. 44 – Koala Habitat Protection*

The objectives of State Environmental Planning Policy No 44 Koala Habitat Protection (SEPP 44) is to conserve and manage areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.

Inverell Shire is a local government listed in Schedule 1 of SEPP 44 and therefore the SEPP applies. If the Site is deemed to be core koala habitat, there must be a plan of management prepared in accordance with Part 3 of SEPP 44.

3.3.4 *State Environmental Planning Policy No 33 (Hazardous and Offensive Development)*

State Environmental Planning Policy No 33 (Hazardous and Offensive Development) (SEPP 33) presents a systematic approach to planning and assessing proposals for potentially hazardous and offensive development for the purpose of industry or storage.

A screening assessment is likely to be required for the battery storage on-site. Based on the outcomes and project refinement, if it is deemed to be potentially hazardous, a Preliminary Hazard Analysis will be undertaken.

3.4 LOCAL PLANNING INSTRUMENTS

3.4.1 Inverell Local Environment Plan

The Project Area is situated within the Inverell Shire and hence the *Inverell Local Environmental Plan 2012* (Inverell LEP) applies. The Project Area is zoned RU1 Primary Production under the Inverell LEP (Figure 3.1). The objectives of the zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

Development for the purpose of electricity generation is not specified in item 2 or 3 of the Inverell LEP and is therefore 'Prohibited'. As stated in Section 3.3.2, permissibility of the solar energy development is provided by way of Clause 34 (7) of the Infrastructure SEPP.

The Inverell LEP 2012 provides various land use mapping (refer *Annex A*) Table 3.3 details mapping attributes of the Project Area.

Table 3.3 Inverell LEP 2012 Mapping

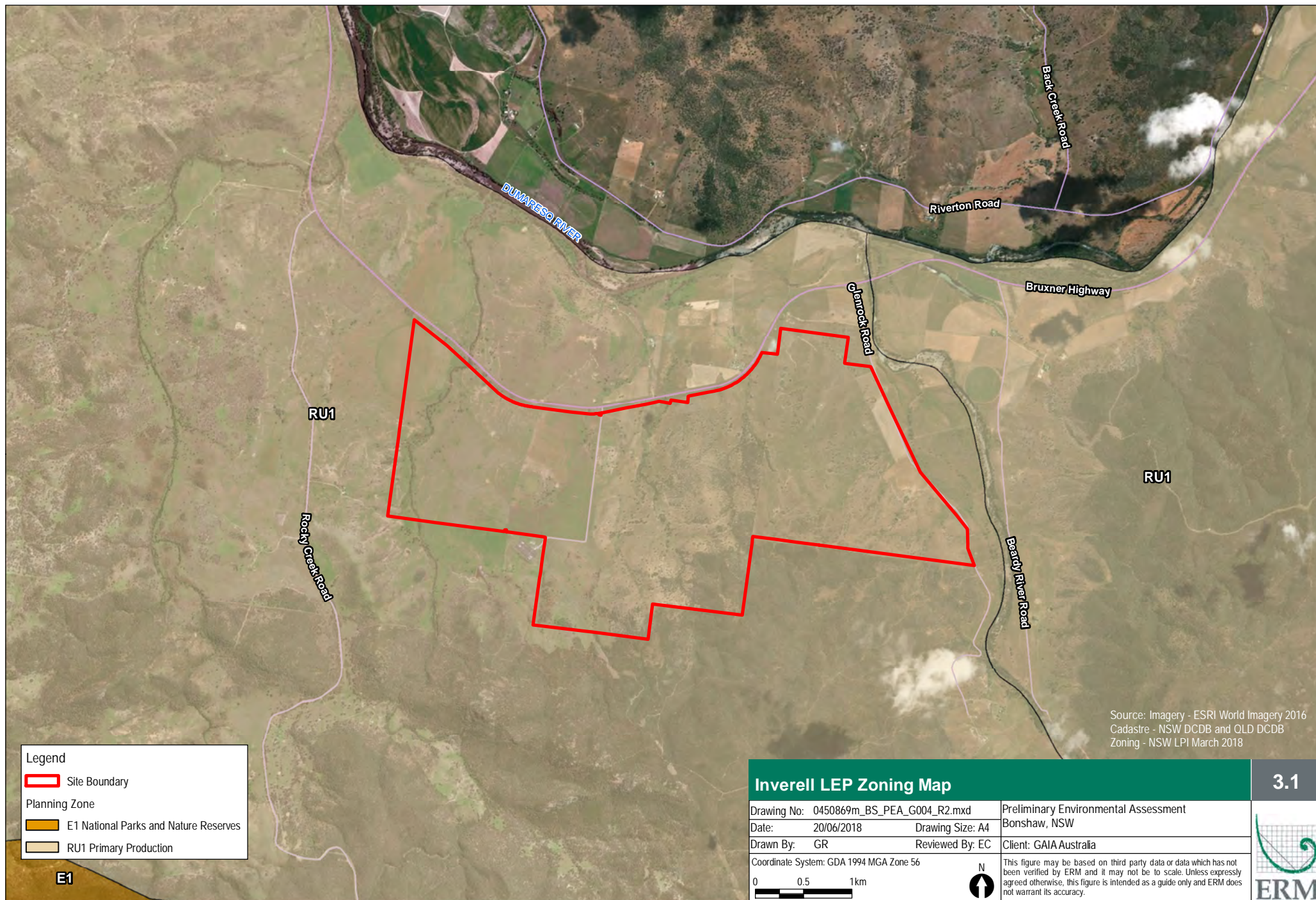
Inverell LEP 2012 Mapping Attribute	Relevance to Project Area
Land Zoning	Zoned RU1 Primary Production. All developments not specified in Item 2 or 3 are prohibited.
Minimum Lot Size	200 ha
Heritage	The Project Area is not mapped as containing a heritage item.
Designated Buffer Area	The Project Area is not mapped as being a designated buffer area.

3.5 DRAFT NSW LARGE-SCALE SOLAR ENERGY GUIDELINE 2017

The aim of the Draft Large-Scale Solar Energy Guideline is to provide the community, industry and regulators with guidance on the planning framework for the assessment and approval of large-scale solar energy development proposals under the EP&A Act.

The guideline also outlines the key assessment issues for State significant solar energy projects, such as land use conflict, biodiversity and visual impacts. It also seeks to encourage genuine and early consultation with the community and stakeholders, consistent with best practice engagement principles.

The draft Guideline was on exhibition until 16th February 2018 and has been considered in the development of this PEA.



4.1 BIODIVERSITY

4.1.1 Approach

This preliminary assessment is based on a combination of regional vegetation mapping, GIS techniques, inspection of aerial photographs and knowledge of the habitat requirements for threatened species. No field investigations were undertaken to inform this preliminary assessment. Further clarification via field surveying would be required for a more accurate analysis.

The following online database searches were undertaken:

- EPBC Protected Matters Search – this search provides general guidance on matters of national environmental significance (MNES) and other matters protected by the EPBC Act. It should be noted that the results are based on predictive modelling and not verified by mapping or known records of species. It should be considered in conjunction with other desktop and field survey (if required) (refer to *Annex B*);
- NSW Wildlife Atlas Online Database search – this search provides a list of flora and fauna species that have been recorded within a 5km radius of the Project Area. It lists all species including those listed under the BC Act and EPBC Act (refer to *Annex C*); and
- A search of the NSW Vegetation Information System (VIS) database was undertaken to identify the most relevant regional vegetation mapping data for the study area. This was imported into GIS to identify those vegetation types present in the Project Area. The regional vegetation mapping is considered indicative until adequate ‘ground truthing’ and more refined vegetation surveys are undertaken.

The BioBanking Credit Calculator will be required to be used to identify seasonal surveys required and will be based on the PCT types identified within the Project Area.

4.1.2 Vegetation Communities and Habitats

The native vegetation of the Inverell Shire regional mapping (2009) (VIS ID 3794) has mapped the following 18 vegetation communities (*Figure 4.1*) within the Project Area:

- Yellow Box - Blakely's Red Gum grassy open forest of Nandewar Bioregion;
- Derived grassland of low fertility soils of New England Tablelands and Nandewar Bioregions;

- White Cypress Pine - Silver-leaved Ironbark grassy woodland of Nandewar Bioregion;
- Poplar Box grassy woodland of Brigalow Belt South Bioregion;
- Derived grassland of highly fertile soils of Nandewar and Brigalow Belt South Bioregions;
- Derived grassland of intermediate fertile soils of Brigalow Belt South Bioregion and western Nandewar Bioregion;
- White Cypress Pine - Silver-leaved Ironbark shrub/grass open forest of Brigalow Belt South and Nandewar Bioregions;
- Silver-leaved Ironbark - White Cypress Pine - Red Ash shrubby woodland of Nandewar Bioregion;
- White Cypress Pine - Silver-leaved Ironbark - Tumbledown Red Gum shrubby open forest of Nandewar and Brigalow Belt South Bioregions;
- Cypress Pine - Tumbledown Red Gum - Caley's Ironbark shrubby woodland of Nandewar and New England Tablelands Bioregions;
- Black Cypress Pine - White Box - Silver-leaved Ironbark shrubby open forest of the northern Nandewar Bioregion;
- Blakely's Red Gum - Rough-barked Apple grassy open forest of Brigalow Belt South, Nandewar and New England Tablelands Bioregions;
- Bracteate Honey Myrtle riparian shrubland of Brigalow belt south and Nandewar bioregions;
- River Oak - River Red Gum - Weeping Bottlebrush riparian woodland of Brigalow Belt South and Nandewar bioregions;
- Black Cypress Pine - Orange Gum - CommonFringe-myrtle heathy woodland of New England Tablelands Bioregion;
- Black Cypress Pine - Tumbledown Red Gum - Caley's Ironbark shrubby open forest of Nandewar and new England tablelands bioregions;
- Grey box - narrow-leaved ironbark shrub/grass open forest of Nandewar and New England tablelands bioregions; and
- Urban and cropping.

These vegetation communities as described by Peacock et. al. (2009) indicate that the Project Area may contain areas of Endangered Ecological Community (EEC) protected under both the BC Act and the EPBC Act as indicated in *Table 4.1*. Detailed vegetation surveys would be required to confirm the presence and condition of all Plant Community Types (PCT) within the Project Area.

Table 4.1 *Preliminary Assessment of Endangered Ecological Communities likely to occur within the Project Area*

Listed Ecological Communities	Legislation		Source		Preliminary Likelihood of Occurrence
	EPBC Act	BC Act	PMST	BioNET	
Natural Grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	CE	-	PMST	-	Some potential based on known regional distribution of this community. To be confirmed following field survey.
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	CE	-	PMST	-	Some potential based on known regional distribution of this community. To be confirmed following field survey.
Weeping Myall Woodlands	E	-	PMST	-	Some potential based on known regional distribution of this community. To be confirmed following field survey.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	EEC	PMST	BioNET	There is a high likelihood that at least some of the vegetation communities mapped (VIS ID 3794) will constitute this EEC.
CE = Critically Endangered; E = Endangered; EEC = Endangered Ecological Community					

4.1.3 Flora

The NSW Wildlife Atlas search confirms one threatened flora species known to occur within 2 km to the Project Area (Figure 4.2) and will need to be considered during the design phases of any future development proposal:

- Silky Swainson-pea (*Swainsona sericea*) is listed as a Vulnerable under the BC Act and has been recorded 19 km South East of Bonshaw along the roadside (dated 2003).

The EPBC Protected Matters Search identified an additional ten threatened flora species that may occur within the search area, including:

- Velvet Wattle (*Acacia pubifolia*) – Vulnerable;
- *Astrotricha roddii* – Endangered;
- Ooline (*Cadellia pentastylis*) – Vulnerable;
- *Callistemon pungens* – Vulnerable;

- Bluegrass (*Dichanthium setosum*) – Vulnerable;
- Ovenden’s Ironbark (*Eucalyptus caleyi subsp. ovendenii*) – Vulnerable;
- McKie’s Stringybark (*Eucalyptus mckieana*) – Vulnerable;
- Narrow-leaved Peppermint, Narrow-leaved Black Peppermint (*Eucalyptus nicholii*) – Vulnerable;
- Belson’s Panic (*Homopholis belsonii*) – Vulnerable;
- Wandering Pepper-cress (*Lepidium peregrinum*) – Endangered;
- Torrington Beard-heath (*Leucopogon confertus*) – Endangered;
- a leek-orchid (*Prasophyllum sp. Wybong*) – Critically Endangered;
- Heath Wrinklewort (*Rutidosis heterogama*) – Vulnerable;
- Austral Toadflax (*Thesium austral*) – Vulnerable; and
- *Tylophora linearis* – Endangered.

Field surveys are required to confirm the presence of threatened flora within the Project Area. It is important to note that some of these species have specific seasonal survey requirements.

4.1.4

Fauna

The NSW Wildlife Atlas search confirms one threatened fauna species known to occur within or immediately adjacent to the Project area (*Figure 4.2*) and will need to be considered during the design phases of any future development proposal:

- Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis*) is listed as Vulnerable under the BC Act and was recorded within the south east corner of the Project Area in 2010.

A number of species have also been recorded within 2 km of the Project area and may potentially occur on the Project Area, these include: The Diamond Firetail (*Stagonopleura guttata*), Speckled Warbler (*Chthonicola sagittata*), Brown Treecreeper (*Climacteris picumnus victoriae*), Little Lorikeet (*Glossopsitta pusilla*), Koala (*Phascolarctos cinereus*), Turquoise Parrot (*Neophema pulchella*), Glossy Black-Cockatoo (*Calyptorhynchus lathami*), Border Thick-tailed Gecko (*Uvidicolus sphyrurus*), Brush-tailed Rock-wallaby (*Petrogale penicillata*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*) and Greater Broad-nosed Bat (*Scoteanax rueppellii*).

The EPBC Protected Matters Search identified a number of Commonwealth listed species (birds, mammals, fish and reptiles) that may occur within the Project Area (refer to *Annex B*). The potential for these species to occur within the Project Area will be confirmed following detailed field survey and confirmation of PCT and habitats available.

Field surveys are required to confirm the presence of threatened fauna or their habitats within the Project Area. It is important to note that some of these species have specific seasonal survey requirements.

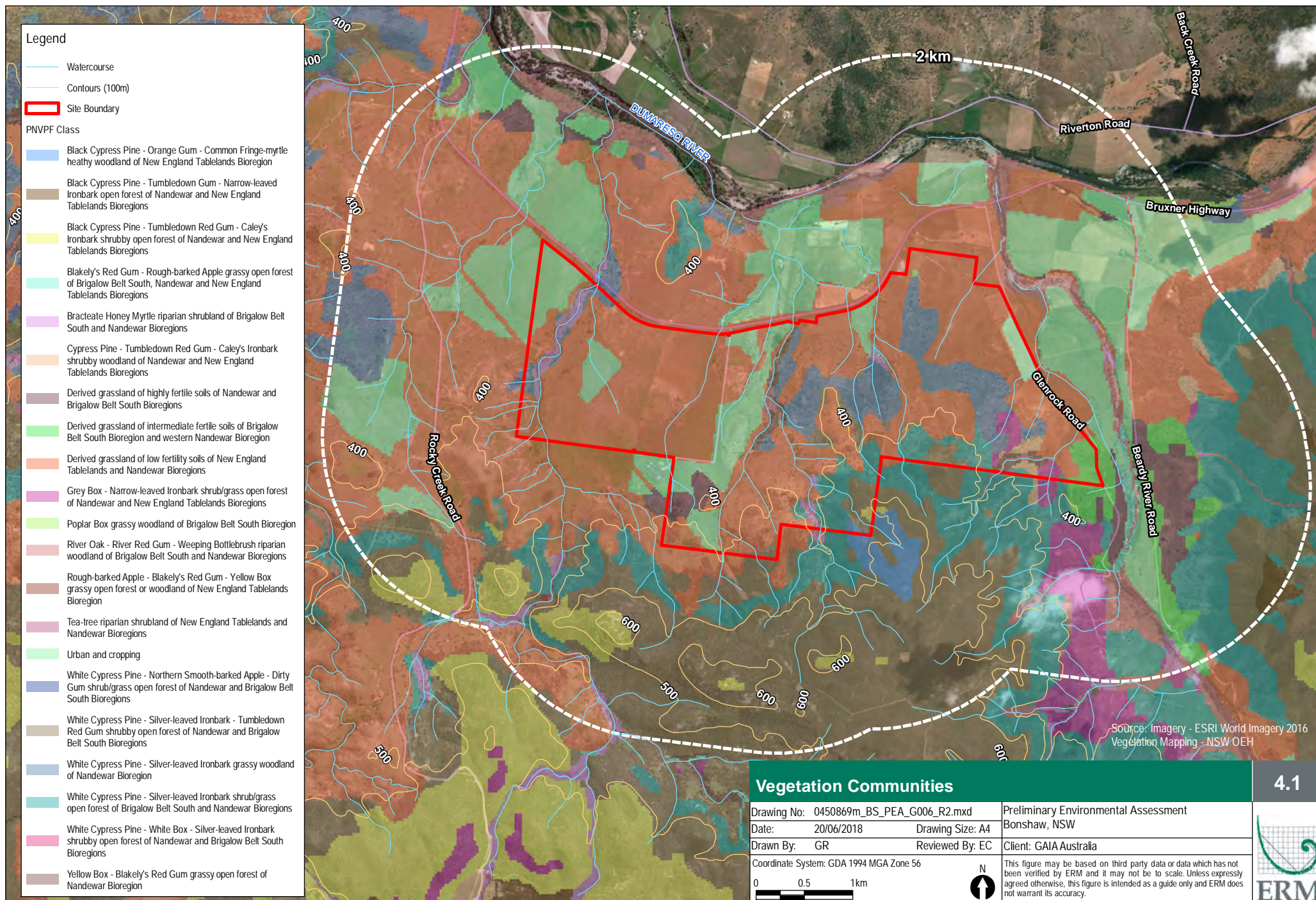
4.1.5 *Wetlands and Watercourses*

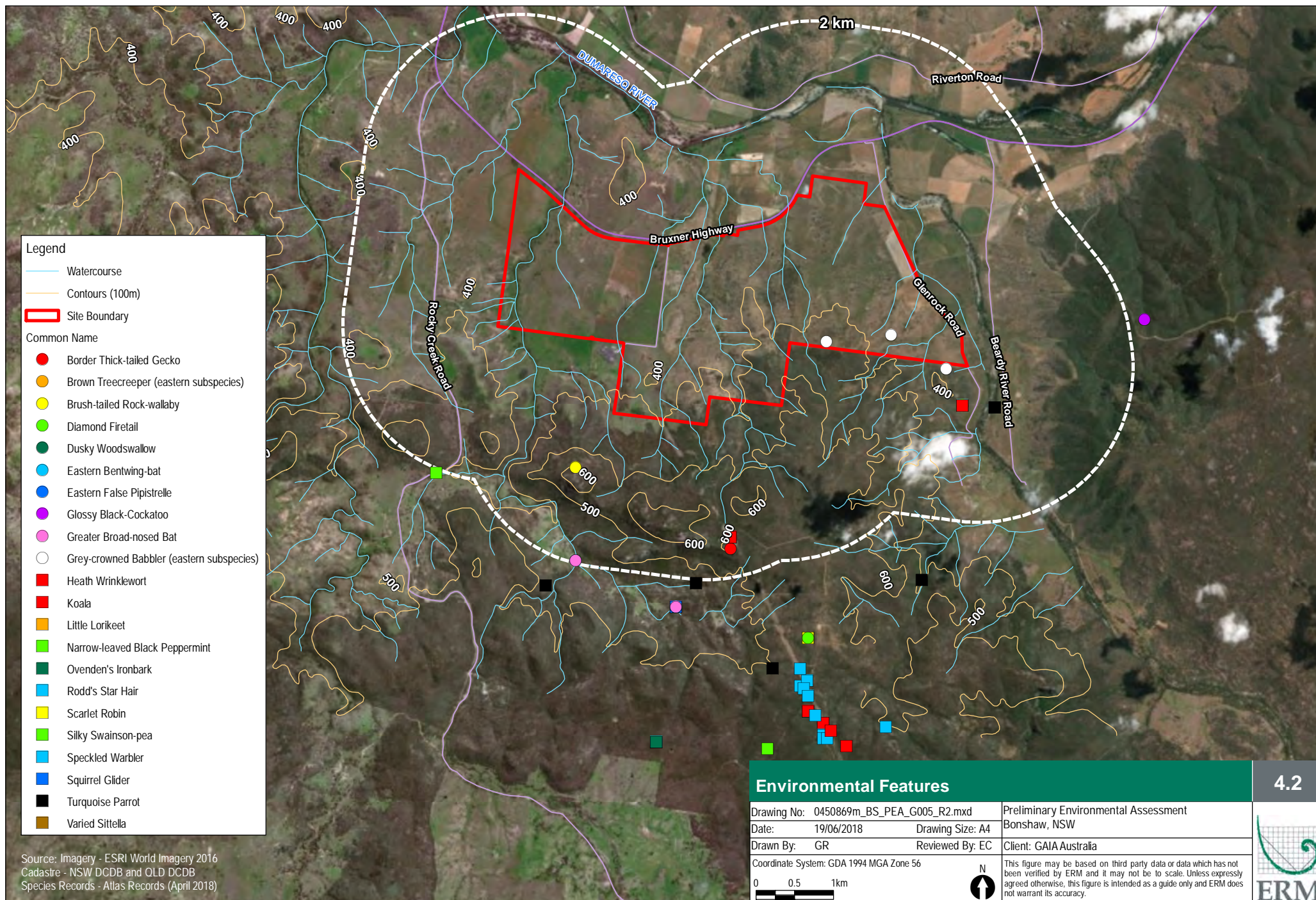
There are a number of lower order (Category 1, 2 and 3) ephemeral watercourses located within the Project Area that flow into a Category 4 watercourse, Dumaresq River, to the north of the Project Area. The Department of Industry recommends a vegetated riparian zone (VRZ) adjoining channels of watercourses based on the order of the watercourse (NSW Office of Water, 2012). These guidelines will be followed, noting that where a watercourse does not exhibit the features of a defined channel with bed and banks, the office of water may determine that the watercourse is not waterfront land for the purposes of the WM Act. Consultation with the Department of Industry will occur during the process of the EIS.

A desktop review has identified a number of dams throughout the Project Area. Beady River, Little Oak Creek, Little Limestone Creek and Dumaresq River are all classified as Key Fish Habitat.

Assessment of impact on key fish habitat would be required as part of the EIS. However, under Section 4.41 of the EP&A Act, approvals under Section 201, 205 and 219 of the *Fisheries Management Act 1994* are not required for SSD projects.

The Project Area is within the Darling Endangered Ecological Community as listed under the *Fisheries Management Act 1994*. A preliminary assessment of the potential impacts must be made (7 part test). If the impacts are likely to be significant a species impact statement must be prepared.





Source: Imagery - ESRI World Imagery 2016
 Cadastre - NSW DCDB and QLD DCDB
 Species Records - Atlas Records (April 2018)

4.2

As part of this assessment, a desktop review of the heritage values which have the potential to impact the Project Area have been identified. No consultation with the local Aboriginal community or review of previous assessments to inform a detailed predictive model have been undertaken at this preliminary stage.

The review has been limited to matters identified in the following online resources accessed on Tuesday 6 March 2018:

- Australian Heritage Database register search, including: World Heritage List, National Heritage List, Commonwealth Heritage List, National Trust Register, Register of the National Estate (archive);
- NSW State Heritage Inventory - includes items listed on the State Heritage Register (SHR) and provides a list of places and items of State Significance made under the Heritage Act. Heritage Council approval is required for works proposed to an item on the SHR;
- Inverell LEP 2012 - Schedule 5 and Conservation Areas (Locally listed items);
- Historic Heritage Information Management System (HHIMS) search;
- Aboriginal Heritage Information Management System (AHIMS);
- Schedule 14 of the National Parks and Wildlife Act; and
- Native Title Search.

The Project Area is not listed on Local, State or National Heritage registers and presents no initial red flags to the future development of the Project Area although this should be confirmed by a historical literature review and ground truthing any potential heritage sites.

One active Native Title claim (Comeroi People #NC2011/006) is currently registered within the LGA, and is located on the western side of Rocky Creek Road adjacent to the Project Area. The Project Area is not included in this Native Title claim and does not present any significant constraints on the future development of this Project Area.

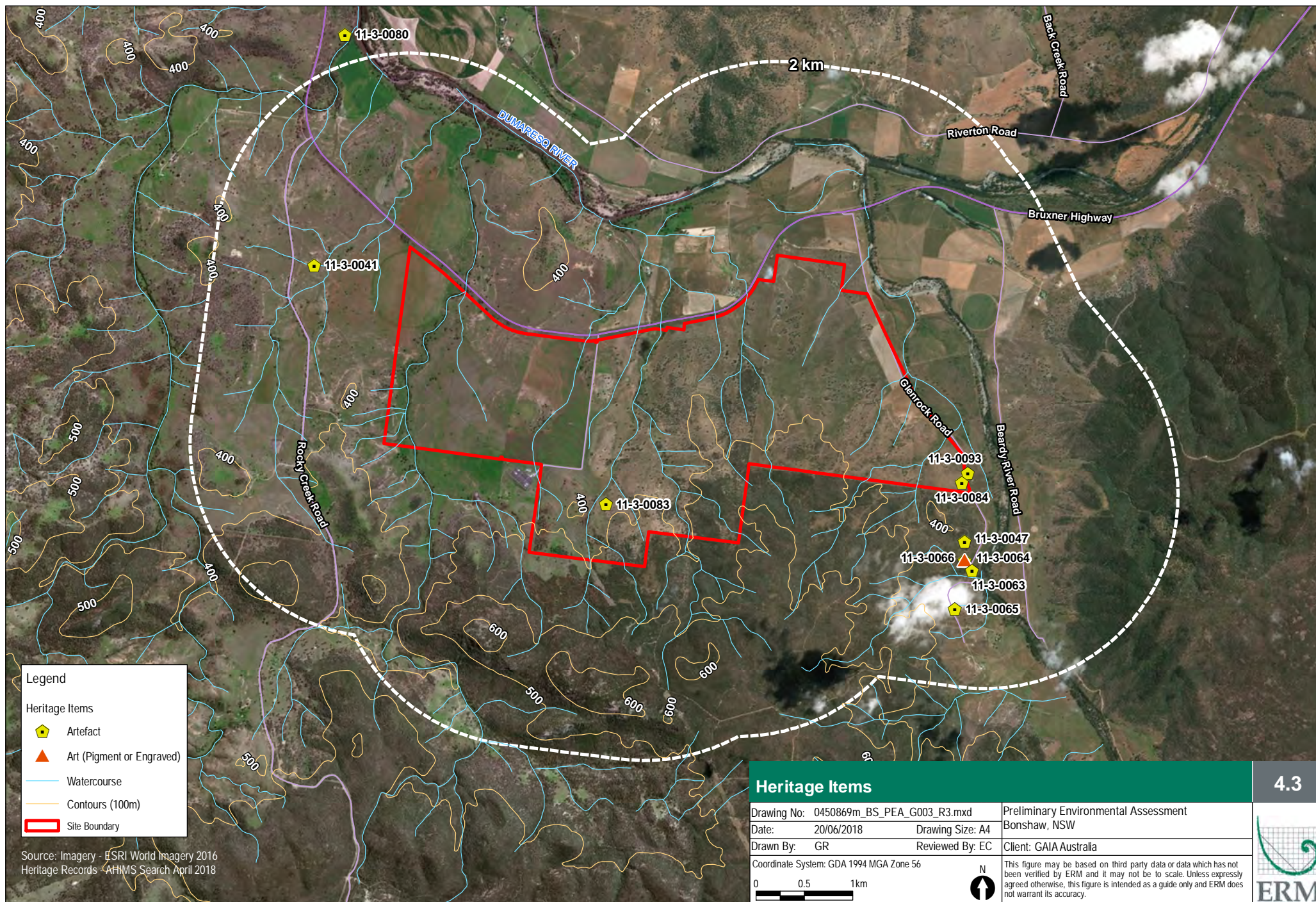
An extensive AHIMS register search was conducted for each allotment on 5 March 2018 which identified two known Aboriginal artefacts located within the Project Area. The artefacts were recorded in allotments 2//1039185 and 29//750075, described in *Table 4.2*. *Figure 4.3* shows the locations of artefacts recorded on the Project Area and within a 2 km radius.

Table 4.2 *Preliminary Assessment of Aboriginal Artefacts*

Site ID	Description	Cultural Significance	Scientific Significance	Public Significance
11-3-0083	Artefact on Open Site	Moderate-High	Low-Moderate	Low
11-3-0084	Artefact on Open Site	Moderate-High	Moderate	Low
Source: (OzArk EHM, 2011)				

The proposed activity is not exempt from the *National Parks and Wildlife Act 1974* or *National Parks and Wildlife Regulation 2009*. As a minimum requirement, an Aboriginal Cultural Heritage Due Diligence Assessment will be undertaken prior to the proposed works. In the absence of an accepted industry code of practice, this is carried out in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010). The Due Diligence Assessment will determine whether or not Aboriginal objects are, or are likely, to be present in the Project Area, whether the proposed activities are likely to harm Aboriginal objects (if present).

Aboriginal consultation is not required under the Due Diligence Code, however it is recommended that consultation with local Aboriginal stakeholders (including Moombahlene Local Aboriginal Land Council and traditional owner groups) is carried out in accordance with *Aboriginal Cultural Heritage consultation requirements for proponents* (DECCW 2010). These requirements apply to all activities throughout NSW that have the potential to harm Aboriginal objects or places and that require an Aboriginal Heritage Impact Permit. Gaining buy-in from local Aboriginal stakeholders early is critical to ensuring project success.



Source: Imagery - ESRI World Imagery 2016
Heritage Records - AHIMS Search April 2018

Heritage Items

4.3

Drawing No: 0450869m_BS_PEA_G003_R3.mxd

Date: 20/06/2018

Drawn By: GR

Coordinate System: GDA 1994 MGA Zone 56

Drawing Size: A4

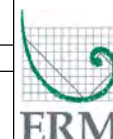
Reviewed By: EC

Preliminary Environmental Assessment

Bonshaw, NSW

Client: GAIA Australia

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

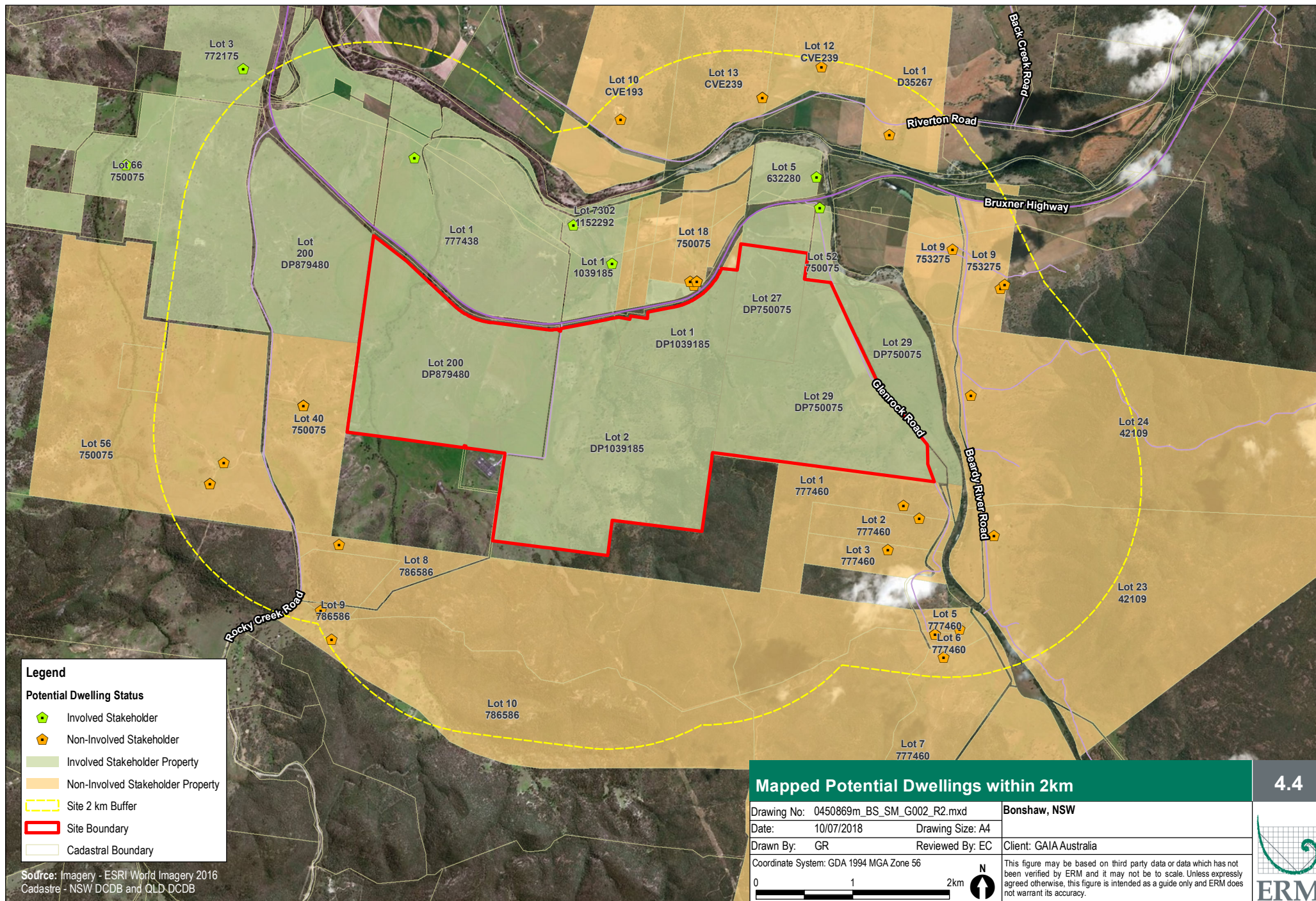


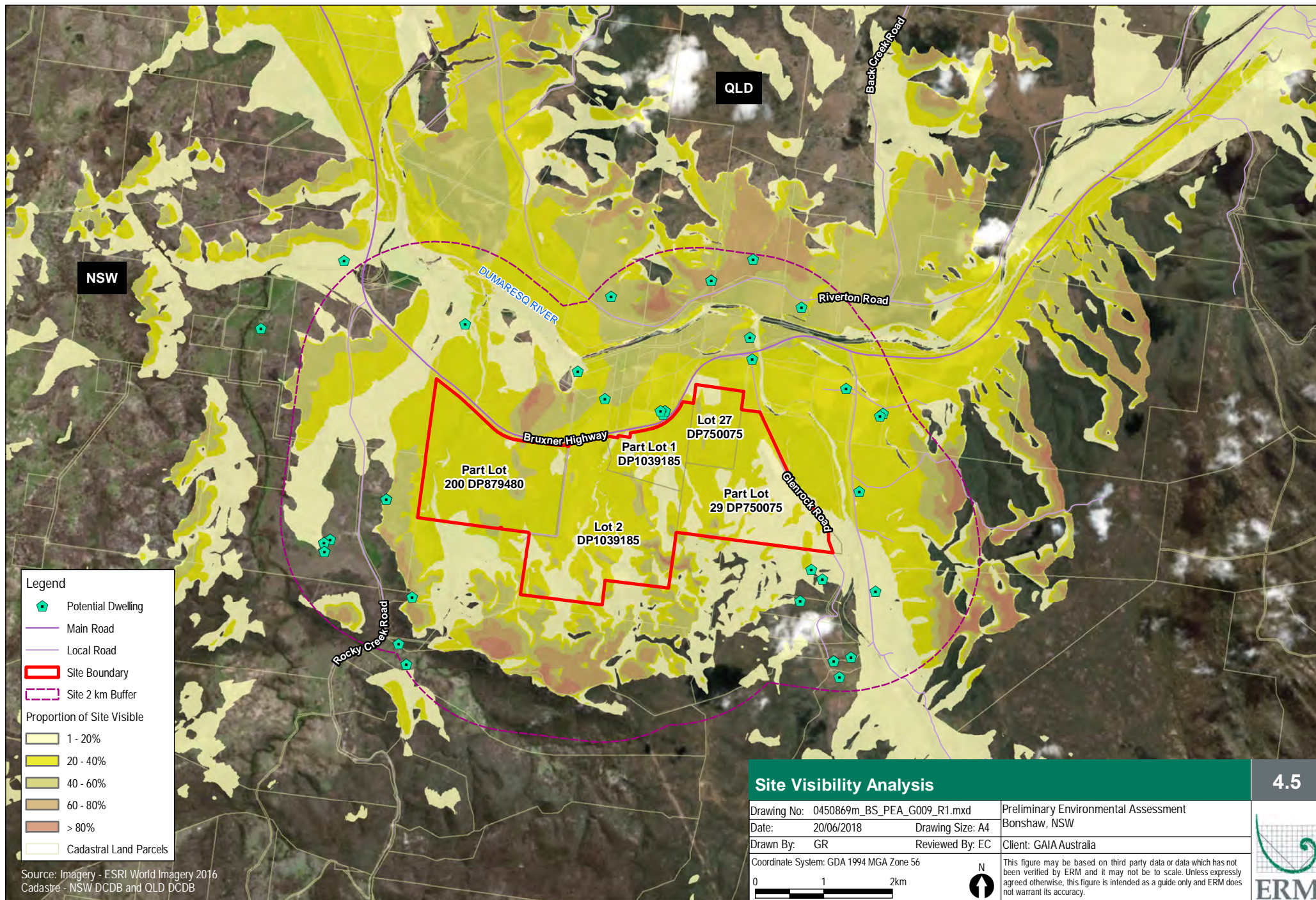
The Project Area is approximately 16 km south of Bonshaw and 66 km north of Inverell. Whilst having low visibility from town residences the Project Area is visible from Bruxner Highway and approximately 24 non-involved surrounding rural residences (refer to *Figure 4.4*). The closest rural residence is approximately 80 m north of the Project Area.

Figure 4.5 displays the potential residences within a 2 km boundary of the Project Area. A site visibility analysis was undertaken utilising contour data to assess the theoretical visibility of the Project Area from potential residences. The site visibility analysis does not include consideration of visual barriers such as vegetation. Impacts beyond a 2 km boundary may occur and will be assessed during the EIS. Visual impacts will be limited, where possible, through detail design.

Solar farms are not considered to be reflective. PV panels are designed to reflect as little light as possible (generally around 2% of the light received) to maximise their efficiency, absorb sunlight and convert it to electricity (NSW Department of Industry, 2016). Minimising the light reflected from solar panels will be considered during the design of the Project and assessed in the EIS. Where appropriate, vegetation buffers may be used to minimise visual impacts to sensitive receptors.

A visual impact assessment will be prepared as part of the EIS to investigate impacts and mitigation measures.





Source: Imagery - ESRI World Imagery 2016
Cadastral - NSW DCDB and QLD DCDB

4.5

4.4

NOISE

Noise impacts for the Project will be associated with construction noise as well as operational noise primarily from the inverters, substation / switching station. A Noise Impact Assessment will be undertaken as part of the EIS and will take into consideration the *NSW Interim Construction Noise Guideline 2009* and NSW Environment Protection Authority – *Noise Policy for Industry* (NPI, 2017), October 2017. Mitigation measures will be adopted during construction and operation to reduce the risk of adverse noise impacts. These will be detailed in the EIS.

4.5

TRAFFIC AND TRANSPORT

A traffic and transport assessment will be undertaken in the EIS, taking into consideration environmental issues associated with transport of equipment to site, site construction vehicles and operational traffic impacts. These impacts are primarily limited to the construction phase.

To connect allotments separated by roads, overhead or underground cabling is required. Further project refinement will define if infrastructure will pass over or under roadway and the implications assessed in the EIS.

The assessment will also consider potential impacts on local and regional roads including the road network and intersection operations, road safety and structural pavement integrity of roads and bridges. The preferred transport route to service the transport of solar infrastructure will be selected and assessed during the EIS stage.

The proposed access locations from Bruxner Highway and Glenrock Road to the Project Area will also be investigated throughout the environmental assessment.

Consultation will be undertaken with Roads and Maritime Services, local councils and landholders in regards to transport of infrastructure and any potential impacts to local traffic.

4.6

SOIL AND WATER ASSESSMENT

A soil and water assessment will be undertaken to assess impacts associated with the proposed solar farm construction and operation. There are a number of lower order (Category 1 and 2) ephemeral watercourses located within the Project Area that flow into a Category 4 watercourse, Dumaresq River, to the north of the Project Area. Beady River, Little Oak Creek, Little Limestone Creek and Dumaresq River are all classified as Key Fish Habitat. A desktop review has identified a number of dams and drainage lines throughout the Project Area.

Potential risks include erosion and sedimentation during construction including the establishment of access trails and either overhead or underground cabling across the Project Area. The footprint of the Project within the broader Project Area will be further refined during detailed design as part of the EIS and will take into consideration identified environmental values. Management measures will be clearly defined to adequately manage potential erosion and sedimentation impacts during construction.

4.7 HAZARDS AND RISKS

4.7.1 Bushfire Risk

The NSW Rural Fire Service (RFS) Bush Fire Prone Land online mapping tool indicates that the site is within a designated bush fire prone area (refer *Annex D*). The EIS will consider relevant requirements of the RFS Guideline – Planning for Bushfire Protection 2006.

Under draft rules released by Standards Australia, *AS/NZS 5139:2017 Electrical installations – Safety of battery systems for use with power conversion equipment*, lithium ion batteries are classed as “Fire hazard level 1”. These standards will be considered and consultation with RFS undertaken during the preparation of the bushfire hazard assessment.

4.7.2 Electromagnetic Fields

Electromagnetic fields (EMF) are produced whenever electricity or electrical equipment is in use. Powerlines, electrical wiring, household appliances and electrical equipment all produce power frequency EMF.

EMF is not considered to cause or contribute to any adverse health effects at levels below the recognised guidelines (Energy Networks Association, 2016). The design and operation of the Project will be undertaken in accordance with the guidelines to comply with recognised international EMF exposure guidelines. The Project will also comply with the National Health and Medical Research Council standards for electro-magnetic fields.

A qualitative assessment based on published data will be undertaken on the effects of EMF as part of the EIS.

4.7.3 Contaminated Land

A search of the contaminated land record register identified that the Project Area is not listed as a contaminated site on the EPA Contaminated Sites recorded under the *Commonwealth Contaminated Land Management Act 1997* (refer to *Annex E*). Due to the current land use, it is considered unlikely that

contamination is present within the Project Area and therefore no detailed investigation is likely to be required. If contamination is identified during construction, it will be managed in accordance with a Construction Environmental Management plan and relevant guidelines.

4.7.4 *Social and Economic Issues*

The proposed Project will provide additional employment opportunities and demand for local goods and services throughout the Inverell Shire, particularly during the construction phase, including local contracting and manufacturing services utilised during construction such as earthworks, cabling, civil works and increased demand for accommodation for the construction workforce.

The EIS will assess potential social and economic impacts of the proposal.

4.8 *DECOMMISSIONING AND REHABILITATION*

In accordance with the *Draft NSW Large-Scale Solar Energy Guideline* a post approval Decommissioning and Rehabilitation Management Plan will be prepared.

5.1 *STRATEGIC JUSTIFICATION*

5.1.1 *National*

International Paris Agreement on Reducing Greenhouse Gas Emissions

Under the International Paris Agreement, Australia has committed to reducing greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030. To deliver on this commitment, the Australian Renewable Energy Target (RET) was formed. The proposed project is consistent with the aims of the International Paris Agreement and will assist Australia in reaching this commitment.

Australian Renewable Energy Target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources. The RET scheme operates in two parts, the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET). The LRET encourages investment in renewable power stations to achieve the creation of an additional 33,000 gigawatt hours (GWh) of renewable energy by 2020 (NSW Government, 2017). Through the scheme large renewable power stations are eligible to create certificates for every megawatt hour of power they generate. These certificates can be purchased, mainly by electricity retailers, to meet their renewable energy obligations. The proposed project will assist Australia in reaching the objectives of the RET.

5.1.2 *State*

NSW Renewable Energy Action Plan

In September 2013, the NSW Government released the NSW Renewable Energy Action Plan to guide NSW's renewable energy development and to support the former national target of 20% renewable energy by 2020 (NSW Trade & Investment, 2013). The strategy is to work closely with NSW communities and the renewable energy industry to increase renewable energy generation in NSW. It aims to assist in meeting energy demand and improving energy security for NSW in the context of the regulatory framework for the National Electricity Market. The proposed project will assist NSW in reaching the objectives of the NSW Renewable Energy Action Plan.

The NSW Climate Change Policy Framework aims to maximise the economic, social and environmental wellbeing of NSW in the context of a changing climate and current and emerging international and national policy setting and action to address climate change. The long-term objects are to achieve net-zero emission by 2050 and to ensure NSW is more resilient to a changing climate. The Bonshaw Solar Farm will generate approximately 550 MW of renewable energy, helping Australia to achieve net-zero emissions.

5.1.3 Local

New England North West Regional Plan 2036

The New England North West Regional Plan 2036 provides a 20 year strategic plan for the future growth and development of the region.

The Plan identifies the Regions potential to be a leader in renewable energy, specifically solar, stating it is the second highest solar penetration region in NSW. The employment and investment benefits of large solar and wind developments is also acknowledged. The Plan states as a priority for Inverell LGA to “identify and promote wind, solar and other renewable energy production opportunities”.

A proposal for a solar farm would be consistent with the Plan and go towards achieving the goals and outcomes identified in the Plan.

5.2 ALTERNATIVES CONSIDERED

A number of alternative locations were considered during the selection of the locality for the Project Area. Alternative locations included Gunnedah, Narrabri, Moree, Walcha, Walgett, Deniliquin and Albury. Determining attributes included a range of economic, environmental and social impacts with the aim to maximise efficiency whilst minimising social and environmental effects. The Bonshaw Site was chosen due to a number of factors meeting this criteria, including:

- excellent grid connection option to 330kV Dumaresq Substation adjacent to the Project Area;
- supportive land owners;
- suitable planning context;

- suitability of land (current land usage of grazing rather than heavy cropping, low risk of flooding, level topography for effective construction, large allotments);
- limited direct neighbours who will be impacted (noise and visual);
- reasonable distance from town centres (16 km south of Bonshaw and 66 km north of Inverell); and
- well situated for access to the regional road network.

After an assessment of determining attributes across the potential locations, Bonshaw was determined the best option, based on the above factors. GAIA is to finalise the project design and infrastructure layout once environmental constraints have been fully investigated through the EIS process.

GAIA recognise the importance of engaging with key stakeholders and the community throughout the life of the Project and particularly throughout the environmental assessment process. The objectives for consultation are to ensure:

- stakeholders have access to up-to-date, relevant information regarding the Project; and
- are provided with an opportunity to raise their concerns and have these responded to by the Applicant.

A Community and Stakeholder Engagement Plan (CSEP) will be prepared following the issue of the SEARs to set out how the participation outcomes will be achieved.

6.1

STAKEHOLDER IDENTIFICATION

The NSW Government has released the *Draft NSW Large-Scale Solar Energy Guideline 2017*. To identify relevant community and other stakeholders, the draft guidelines require consideration of the following questions:

- What is the nature of the project and the extent of its environmental impacts?
- Who will be interested in the outcomes of the project?
- Who may have information that could be of value to the project i.e. through previous involvement?
- Who is directly affected by the project or might think they are affected by the project and in what way?
- Who is likely to be upset if they are not informed or invited to participate?
- Who might be a person that other will look to for their opinions?

The stakeholders identified to present are listed in *Table 6.1*.

Table 6.1 Stakeholder Identification and Consultation

	Stakeholder	Consultation Requirements during Scoping and EIS Preparation
Regulatory	NSW Government Agencies	Provide a description and timeline of the project, including figures showing the project location and preferred layout.
	Department of Planning and Environment	Address matters raised by each of the listed agencies in correspondence provided with the SEARs, as well as any issue or concern that may arise during consultation.
	Department of Primary Industries	
	Department of Industry – Crown Lands and Water	
	Department of Planning and Environment – Resources & Geosciences	
	Office of Environment & Heritage	
	Roads and Maritime Services	
	Commonwealth Government	
	Department of Environment and Energy	
	Australian Renewable Energy Agency	
	Clean Energy Finance Corporation	
	Local Government	
	Inverell Shire Council	
	Tenterfield Shire Council	
Community	Project Landholders	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clearly define the NSW approval process. Request site-specific information where possible (i.e. historical and potential agricultural productivity, aerial spraying, weed and pest management practices and bushfire protection management measures). Address any concerns about the project.
	Surrounding Residence	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clearly define the NSW approval process. Provide opportunity for stakeholders to raise any issues or concerns regarding the project. Present findings of key technical assessments and discuss potential mitigation and/or management measures to address impacts (if required)
	Local Community	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clearly define the NSW approval process. Determine and address any concerns regarding any impacts of the project. Outline the regional and local benefits as a result of the project.

	Stakeholder	Consultation Requirements during Scoping and EIS Preparation
Agency	Local Businesses	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clearly define the NSW approval process. Outline the regional and local benefits as a result of the project.
	Registered Aboriginal parties (RAPs) and Aboriginal Stakeholders	Provide a description and timeline of the project, including figures showing the projects locations and preferred layout. Clearly define the NSW approval process, including the Aboriginal cultural heritage assessment process and the proposed methodology. Provide opportunity for RAPs and Aboriginal stakeholders to comment on the proposed methodology and address any concerns.
	NSW Rural Fire Service	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clarify whether the project area is on bushfire prone land and discuss suitable protection measures.
	Civil Aviation Safety Authority	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Determine and address any concerns regarding whether there are any impacts presenting a hazard to aviation.
	Fire & Rescue NSW	Confirm the absence of any hazards associated with the project, if required. Provide a description and timeline of the project, including figures showing the project location and preferred layout.
	Mining/mineral exploration license holders	Determine and address any concerns regarding any impacts of the project. Provide a description and timeline of the project, including figures showing the project location and preferred layout.
	Special interest groups	Determine and address any concerns regarding whether there are any impacts and/or conflicting land uses. Provide a description and timeline of the project, including figures showing the project location and preferred layout.
	Federal and State local Members of Parliament	Clearly define the NSW approval process. Determine and address any concerns regarding the project.
	NSW Renewable Energy Advocate	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Determine any concerns regarding the project.
		Build support for the project and where applicable, engage with NSW REA to assist resolving any issues that may arise.

Stakeholder	Consultation Requirements during Scoping and EIS Preparation
NSW Farmers Association	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Clearly define the NSW approval process. Determine and address any concerns regarding the project.
Electricity network service providers (TransGrid)	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Determine any implications involved with the projects interactions with existing infrastructure.
Transport for NSW (TfNSW)	Provide a description and timeline of the project, including figures showing the project location and preferred layout. Address potential concerns with the project. Determine any implications involved with the site access and any potential upgrade requirements.
Inverell Business Chamber	Provide a description of the project. Clearly define the NSW approval process. Recognise potential concerns about the project. Provide opportunities for involvement.

6.2

SURROUNDING COMMUNITY

Stakeholder mapping has been completed, including input from Inverell Shire Council on key stakeholders. Mapping has identified a number of surrounding residences (refer to *Figure 4.4*). Surrounding residence have been contacted via letterbox drop. GAIA has further met with some surrounding residence on-site on 15th June 2018. Ongoing liaison with surrounding residences and stakeholders will be undertaken throughout the preparation of the EIS through email, phone and face-to-face. A consultation log has been developed for continual update, including tracking of engagement activities, key issues, actions and outcomes.

The Proponent is committed to establishing a comprehensive program of community consultation in accordance with the Draft Guidelines, the Department's *Guideline for Engaging Stakeholders 2017* and the *Community Consultative Committee Guidelines 2016*. Feedback from the community into the design of the Project will be incorporated wherever feasible. GAIA acknowledges that the period of public exhibition following the submission of the EIS will extend for a minimum period of 30 days.

6.3

INVERELL SHIRE COUNCIL

An initial meeting was held with Inverell Shire Council on 15th June 2018. A further briefing meeting is proposed to be held with Councillors post lodgement of the PEA. Issues raised during consultation with Council will be tracked via the consultation log and reported back on. The EIS will present how issues have been addressed.

6.4

ELECTRICITY DISTRIBUTOR

Initial consultation with TransGrid commenced in January 2017. Investigations into capacity have been carried out and are on-going. TransGrid will continue to be consulted throughout the preparation of the EIS and during detailed design.

CONCLUSION

GAIA is proposing to construct the Project comprising a capacity up to 500 MW and ancillary infrastructure located in the Inverell Shire of New South Wales.

This report has outlined a description of the Project and formed the planning context. Given the project exceeds the threshold level capital investment value of \$30 Million AUD, the Project will be assessed as a SSD under Part 4 of the EP&A Act.

A preliminary environmental assessment has determined the following likely key issues or potential impacts to be focused on in the EIS:

- Biodiversity;
- Aboriginal heritage;
- Soils and water ; and
- Bushfire hazard (in regards to battery storage).

Through the submission of this report GAIA is seeking SEARs to proceed with the development application process and preparation of an EIS.

Australian Renewable Energy Agency. (n.d.). *Large-scale solar photovoltaics – competitive round*. Retrieved March 26, 2018, from <https://arena.gov.au/funding/programs/advancing-renewables-program/large-scale-solar-photovoltaics-competitive-round/>

Department of Planning & Environment. (2017). *Draft Environmental Impact Assessment Guidance Series*. Sydney: NSW Government.

Energy Networks Association. (2016, January). *EMF Management Handbook*. Retrieved March 28, 2018, from http://www.energynetworks.com.au/sites/default/files/emf_handbook_2016_02_1.pdf

NSW Department of Industry. (2016, June). *Solar Farms in NSW*. Retrieved March 23, 2018, from https://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0007/665422/PUB16-353-solar-farms-in-nsw-factsheet.pdf

NSW Government. (2017, November). *Draft Large-Scale Solar Energy Guideline*. Retrieved March 25, 2018, from <http://www.planning.nsw.gov.au/Policy-and-Legislation/Under-review-and-new-Policy-and-Legislation/Draft-Solar-guidelines>

NSW Office of Water. (2012). *Guidelines for riparian corridors on waterfront land*. NSW Department of Primary Industries.

NSW Trade & Investment. (2013). *NSW Renewable Energy Action Plan*. Sydney: NSW Government.

OzArk EHM. (2011). *Aboriginal and Historic Heritage Assessment: Dumaresq - Lismore 330kV Transmission Line NSW*. Dubbo.

Peacock, R., Rolhauser, A., Thönnell, J., & Law, E. (2009). *Extant and potential natural vegetation of Yallaroi, Ashford, Bingara and Inverell 1:100,000 scale map sheets, NSW*.

Priday, S. (2007). *The Native Vegetation of the Cooma-Monaro Shire*. Cooma-Monaro Council.

Standards Australia. (2017). *Roadmap for Energy Storage Standards*. Standards Australia.

Annex A

LEP Mapping



Inverell Local Environmental Plan 2012

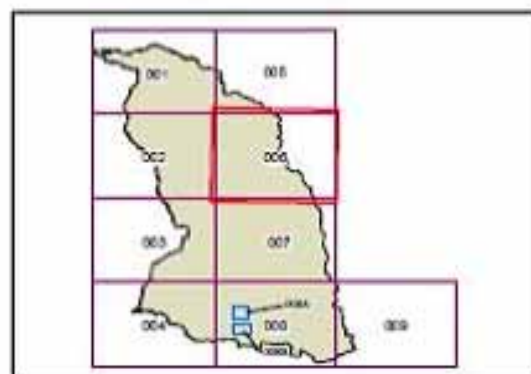
Land Zoning Map - Sheet LZN_006

Zone

- B1 Neighbourhood Centre
- B2 Local Centre
- B5 Business Development
- E1 National Parks and Nature Reserves
- E3 Environmental Management
- E4 Environmental Living
- IN1 General Industrial
- R1 General Residential
- R5 Large Lot Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU1 Primary Production
- RUS Village
- SP1 Special Activities
- SP2 Infrastructure

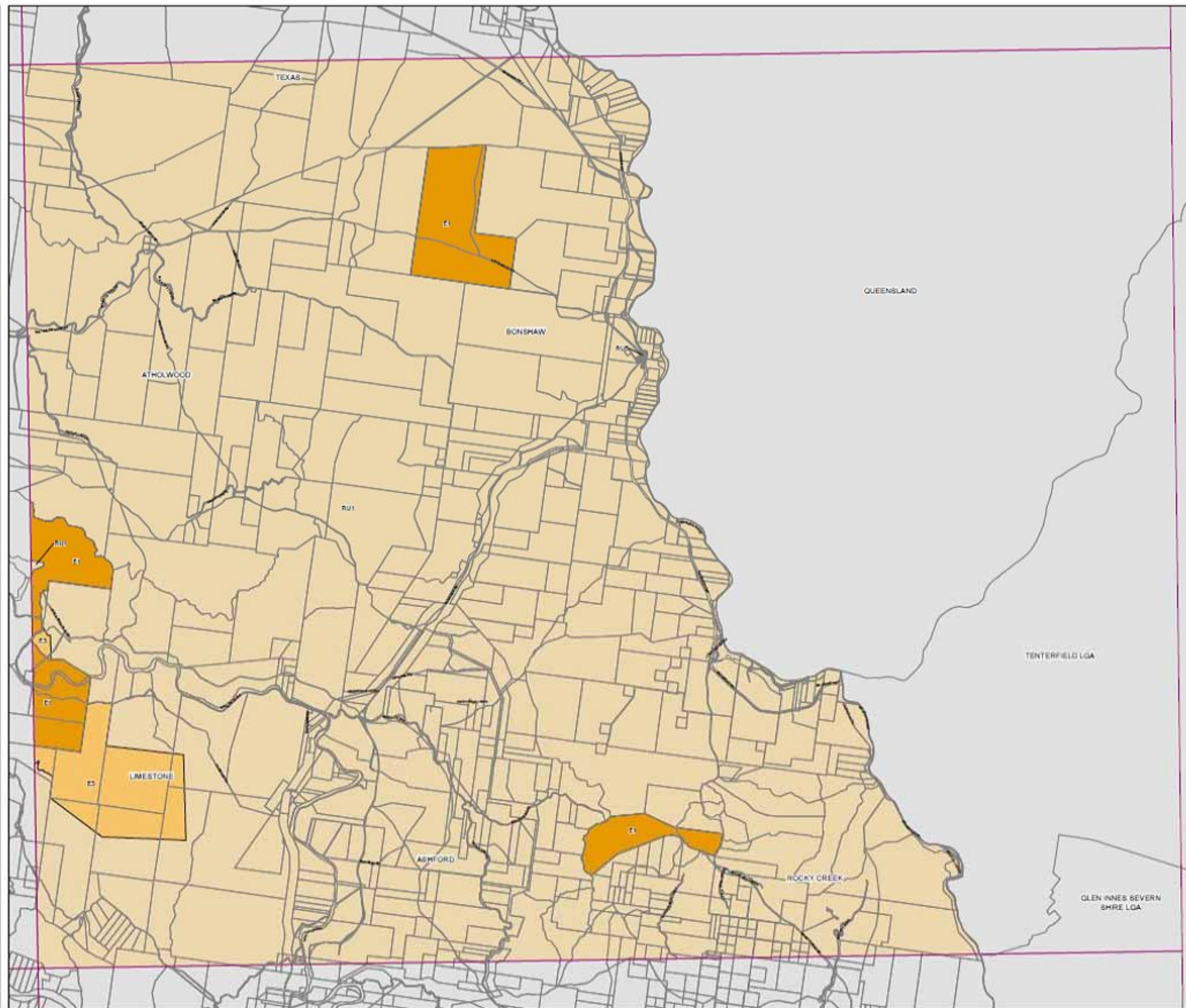
Cadastre

- Base data 30/6/2012 ©
- Land and Property Information (LPI)
- Addendum data 30/05/2012 © Inverell



Scale: 1:100,000 @ A3

Projection: GDA 1994
Zone 55
Map Identification Number: 4000_004/LZN_006_100_20121023





Inverell Local Environmental Plan 2012

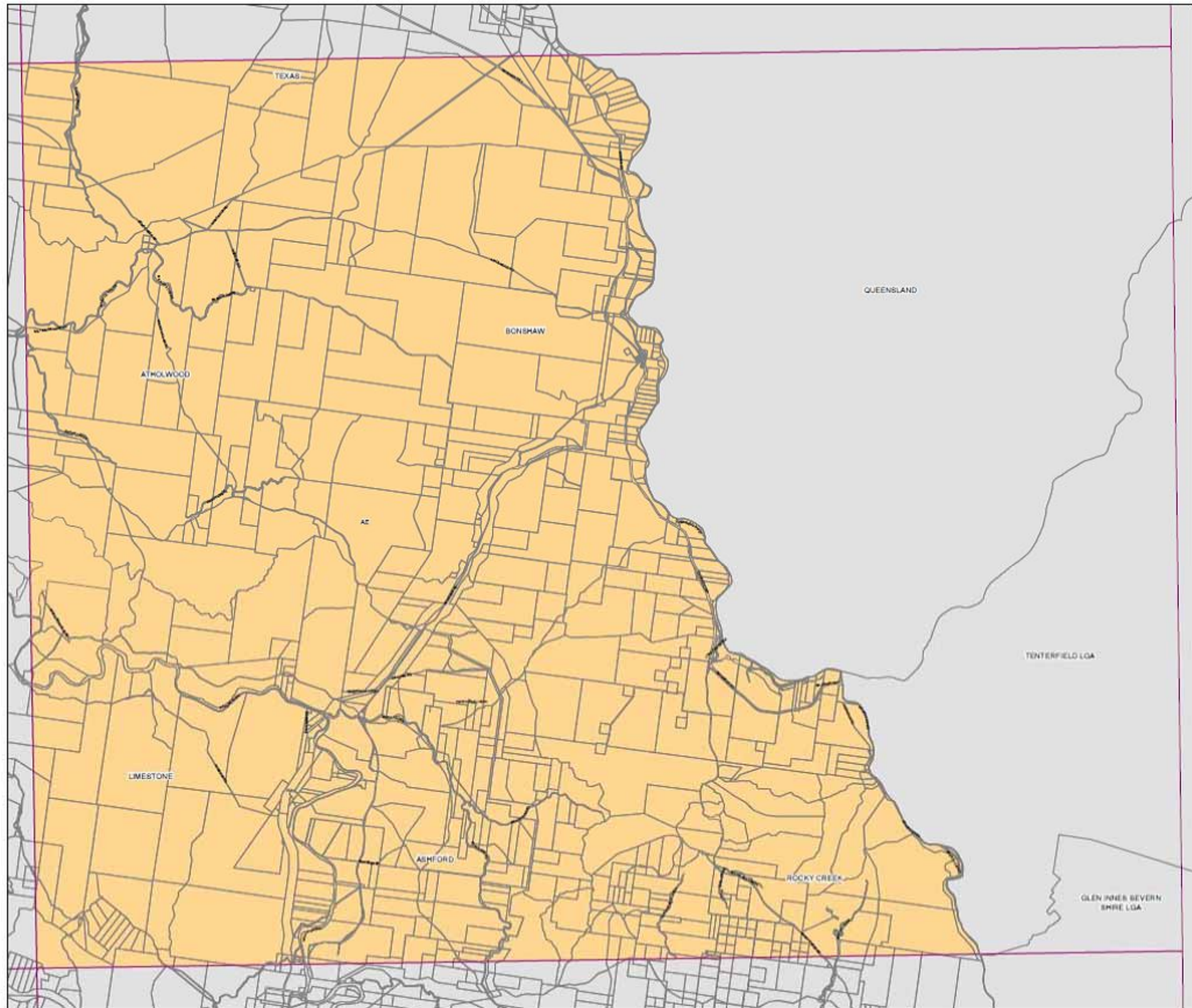
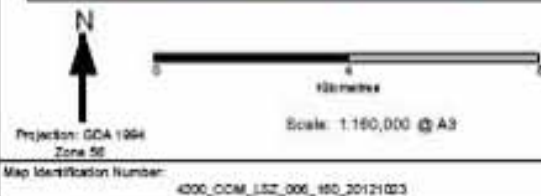
Lot Size Map - Sheet LSZ_006

Minimum Lot Size (sq m)

G	450
V	2,000
Y	1 ha
Z	4 ha
AB	40 ha
AD	100 ha
AE	200 ha

Cadastre

Base data 30/6/2012 ©
Land and Property Information (LPI)
Addendum data 30/08/2012 © Inverell





Inverell Local Environmental Plan 2012

Land Zoning Map - Sheet LZN_006

Zone

- B1 Neighbourhood Centre
- B2 Local Centre
- B5 Business Development
- E1 National Parks and Nature Reserves
- E3 Environmental Management
- E4 Environmental Living
- IN1 General Industrial
- R1 General Residential
- R3 Large Lot Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU1 Primary Production
- RUS Village
- SP1 Special Activities
- SP2 Infrastructure

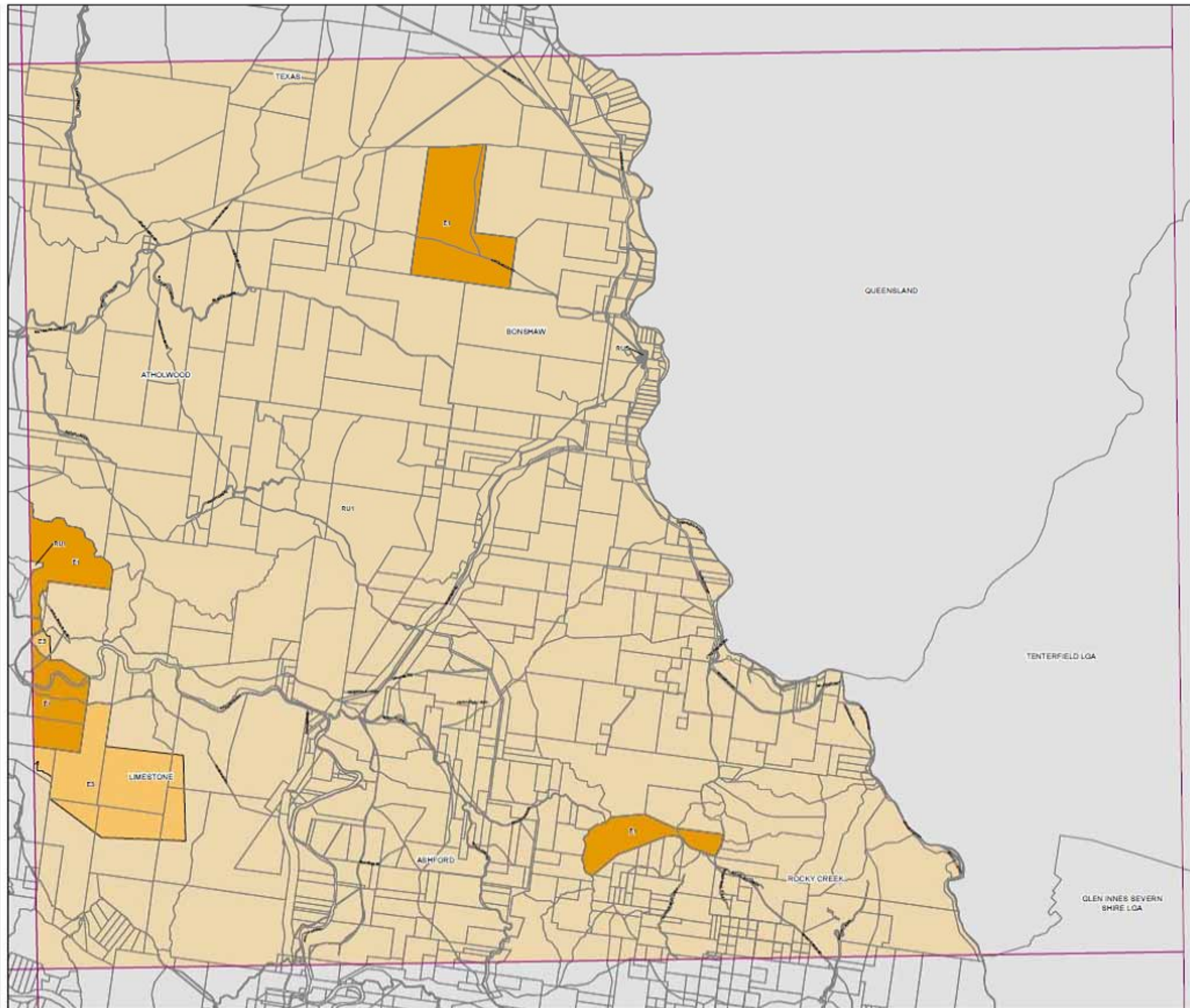
Cadastre

Base data 30/8/2012 ©
Land and Property Information (LPI)
Addendum data 30/08/2012 © Inverell



Scale: 1:100,000 @ A3

Projection: GDA 1984
Zone 56
Map Identification Number:
©200, 006, LZN_006, 100, 2012-1023



Annex B

PMST Search



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 02/03/18 16:26:08

[Summary](#)

[Details](#)

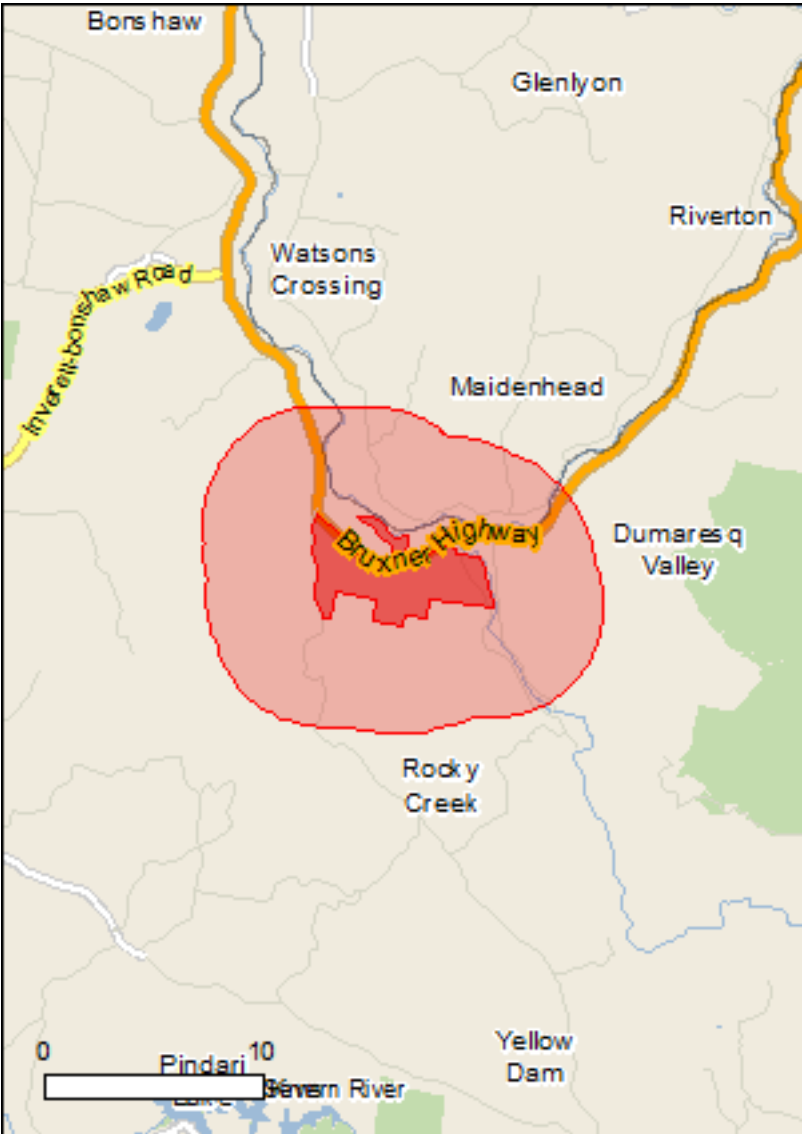
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

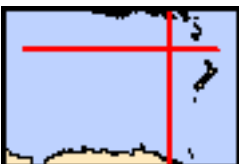
[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia
(Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 5.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	35
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	1
Invasive Species:	18
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)		[Resource Information]
Name	Proximity	
Banrock station wetland complex	1100 - 1200km	
Riverland	1100 - 1200km	
The coorong, and lakes alexandrina and albert wetland	1300 - 1400km	

Listed Threatened Ecological Communities	[Resource Information]
--	--------------------------

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community likely to occur within area
New England Peppermint (Eucalyptus nova-anglica)	Critically Endangered	Community may occur within area
Grassy Woodlands	Endangered	Community may occur within area
Weeping Myall Woodlands		
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species	[Resource Information]
---------------------------	--------------------------

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythroriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat known to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Acacia pubifolia Velvet Wattle [19799]	Vulnerable	Species or species habitat may occur within area
Astrotricha roddii [56312]	Endangered	Species or species habitat likely to occur within area
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Callistemon pungens [55581]	Vulnerable	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus caleyi subsp. ovendenii Ovenden's Ironbark [56193]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus mckieana McKie's Stringybark [20199]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus nicholii Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat known to occur within area
Homopholis belsonii Belson's Panic [2406]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Lepidium peregrinum Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area
Leucopogon confertus Torrington Beard-heath [14417]	Endangered	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Tylophora linearis [55231]	Endangered	Species or species habitat may occur within area

Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Uvidicolus sphyrurus Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat known to occur within area
Wollumbinia belli Bell's Turtle, Western Sawshelled Turtle, Namoi River Turtle, Bell's Saw-shelled Turtle [86071]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area

Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Calidris acuminata Sharp-tailed Sandpiper [874]	Critically Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[<u>Resource Information</u>]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		

Actitis hypoleucos Common Sandpiper [59309]	Critically Endangered	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]	Endangered*	Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Crooked Creek	NSW

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included.	
Name	State
North East NSW RFA	New South Wales

Invasive Species	[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.	

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		

Name	Status	Type of Presence
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-29.172203 151.305998,-29.172128 151.305913,-29.188539 151.328486,-29.189438 151.336812,-29.183444 151.337756,-29.180821 151.332778,-29.176699 151.329859,-29.173552 151.324538,-29.172952 151.322821,-29.172353 151.32368,-29.172578 151.328915,-29.174526 151.332434,-29.180147 151.337842,-29.179697 151.344193,-29.188614 151.342906,-29.18809 151.345824,-29.185767 151.346253,-29.186591 151.352433,-29.184718 151.352605,-29.185092 151.355694,-29.18247 151.356295,-29.183744 151.363505,-29.186067 151.363162,-29.18749 151.372946,-29.192136 151.376036,-29.197606 151.377066,-29.200228 151.37741,-29.20315 151.37904,-29.205622 151.379126,-29.201951 151.353034,-29.209293 151.35166,-29.208319 151.342219,-29.211616 151.341876,-29.210192 151.329344,-29.202176 151.330804,-29.199704 151.314067,-29.209293 151.312436,-29.208919 151.308745,-29.20772 151.308573,-29.201352 151.305569,-29.190562 151.306599,-29.185392 151.304539,-29.18157 151.304969,-29.1761 151.30411,-29.172203 151.305998

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- [Australian Tropical Herbarium, Cairns](#)
- [eBird Australia](#)
- [Australian Government – Australian Antarctic Data Centre](#)
- [Museum and Art Gallery of the Northern Territory](#)
- [Australian Government National Environmental Science Program](#)
- [Australian Institute of Marine Science](#)
- [Reef Life Survey Australia](#)
- [American Museum of Natural History](#)
- [Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

Annex C

NSW Wildlife Atlas Online Database Search

DatasetName	SightingKey	SpeciesCode	KingdomName	ClassName	FamilyName	SortOrder	ScientificName	Exotic	CommonName	NSWStatus	CommStat	Sensitivity	ProfileID
OEH Data from Scientific Licences dataset	SJALI0007432	2139	Fauna	Reptilia	Gekkonidae	527	<i>Uvidicolus sphyrurus</i>		Border Thick-tailed Gecko	V,P	V		10823
Spring Faunal Survey	SPJGI0224441	260	Fauna	Aves	Psittacidae	2185	<i>Glossopsitta pusilla</i>		Little Lorikeet	V,P			20111
OEH Default Sightings	SDMP96121108	302	Fauna	Aves	Psittacidae	2200	<i>Neophema pulchella</i>		Turquoise Parrot	V,P,3		3^^	10555
Spring Faunal Survey	SPJGI0224422	8127	Fauna	Aves	Climacteridae	2404	<i>Climacteris picumnus victoriae</i>		Brown Treecreeper (eastern subspecies)	V,P			10171
Spring Faunal Survey	SPJGI0224393	504	Fauna	Aves	Acanthizidae	2554	<i>Chthonicola sagittata</i>		Speckled Warbler	V,P			10722
OEH Default Sightings	SJJSI0204992	8388	Fauna	Aves	Pomatostomidae	2831	<i>Pomatostomus temporalis temporalis</i>		Grey-crowned Babbler (eastern subspecies)	V,P			10660
Spring Faunal Survey	SPJGI0232317	549	Fauna	Aves	Neosittidae	2854	<i>Daphoenositta chrysoptera</i>		Varied Sittella	V,P			20135
Spring Faunal Survey	SPJGI0232318	8519	Fauna	Aves	Artamidae	2947	<i>Artamus cyanopterus cyanopterus</i>		Dusky Woodswallow	V,P			20303
Spring Faunal Survey	SPJGI0232290	380	Fauna	Aves	Petroicidae	3133	<i>Petroica boodang</i>		Scarlet Robin	V,P			20133
Spring Faunal Survey	SPJGI0224414	652	Fauna	Aves	Estrildidae	3295	<i>Stagonopleura guttata</i>		Diamond Firetail	V,P			10768
OEH Data from Scientific Licences dataset	SJALI0007414	1162	Fauna	Mammalia	Phascolarctidae	3452	<i>Phascolarctos cinereus</i>		Koala	V,P	V		10616
OEH Default Sightings	SEXK9907080S	1137	Fauna	Mammalia	Petauridae	3476	<i>Petaurus norfolcensis</i>		Squirrel Glider	V,P			10604
OEH Default Sightings	SEXK9907080T	1215	Fauna	Mammalia	Macropodidae	3588	<i>Petrogale penicillata</i>		Brush-tailed Rock-wallaby	E1,P	V		10605
OEH Default Sightings	SEXK9907090A	1372	Fauna	Mammalia	Vespertilionidae	3678	<i>Falsistrellus tasmaniensis</i>		Eastern False Pipistrelle	V,P			10331
OEH Default Sightings	SEXK99070906	1834	Fauna	Mammalia	Vespertilionidae	3682	<i>Miniopterus schreibersii oceanensis</i>		Eastern Bentwing-bat	V,P			10534
OEH Default Sightings	SEXK99070907	1361	Fauna	Mammalia	Vespertilionidae	3707	<i>Scoteanax rueppellii</i>		Greater Broad-nosed Bat	V,P			10748
MACINTYRE Vegetation Survey	SPJGI4114300	8538	Flora	Flora	Fabaceae (Faboideae)	9873	<i>Swainsona sericea</i>		Silky Swainson-pea	V,P			10783

Annex D

Bushfire Prone Land



Search for planning information about a property.

Address, eg: 320 Pitt St, Sydney, NSW 2000

Lot/Section/DP

Property Details

Address: Bruxner Way, Bonshaw, 2361
Lot/Section/Plan no: 2/-/DP1039185
Council: Inverell

[Download Property Report](#)[People and Places ↗](#)

Planning Layers

☐ Land Zoning☒ Bushfire Prone Land

+ Vegetation Category 1 (pub. 2018-02-12)

+ Vegetation Category 2 (pub. 2018-02-12)

+ Vegetation Buffer (pub. 2018-02-12)

☐ Land Application LEP☐ Minimum Lot Size☐ Strategic Agricultural Land

+ Administration

+ Primary Planning Matters

+ Development Control

+ Land Use

+ Hazard

+ Protection



Annex E

Contaminated Land Search

Contaminated land

[+ Management of contaminated land](#)
[+ Consultants and site auditor scheme](#)
[+ Underground petroleum storage systems](#)
[Guidelines under the CLM Act](#)
[NEPM amendment](#)
[+ Further guidance](#)
[- Record of notices](#)
[About the record](#)
[Search the record](#)
[Search tips](#)
[Disclaimer](#)
[List of NSW contaminated sites notified to EPA](#)
[Frequently asked questions](#)
[Forms](#)
[+ Other contamination issues](#)
[+ Contaminated Land Management Program](#)
[Home](#) [Contaminated land](#) [Record of notices](#)

Search results

Your search for: LGA: Inverell Shire Council

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact

[Search Again](#)
[Refine Search](#)

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

Annex F

AHIMS Search

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 0450869

Client Service ID : 331690

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
11-3-0041	S19	AGD	56	335382	6770551	Open site	Valid	Artefact : -	Isolated Find	
	Contact	Recorders	Permits							
11-3-0047	EL35	AGD	56	342100	6767700	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0063	EL34	AGD	56	342150	6767550	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0064	EL33	AGD	56	342100	6767500	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Permits							
11-3-0065	EL32	AGD	56	342000	6767000	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0066	EL36	AGD	56	342100	6767500	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0080	TSR Dumaresq River OCS	GDA	56	335700	6772930	Open site	Valid	Artefact : 500		
	Contact Searle	Recorders	Permits							
11-3-0083	Tenterfield-Dumaresq OS14	GDA	56	338395	6768085	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0084	Tenterfield-Dumaresq OS15	GDA	56	342072	6768358	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							
11-3-0093	Tenterfield Dumaresq OS 4 & PAD	GDA	56	342136	6768402	Open site	Valid	Artefact : -		
	Contact	Recorders	Permits							

Report generated by AHIMS Web Service on 05/03/2018 for Eliza Collison for the following area at Lat, Long From : -29.2336, 151.2741 - Lat, Long To : -29.1502, 151.4063 with a Buffer of 0 meters. Additional Info : Site Feasibility Report. Number of Aboriginal sites and Aboriginal objects found is 10

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

ERM has over 100 offices
across the following
countries worldwide

Australia	Netherlands
Argentina	New Zealand
Belgium	Peru
Brazil	Poland
China	Portugal
France	Puerto Rico
Germany	Singapore
Hong Kong	Spain
Hungary	Sri Lanka
India	Sweden
Indonesia	Taiwan
Ireland	Thailand
Italy	UK
Japan	USA
Korea	Venezuela
Malaysia	Vietnam
Mexico	

Environmental Resources Management

PO Box 803
Newcastle NSW 2300
Watt Street Comercial Centre
45 Watt Street
Newcastle NSW2300

T: +61 2 49 035500
F: +61 2 49 295363
www.erm.com

