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BRIDGMAN SOLAR FARM

SCOPING REPORT / REQUEST FOR SEARS

wsp

SEPTEMBER 2020

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Bridgman Solar Farm
Scoping Report / Request for SEARs

Mitsui & Co Ltd

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REV	DATE	DETAILS
A	17/02/2020	Draft Scoping Report
B	17/03/2020	Final Scoping Report
C	24/04/2020	Amended Final Scoping Report
D	17/07/2020	Revised Final Scoping Report
E	04/09/2020	Revised Final Scoping Report

	NAME	DATE	SIGNATURE
Prepared by:	Mark Maund	04/09/2020	
Reviewed by:	Emma Dean	04/09/2020	
Approved by:	Emma Dean	04/09/2020	

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ABBREVIATIONS

TERM	DEFINITION
ACHA	Aboriginal Cultural Heritage Assessment
BAM	Biodiversity Assessment Method
BDAR	Biodiversity Development Assessment Report
CIV	Capital Investment Value
EPI	Environmental Planning Instrument
EPL	Environmental Protection Licence
EP&A Act	Environmental Planning & Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation act 1999
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
LRET	Large-scale Renewable Energy Target
MW	Megawatts
SEPP 33	State Environmental Planning Policy No 33 – Hazardous and Offensive Development
SEPP 44	State Environmental Planning Policy No 44 – Koala Habitat Protection
SEPP 55	State Environmental Planning Policy – Remediation of Land
SRD	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Mitsui & Co Ltd has engaged WSP to prepare a Scoping Report for a proposed 50 Megawatt (MW) solar farm (the project) at Rixs Creek, Singleton New South Wales (NSW). The project site is within the buffer land of the Rix's Creek Mine operated by the Bloomfield Group. The project includes solar arrays and trackers, inverters power conditioning units, associated equipment and access roads. It is proposed that the solar farm would be located west of Bridgman Road and southeast of Rix's Creek South Coal Handling and Preparation Plant (CHPP).

1.1.1 PURPOSE OF THIS DOCUMENT

This report has been prepared to provide a summary of the project, site and surrounds, statutory requirements and relevant environmental matters. The scoping report has been prepared to support a request for the Secretary's Environmental Assessment Requirements (SEARs) to inform preparation of the Environmental Impact Statement (EIS). This report has been prepared with a view to highlight the relevant matters and impacts that are expected to be considered in the EIS including the appropriate level of assessment. The EIS would address the SEARs and other relevant matters under Part 4 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act).

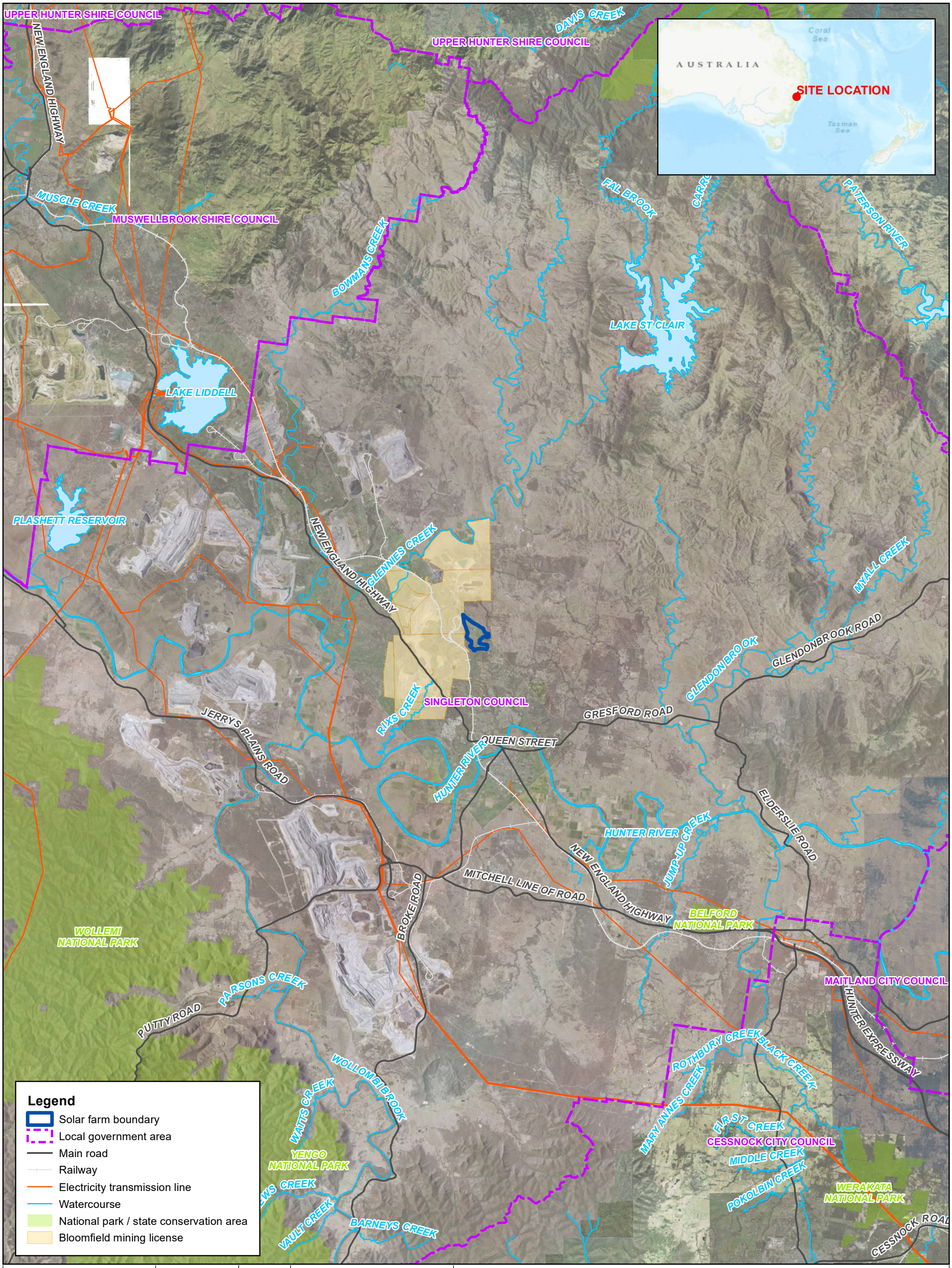
Scoping the project allows for understanding of environmental issues and confirmation of future investigations so that environmental reporting can focus on assessing and managing key issues.

1.1.2 THE PROPONENT

In Australia Mitsui manages a diverse portfolio of businesses in industries including iron ore, coal, oil, gas, power generation, transportation, construction and mining machinery, chemicals, steel products, woodchips, salt, food, and financial services. The Mitsui group has around 400 employees across Australia, and offices in Sydney, Melbourne, Brisbane and Perth.

1.1.3 REGIONAL CONTEXT

The proposed solar farm would be located in the Hunter region that contains uses such as mining, electricity generation and rural activities. Rural residential, residential and industrial activities also occur in the Hunter. The project would be located approximately 7 kilometres north of Singleton and 85 kilometres northeast of Newcastle. Figure 1.1 presents the site in the regional context and it is generally clear of watercourses, national parks or other sensitive locations.



Map: PS118591_ENV_002_A3	Author: - R.Suansri		
Date: 8/7/2020	Approved by: - M.Maund		

Data source: AECOM; Metromap; Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,

1:200,000

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

BRIDGMAN SOLAR FARM

Figure 1.1
Regional Context Map

2 DEVELOPMENT SITE

2.1 SITE DESCRIPTION

The project would be located within the Singleton Local Government Area (LGA) adjacent to the mining lease of the existing Rix's Creek Open Cut Mine that incorporates Rix's Creek South and Rix's Creek North. The land proposed for the solar farm is considered buffer land to the mine and does not form part of the mining lease or mining activities.

The Camberwell Coal Loader, Main Northern Railway and Rix's Creek South CHPP are west and northwest of the site with Bridgman Road to the east. A 66 kV transmission line is located immediately west of the project site (refer to Figure 2.1).

2.2 TITLE DETAILS

The proposal would occur on following land shown in Table 2.1.

Table 2.1 Title details

LOT	DEPOSITED PLAN	OWNER
5	DP113540	Bloomfield Collieries Pty Ltd
7	DP113540	Bloomfield Collieries Pty Ltd
8	DP113540	Bloomfield Collieries Pty Ltd
73	DP752455	Bloomfield Collieries Pty Ltd
81	DP752455	Bloomfield Collieries Pty Ltd
86	DP752455	Bloomfield Collieries Pty Ltd
95	DP752455	Bloomfield Collieries Pty Ltd
96	DP752455	Bloomfield Collieries Pty Ltd
135	DP752455	Bloomfield Collieries Pty Ltd
136	DP752455	Bloomfield Collieries Pty Ltd
22	DP816458	Bloomfield Collieries Pty Ltd
240	DP829334	Bloomfield Collieries Pty Ltd

2.3 SITE ATTRIBUTES

The development site is approximately 141 hectares in size with a project development footprint between (90–100 hectares). The project development footprint would be confirmed through detailed design. Existing land use in the area is mining and rural activities (largely grazing). A preliminary assessment of *The land and soil capability assessment scheme* (Office of Environment & Heritage, 2012) indicates the site is:

- Moderate capability land (LSC Class 4) – Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.

2.3.1 EXISTING INFRASTRUCTURE

The site provides good solar access with minimal overshadowing and opportunity for generation of solar electricity. In addition, the 66 kV powerline to the west of the site provides connection to Singleton North Substation with minimal additional infrastructure development.

Vehicular access to the project site is available via Bridgman Road. Further consultation would occur with Ausgrid and Council as part of future detailed design layout of the solar farm.

2.4 CLIMATE

Rainfall in Rix's Creek is generally higher in the warmer months. Mean temperatures range from around 17°C to 31°C. A summary of climate conditions is provided in Table 2.2.

Table 2.2 Climate summary

MEAN	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
Rainfall [1] (mm)	88.6	84.2	66.7	45.9	40.3	44.1	30.0	34.2	38.5	54.3	61.8	71.5
Temp [2] (^{0}C)	30.5	29.3	27.4	24.3	20.8	17.9	17.6	19.5	22.6	25.4	27.1	29.2

[1] Rainfall data from Bulga (South Wambo) weather station

[2] Temperature data from Cessnock Airport AWS weather station

2.5 SOCIO ECONOMIC

According to the 2016 census data (Australian Bureau of Statistics [ABS], 2016) Rixs Creek had a population of 24 in 2016 with a median age of 46. The small population indicates the low-density nature of the area as a mining and agriculture based community.

2.6 SITE PHOTOS AND FIGURE

Photos provide context to the development site and surrounding area.

Photo 2.1 Looking west from the northern part of the site

Photo 2.2 Looking northwest from the northern part of the site

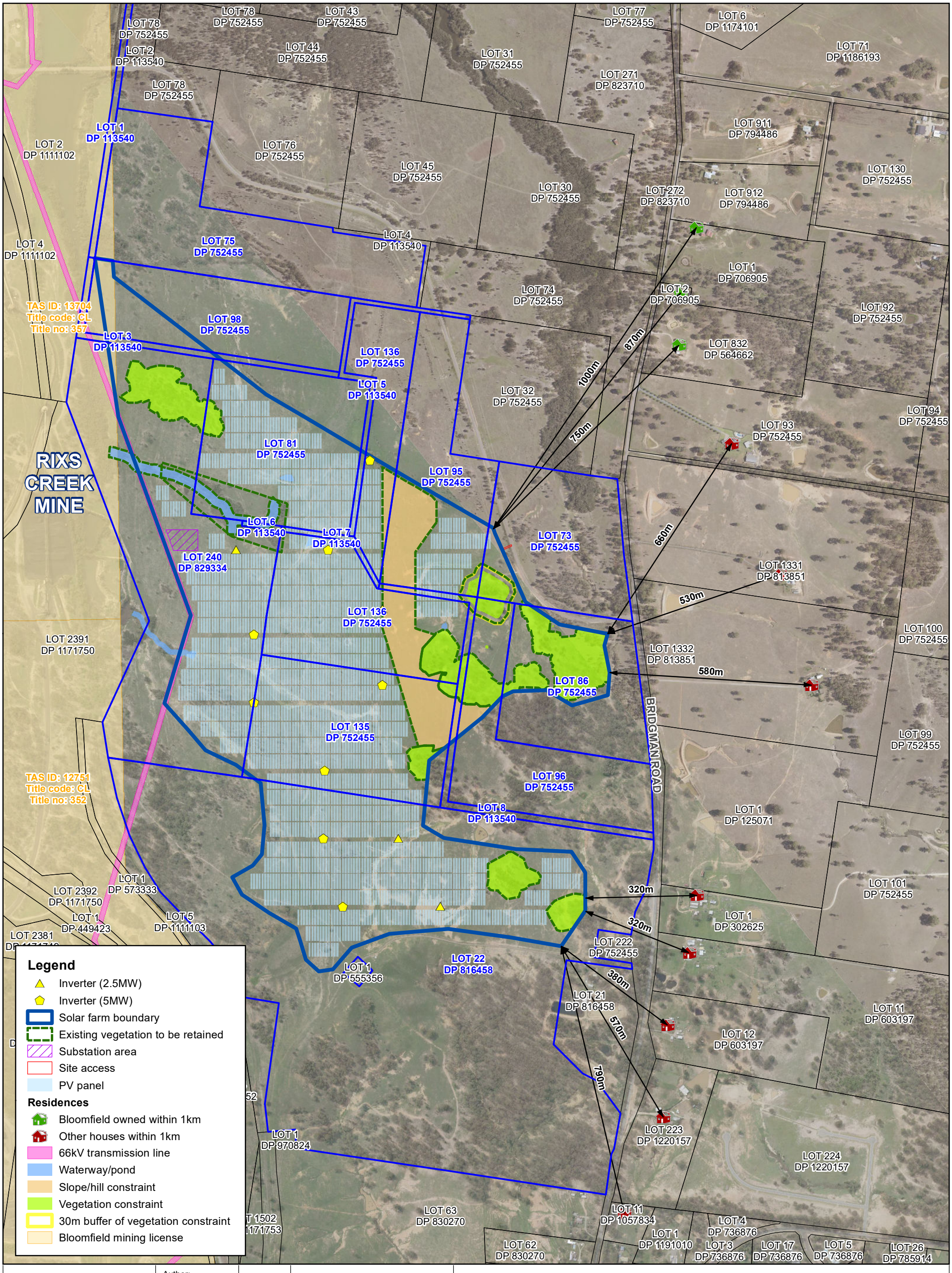
Photo 2.3 Looking west towards the 66 kV powerline

Photo 2.4 Looking south across the site

Photo 2.5 Looking west to the fenced watercourse on site

Photo 2.6 Looking north across the ridge on site

Photo 2.7 Looking east at the entry to Bridgman Road



Map: PS118591_ENV_003_A7	Author: - R.Suansri	
Date: 8/14/2020	Approved by: - M.Maund	
Data source: AECOM; Metromap;		

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Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

BRIDGMAN SOLAR FARM

Figure 2.1
Property Details

3 THE PROPOSAL

3.1 PROPOSED WORKS

Mitsui & Co Ltd are proposing to construct and operate a 50 MWac solar farm, with 42.5 MW to be exported to the national electricity grid and 7.5 MW to be supplied behind the meter to Bloomfield Collieries Rix Creek Mine site solar farm (the project). The project would be connected to a 66 kV line which runs along the western boundary of the site (refer Figure 2.1).

3.1.1 KEY FEATURES

The key features of the project are summarised in the following sections.

PHOTOVOLTAIC MODULE AND MOUNTING STRUCTURES

The photovoltaic modules and structures for the project would be located on approximately 90-100 ha. The photovoltaic panels are proposed to be single sided and rated between 400 W and 450 W with a single axis tracking mounting structure.

POWER CONVERSION UNITS

The solar farm would include approximately 15-20 Power Conversion Units (PCU) dispersed throughout the PV panel areas. The panels would connect via DC panel wiring to the PCUs. The stations would include switching, protection, DC to AC conversion equipment (inverter and electrical transformers) as well as internal inverter stations to allow conversion of DC module output to AC electricity.

INTERNAL ELECTRICITY NETWORK

Underground electrical conduits and cabling to connect the array site infrastructure to the existing 66 kV feeder power line that runs parallel to the site western boundary from the onsite substation.

SUBSTATION AND CONTROL ROOM

The substation would be connected to the Ausgrid overhead line Network at 66 kV. The substation would provide switching and protection for the feeders of the solar plant electrical network. It would also provide electrical voltage transformation to the connection voltage. A control room would be established within the project site to operate and monitor the solar generation equipment.

GRID CONNECTION

Two separate connections are proposed:

- one connection for power supply that would provide captive generation (behind the meter to Bloomfield's Rix's Creek mine site)
- second connection would provide power supply to the National Electricity Market grid. It is proposed to tee into the 66kV line which runs parallel to the site.

The connection points would be:

- behind the meter supply, the Rix's Creek mine site HV yard with the position and overhead or underground design to be confirmed during preparation of the EIS
- connection into the grid, tee directly into the 66 kV line running parallel to the site via onsite substation to step up from 33 kV to 66 kV.

PROJECT BUILDINGS AND ANCILLARY INFRASTRUCTURE

Buildings and ancillary infrastructure required for the proposal includes:

- Site office and maintenance building.
- Perimeter security fencing.
- Internal access tracks to allow site maintenance.

FUTURE ENERGY STORAGE

The facility would be battery ready with allowance made to install up to 20 MW hours of battery storage as part of future battery energy storage system.

3.1.2 CAPITAL INVESTMENT VALUE

The proposed solar farm exceeds the $30 million capital investment value (currently likely to have a CIV of approximately $80 million AUD) and would therefore be considered State Significant Development.

3.1.3 SUBDIVISION / LOT CONSOLIDATION

Consolidation of Lots is not required for the proposed development.

3.1.4 TIMING

Construction phase of the proposal is expected to take around 6 to 9 months. The solar farm has an expected economic operational life of up to 30 years at which time the site would be either repowered with new solar panels and inverters or decommissioned removing all above ground infrastructure and returning the site to its existing land capability.

3.2 STRATEGIC NEED

3.2.1 NATIONAL POLICY CONTEXT

Once constructed, the Proposal will make a significant contribution towards meeting Australia's international emission reduction obligations, including under the United Nations Paris Agreement on Climate Change (Paris Agreement). Australia's emissions target is to reduce CO_2 emissions by 26-28 per cent below 2005 levels by 2030 under the Paris Agreement (Department of Agriculture, Water and the Environment, 2020). To reach the emissions target, Australia must undertake rapid reductions of greenhouses gases (GHG) with best possible technologies and available science. The project would contribute to Australia's broader international GHG emission reduction obligations by potentially generating over 1,300GWh of clean, renewable electricity per annum.

3.2.2 STATE POLICY CONTEXT

The NSW Climate Change Policy Framework sets an aspirational long-term objective of achieving net-zero emissions by 2050 (Office of Environment and Heritage, 2016). The NSW Government's *Net Zero Plan Stage 1: 2020–2030* sets out how the NSW Government will deliver on moving toward net-zero over the next decade (NSW DPIE, 2020). The plan identifies low emissions technologies such as solar generation to generate jobs and economic opportunities. The project would assist with utilising low emissions technologies to the benefit of NSW economy and reducing emissions.

3.2.3 ENERGY MARKET CONTEXT

According to the Department of the Environment and Energy (2019) total electricity generation in Australia rose marginally in 2017–18 to 261 terawatt hours (940 petajoules). While approximately 13 percent of this electricity was generated outside the electricity sector by industry and households. In 2017–2018 renewable energy generation contributed 17 percent of all generation and this contribution has continued to grow in both wind and solar (Department of the Environment and Energy, 2019).

The proposed solar farm would contribute to the ongoing growth of renewable energy in Australia and assist with meeting the Australian government renewable energy target.

3.2.4 GREENHOUSE GASES

The Australian Energy Market Operator (AEMO) Integrated System Plan (AEMO, 2018) states that as demand from the power system is flattening existing thermal supply sources are ageing and approaching the end of their technical lives. The AEMO found that ageing thermal supply sources can be retired and replaced with a portfolio of utility-scale renewable generation, including solar (AEMO, 2018).

Ongoing improvements in solar panel technology has created opportunities for development of efficient arrays that can produce significant electricity supply. The proposed solar farm would utilise renewable energy that would result in significantly reduced greenhouse gas emissions compared to fossil fuel based energy generation. The Australian government's Renewable Energy Target scheme operates in two parts – small-scale renewable energy and large-scale renewable energy.

3.2.5 SOCIO-ECONOMIC

The project would form part of the transition from coal plants to renewable energy in the Singleton and Muswellbrook local government areas that would create employment and economic opportunities. The project would generate approximately 50 jobs during construction and approximately 8 jobs during operation.

3.3 ALTERNATIVES CONSIDERED

3.3.1 ALTERNATE LOCATION

A number of alternate locations were considered for the solar farm; however, the proposed site provides good solar access and access to existing infrastructure. Additionally, the 66 kV powerline immediately west of the site provides access to the electrical network with minimal need for investment in additional infrastructure.

The site is generally clear of vegetation and the proposed solar farm would seek to avoid areas of higher habitat value. Furthermore, the proposal would be adjacent to an existing mine that would potentially reduce visual impact of the development. The proposed location is considered appropriate.

3.3.2 ALTERNATE TECHNOLOGY

The project team has reviewed wind and solar options for the site as well as alternate solar farm designs. The current proposed design is considered appropriate due to extensive solar access and generally cleared nature of the site. A solar farm is considered the most appropriate use of the site to encourage renewable energy while minimising environmental impact.

3.3.3 DO NOTHING

The option of not proceeding with the proposal was considered and found not to be appropriate. Ongoing demand for electricity and government commitments to reduce greenhouse gas emissions encourage expansion of renewable energy. This proposal would assist with meeting current and future electricity demand and the option of not proceeding is not appropriate.

3.3.4 PREFERRED OPTION

The preferred option is that presented in this Scoping Report. The project would provide renewable energy on land adjacent to a mine site that has appropriate road access and is immediately adjacent to a 66 kV powerline. The project site has limited environmental constraints and appropriate ground conditions for development of this type.

4 STATUTORY PLANNING

4.1 COMMONWEALTH LEGISLATION

4.1.1 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION (EPBC) ACT 1999

The *Environment Protection and Biodiversity Conservation Act* (EPBC Act) lists nine 'Matters of National Environmental Significance (MNES) that must be addressed when assessing the environmental impacts of a project. Actions that may significantly affect matters of MNES require assessment and/or approval from the Commonwealth Department of the Environment & Energy under Part 6 of the EPBC Act.

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- world heritage properties
- national heritage places
- wetlands of international importance
- listed nationally threatened species and ecological communities
- listed migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions including uranium mining
- water resources in relation to coal seam gas or large mining development.

The EIS would address MNES and potential need for Commonwealth approval.

4.1.2 NATIVE TITLE ACT 1993

The *Native Title Act 1993* established recognition and protection of native title and provides standards for dealings and acts for which native title is relevant.

The EIS would include an Aboriginal heritage impact assessment that would consider native title.

4.2 NSW LEGISLATION

4.2.1 ENVIRONMENTAL PLANNING AND ASSESSMENT (EP&A) ACT 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal piece of legislation covering assessment and determination of development proposals in NSW. It aims to encourage the proper management, development and conservation of resources, environmental protection and ecologically sustainable development. The development assessment and approval system in NSW is set out in Part 4 and 5 of the EP&A Act.

This project requires development consent under Part 4 of EP&A Act. In accordance with section 4.12(8) of the EP&A Act, State Significant Development (SSD) requires an EIS to be submitted in conjunction with the development application.

Section 4.15 of the EP&A Act applies to the determination of development applications for SSD. The EIS would address requirements under Schedule 2 of the Environmental Planning and Assessment Regulation 2000.

4.2.1.1 STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

Development is considered to be SSD if it is not permissible without consent and is listed under Schedule 1of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Clause 20 of Schedule 1 identifies electricity generating works with a capital investment value (CIV) of more than $30 million, or a CIV of more than $10 million and located in an environmentally sensitive area of State significance, as SSD.

The Proposed solar farm exceeds the $30 million capital investment value (currently likely to have a CIV of around $80 million) and would therefore be considered SSD.

4.2.1.2 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007 (ISEPP)

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to enable the efficient delivery of infrastructure across NSW.

Clause 34(7) of the ISEPP provides that development for the purpose of 'solar energy systems' may be carried out with consent on any land, except as prescribed by sub Clause 34(8).

> (8) Development for the purpose of a photovoltaic electricity generating system may be carried out by a person with consent on land in a prescribed residential zone only if the system has the capacity to generate no more than 100 kW.

A solar energy system is defined as:

> solar energy system means any of the following systems—
>
> (a) a photovoltaic electricity generating system,
> (b) a solar hot water system,
> (c) a solar air heating system.

Clause 34(8) does not apply as the site is zoned RU1 Primary Production and as such the proposed development is permissible under ISEPP.

4.2.2 OTHER STATE ENVIRONMENTAL PLANNING POLICIES (SEPPS)

4.2.2.1 SEPP 33 — HAZARDOUS AND OFFENSIVE DEVELOPMENT

SEPP No 33 – Hazardous and Offensive Development (SEPP 33) aims to effectively manage hazardous or offensive industries. The facility would be battery ready with allowance made to install up to 20 MW of battery storage (as part of future works) and as such a Preliminary Hazard Analysis under SEPP 33 is not considered necessary at this time.

4.2.2.2 SEPP NO. 55 (REMEDIATION OF LAND)

SEPP No. 55 – Remediation of Land (SEPP 55) provides a statewide planning approach to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health. In accordance with Clause 7(1) of SEPP 55, a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated and is suitable in its contaminated state (or would be suitable, after remediation) for the purpose for which the development is proposed to be carried out.

As the site is near an operating mine a preliminary assessment of potential contamination would be required for the EIS.

4.2.2.3 SEPP NO. 44 (KOALA HABITAT PROTECTION)

SEPP No 44 – Koala Habitat Protection (SEPP 44) aims to encourage the proper conservation and management of 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.

Future ecological assessments in the EIS would need to consider potential relevance of SEPP 44.

4.2.2.4 STATE ENVIRONMENTAL PLANNING POLICY (PRIMARY PRODUCTION AND RURAL DEVELOPMENT) 2019

State Environmental Planning Policy (Primary Production and Rural Development) 2019 aims to facilitate orderly economic use and development of land for primary production and associated environmental management and sustainability.

The proposed development would occur on rural zoned land and the EIS would consider potential impact on agricultural land.

4.3 OTHER RELEVANT STATE LEGISLATION

The following state legislation is relevant to the project:

Table 4.1 Legislation relevant to the project

LEGISLATION	RELEVANCE
Biodiversity Conservation Act 2016	The *Biodiversity Conservation Act 2016* (BC Act) provides for a strategic approach to conservation in NSW whilst supporting improved farm productivity and sustainable development. It includes provisions for a risk-based assessment of native plant and animal impacts, and a Biodiversity Assessment Method (BAM) to assess the impact of actions on threatened species, threatened ecological communities and their habitats, and the impact on biodiversity values. Preliminary ecological surveys have previously been undertaken within the study area (AECOM, 2019). The EIS would build on these targeted surveys and complete vegetation integrity surveys in accordance with the BAM (2017) to assess native vegetation, threatened ecological communities, vegetation integrity, and habitat suitability for threatened species. Assessments of impact significance would be conducted for all threatened entities considered likely to be affected by the project. The assessments would conclude whether the project is likely to have a significant impact on any threatened species, populations or ecological communities. A Biodiversity Development Assessment Report (BDAR) in accordance with BAM (2017) would be prepared.
Biosecurity Act 2015	The *Biosecurity Act 2015* aims to manage diseases and pests that may cause harm to human, animal or plant health or the environment. A Regional Weed Committee has been established in each region in NSW, and each committee has developed a Regional Strategic Weed Management Plan. The project is located within the Hunter Local Land Services (LLS) region of NSW. The *Hunter Regional Strategic Weed Management Plan (2017-2022)* (Hunter LLS, 2017) provides the framework for weed management within the Hunter region. Appendix 1 of the *Hunter Regional Strategic Weed Management Plan* lists the State and regional priority weeds. Management objectives and requirements for these priority weeds, as well as outcomes to demonstrate compliance with the General Biosecurity Duty are also provided. Assessment of weeds and future weed management would be considered in the EIS.

LEGISLATION	RELEVANCE
Crown Lands Act 1989	The Act ensures that Crown land is managed for the benefit of the people of NSW. Crown land may not be occupied, used, sold, leased, dedicated, reserved or otherwise dealt with unless authorised by this Act. Consultation would be required with Crown Land in NSW for any work on Crown land, however that does not appear to be relevant for this proposal.
Fisheries Management Act 1994	The *Fisheries Management Act 1994* (FM Act) provides for the identification, conservation and recovery of threatened fish, aquatic invertebrates and marine vegetation. One of the objectives of the FM Act is to conserve key fish habitats. Creeks, whether permanently or intermittently flowing, are considered key fish habitat under the FM Act (NSW Department of Primary Industries (Fisheries), 2013). Section 192 of the FM Act claims that a habitat protection plan may be determined for the protection for critical habitat declared under Part 7A. The EIS would consider potential impact of the solar farm on watercourses on the site.
Heritage Act 1977	The NSW *Heritage Act 1977* (Heritage Act) provides for the conservation of buildings, works, archaeological relics and places of heritage value. The Act sets out provisions that require a statement of heritage impact (SOHI) to be prepared where the project has potential to impact on any values that are protected under the Act. The EIS would consider non-Aboriginal heritage.
National Parks and Wildlife Service 1974	The *National Parks and Wildlife Act 1974* (NP&W Act) governs the establishment, preservation and management of national parks, historic sites and certain other areas, and the protection of certain fauna, native plants and Aboriginal relics. The site is not in or in close vicinity to a protected area, as defined in the NP&W Act. Part 6 of the NP&W Act provide statutory protection for Aboriginal objects and places. Section 86 of the NP&W Act identifies offences relating to Aboriginal objects, including disturbing land to discover an artefact. Section 87(1) of the Act requires a permit to be obtained to remove any artefacts, while section 90(2) requires consent from the Director General of Environment, Energy and Science to knowingly destroy, deface or damage a relic or Aboriginal place. The EIS would include an Aboriginal heritage impact assessment
Protection of the Environment Operations Act 1997	The *Protection of the Environment Operations Act 1997* (POEO Act) is administered by the NSW Environmental Protection Authority (EPA) and includes provisions relating to the protection of the environment. The underlying objective of the Act is to reduce pollution and manage the storage, treatment and disposal of waste. A key feature of the Act is the issuing of Environmental Protection Licences (EPLs) for certain (scheduled) activities. Section 48 of the POEO Act requires an EPL for premises which a scheduled activity is carried on. Scheduled activities are defined in Schedule 1 of the POEO Act. General electricity works, as described in Clause 17 of Schedule 1, requires an EPL where the activity has the capacity to generate more than 30MW of electrical power. Wind power and solar power are excluded from the definition of 'General electricity works,' hence an EPL is not likely to be required under the POEO Act for the project.
Roads Act 1993	If works are required on Bridgman Road approval would be required from the road authority (Singleton Council) and this would be explored in the EIS.

LEGISLATION	RELEVANCE
Rural Fires Act 1997	The *Rural Fires Act 1997* provides for the preparation, mitigation and suppression of bush and other fires. The requirement to obtain a Bushfire Safety Authority under s100B of the *Rural Fires Act 1997* is triggered for developments on bushfire prone land for a 'special fire protection purpose', which does not include the development of a solar farm. However, general bushfire management would be considered in the EIS.
Water Management Act 2000	The object of the *Water Management Act 2000* (WM) Act is to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. The WM Act provides that certain types of development and activities that have the potential to impact on a water resource are controlled activities which require approval from the Department of Primary Industries – Water (DPI Water). The WM Act includes provision for access licences, water use approvals, water management work approvals, and activity approvals. Where the proposed solar farm would impact on surface or groundwater this would be considered in the EIS.

4.4 APPROVALS / LICENCES

The following licence would be required for the proposal:

- Road Occupancy Permit under the *Roads Act 1993* for work on Bridgman Road.

A number of approvals and licences would not be required for SSD:

- approval under *Fisheries Management Act 1994* for work in a watercourse
- Aboriginal heritage impact permit under *National Parks and Wildlife Act 1974* for impact to Aboriginal heritage
- controlled activity approval under the *Water Management Act 2000* for work on waterfront land
- water use approval under *Water Management Act 2000* for extraction of groundwater.

4.5 SINGLETON LOCAL ENVIRONMENTAL PLAN 2013

The site is zoned RU1 Primary Production and electricity generating works are prohibited in the zone. The operation of the ISEPP means that the local environmental plans (LEPs) would not apply where they impose controls that are inconsistent with the ISEPP. However, the LEP is still relevant in identifying land use objectives, potential land use impacts and planning policy conflicts and would be considered in the EIS.

4.6 STAKEHOLDER AND COMMUNITY CONSULTATION

Early and ongoing consultation is key to effective environmental assessment and would be an important aspect of the EIS. Consultation would involve early engagement with key stakeholders and community as discussed in this section.

4.6.1 LOCAL COMMUNITY

A detailed Stakeholder and Community Consultation Plan is being prepared with the aim of achieving the following objectives:

- ensure the timely provision of information and responses to stakeholders to satisfy regulatory requirements and meet community expectations
- establish and maintain a social license from the community for the project;
- create a positive image for the Bridgman Solar Farm project
- proactively manage issues of interest or concern to stakeholders and the community by providing up-to-date information about development activities.

Mitsui has commenced targeted early stage community consultation. Eleven nearby landowners have been identified (refer to Figure 2.1 and Table 5.1) within 1 kilometre of the project site. Mitsui has contacted majority of the nearby landowners via telephone. Additionally, up to 250 properties have been identified within 2.5 kilometres of the proposed project site (immediate local community).

Mitsui has prepared and sent a letter to nearby landowners and immediate local community providing the following information about the project:

- introduction to Mitsui & Co Ltd
- introduction to the project and a locality map showing the proposed solar farm in relation to their property and indicative viewsheds (For Nearby Landowners only) of the solar farm from their property
- explanation that Mitsui is commencing the process to obtain necessary approvals
- a commitment to supply accurate and timely information about the project and the progress of project approvals
- Mitsui project contact details should the recipients have any questions regarding the project.

Going forward Mitsui will implement the Stakeholder and Community Consultation Plan and engage with the wider community through a range of mediums including face to face meetings, telephone, letters, meetings with community groups, notices in the local newspapers, regular community newsletters and a project website.

4.6.2 INDIGENOUS GROUPS

Mitsui will engage an expert Cultural Heritage consultant to assist with preparation of an Aboriginal Cultural Heritage Assessment. As part of that process the consultant will identify relevant Registered Aboriginal Parties (RAPs) and consult with them regarding the project. We will also adopt the recommendation from Singleton Council to consult with the local indigenous group the Wonnarua.

4.6.3 LOCAL, STATE AND FEDERAL GOVERNMENTS

4.6.3.1 SINGLETON SHIRE COUNCIL

Mitsui has had two meetings with the Singleton Council Planning and Development Services Department staff to introduce the project and discuss timing for broader engagement with Council management and Councillors. We have also provided Council with an overview of our early community consultation activities and discussed potential Council support in relation to identifying and providing access to various local community groups.

As part of their Stakeholder and Community Consultation Plan, Mitsui will be providing regular project updates to Council Management and the Councillors, recognising that Council is likely to be a key contact point for local community queries and contact regarding any issues related to the project as the project development progresses.

4.6.3.2 NSW STATE GOVERNMENT

Mitsui will be engaging with the NSW State Government and various government departments and state government authorities as the project development progresses. At this stage we have identified the following departments and authorities as key stakeholders with whom consultation may be required as the project progresses:

- Aboriginal Affairs NSW
- Energy NSW
- Mining, Exploration and Geosciences (Department of Resources and Geoscience in NSW)
- NSW Department of Environment, Energy and Science
- NSW Department of Planning, Industry and Environment
- NSW Rural Fire Service
- Resources Regulator (Department of Regional NSW)
- Transport for NSW.

Letters were sent via email to NSW Department of Mining, Exploration and Geosciences and the Resources Regulator on 21 August 2020 providing details of the project and requesting a response within fourteen (14) days. No response has been received, however consultation will continue with relevant State government agencies.

4.6.3.3 FEDERAL GOVERNMENT

At this stage we have identified the following Federal government departments and authorities as potential key stakeholders for consultation as the project progresses:

- Department of Agriculture, Water and the Environment
- Department of The Treasury
- Australian Energy Market Operator.

4.6.4 OTHER KEY STAKEHOLDERS

Mitsui has undertaken and will continue to undertake consultation with the following key stakeholders:

4.6.4.1 BLOOMFIELD COLLIERIES PTY LTD (LANDOWNER OF THE SOLAR FARM SITE)

Mitsui has had a trading relationship with Bloomfield Collieries spanning more than 30 years. We commenced discussions with Bloomfield in early 2017 regarding the possibility of construction of a solar farm on land they own adjacent to their Rix's Creek mine that is not intended to be mined. Over the past three years we have worked with Bloomfield to identify a suitable parcel of land and collected information regarding Bloomfield's on-site electricity usage to investigate the possibility of supplying electricity for their operations. We have also received permission from Bloomfield to conduct initial site assessments to confirm the constructability and determine an initial layout for the solar farm and identify any significant environmental issues.

It is expected that when the project proceeds, the project company would enter into a long-term lease agreement with Bloomfield as the property owner.

4.6.4.2 AUSGRID

Over the past 18 months, Mitsui has engaged with Ausgrid with regard to the Bridgman Solar Farm connection into the transmission network. Engagement to date is summarised as follows:

- Mitsui's Preliminary Connection Enquiry submitted to Ausgrid (06/02/19)
- Preliminary Connection Enquiry response received from Ausgrid detailing costs to complete Detail Enquiry (26/09/19)
- Meeting between Ausgrid and Mitsui to discuss Preliminary Connection Enquiry response (27/11/19)
- Revised Preliminary Connection Enquiry response received from Ausgrid (24/12/19)
- Mitsui accepted Ausgrid's Design Offer to complete Detailed Enquiry response. (early design works) (20/01/20)
- Receipt from Ausgrid of their Detailed Enquiry response (12/03/20).

4.6.5 EIS CONSULTATION

EIS Consultation will be undertaken in accordance with the following guidelines

- *Large-Scale Solar energy Guideline for State Significant Development* (NSW Department of Planning and Environment, 2018).
- *Community and Stakeholder Engagement Draft Environmental Impact Assessment Guidance Series* (NSW Department of Planning and Environment, 2017)
- *Community Consultative Committee Guidelines State Significant Projects* (NSW Department of Planning and Environment, 2017) – if a Community Consultative Committee is required.

4.6.6 EXHIBITION

After lodgement of the application, community consultation would be undertaken in accordance with the EP&A Act. Clause 9 of Schedule 1 of the EP&A Act outlines exhibition and notification requirements for SSD and requires the consent authority to place the application and any accompanying information on public exhibition for a period 28 days.

Comments received during the exhibition period would be addressed in a Submissions Report.

5 PRELIMINARY ENVIRONMENTAL ASSESSMENT

5.1 INTRODUCTION

A desktop preliminary environmental risk assessment has been conducted to inform future environmental investigations. The assessment considers potential environmental impacts of the proposal and provides a summary of environmental mitigation measures to ameliorate environmental impacts. Detailed environmental investigations would occur within the EIS and would address construction and operation of the proposed solar farm.

5.2 POTENTIAL ENVIRONMENTAL IMPACTS

5.2.1 LAND USE

EXISTING ENVIRONMENT

The proposal would be located adjacent to the mining lease (coal lease 357) of the existing Rix's Creek Open Cut Mine that incorporates Rix's Creek South and Rix's Creek North. The lease is shown in Figure 2.1 and is partly located on the north-western part of Lot 240 DP113540; however, no part of the project would be located on that lease area.

Land use in the area is generally mining related or agricultural (primarily grazing). The land is zoned RU1 Primary Production and is currently vacant and was last used for grazing cattle. A number of rural residential dwellings are located on the eastern side of Bridgman Road.

POTENTIAL IMPACTS

Development of the solar farm would involve a footprint of up to around 100 hectares. Land use would change significantly from vacant land to a renewable energy source; however, the proposal is unlikely to significantly impact adjacent land uses. Residential properties near the proposed solar farm are listed in Table 5.1. The residential properties are presented on Figure 2.1 that confirms all properties are a minimum of approximately 320 metres from the solar farm.

Table 5.1 Properties nearby

TITLE	OWNER	STREET ADDRESS
Lot 1 DP302625	Leonard Cox	580 Bridgman Road, Bridgman NSW 2330
Lot 93, DP752455	Dwight Knox Geelan	722 Bridgman Road, Bridgman NSW 2330
Lot 11 DP603197	Christopher Ross Whiting	560 Bridgman Road, Bridgman NSW 2330
Lot 12 DP603197	Hunter Valley Open Cut Examiners Pty Limited	536 Bridgman Road, Bridgman NSW 2330
Lot 223 DP1220157	Keith William Badior; Judith Helen Badior	502 Bridgman Road, Wattle Ponds NSW 2330
Lot 1331 DP813851	Wayne Geoffrey Cox	676 Bridgman Road, Bridgman NSW 2330
Lot 1332 DP813851	Darren Philip Cox	636 Bridgman Road, Bridgman NSW 2330
Lot 11 DP1057834	Clinton Garniel Wallace; Tracey-Lee Wallace	476 Bridgman Road, Wattle Ponds NSW 2330
Lot 1, DP706905	Big Ben Holdings Pty Ltd*	772 Bridgman Road, Bridgman NSW 2330
Lot 2, DP706905	Bloomfield Collieries Pty Ltd*	750 Bridgman Road, Bridgman NSW 2330
Lot 832, DP564662	Bloomfield Collieries Pty Ltd*	738 Bridgman Road, Bridgman NSW 2330

* land owned by the Bloomfield mine

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would provide an Agricultural Assessment that would consider issues such as Biophysical Strategic Agricultural Land (BSAL), agricultural operations, livestock & machinery movements, crop production activities and biosecurity risks. Findings of the Agricultural Assessment would be included in the EIS with appropriate mitigation measures. Consideration would also be given to potential impact on mining activities in the general area. Issues such as traffic, noise and visual impact that may impact land use are discussed in Section 5.2.2, 5.2.3 and 5.2.10 respectively.

5.2.2 TRAFFIC AND ACCESS

EXISTING ENVIRONMENT

The site would be accessed via the Rix's Creek Mine northern entrance off Bridgman Road. At the entrance to the site the speed limit for Bridgman Road 80 km/h.

POTENTIAL IMPACTS

Traffic impacts during construction would include movement of heavy and light vehicles, haulage routes and site access. A preliminary proposed road haulage route for delivery of material from Port of Newcastle to the site is shown in Figure 5.1 Where road closures or night times works would be required for delivery of equipment or similar these would be considered in the EIS. Additional vehicles during operation would be expected to result in a minor increase in traffic.

PROPOSED ENVIRONMENTAL ASSESSMENT

A Traffic Impact Assessment would be prepared to consider potential traffic impacts during construction and operation. It is likely that environmental mitigation measures would include a Construction Traffic Management Plan be prepared prior to construction commencing.

5.2.3 NOISE AND VIBRATION

EXISTING ENVIRONMENT

Existing ambient noise levels would be impacted by mining at Rix's Creek and other mines in the Hunter Valley. Ambient noise would also be influenced by vehicle movement along Bridgman Road and other roads in the area and power tools and equipment used at rural residential and farming properties.

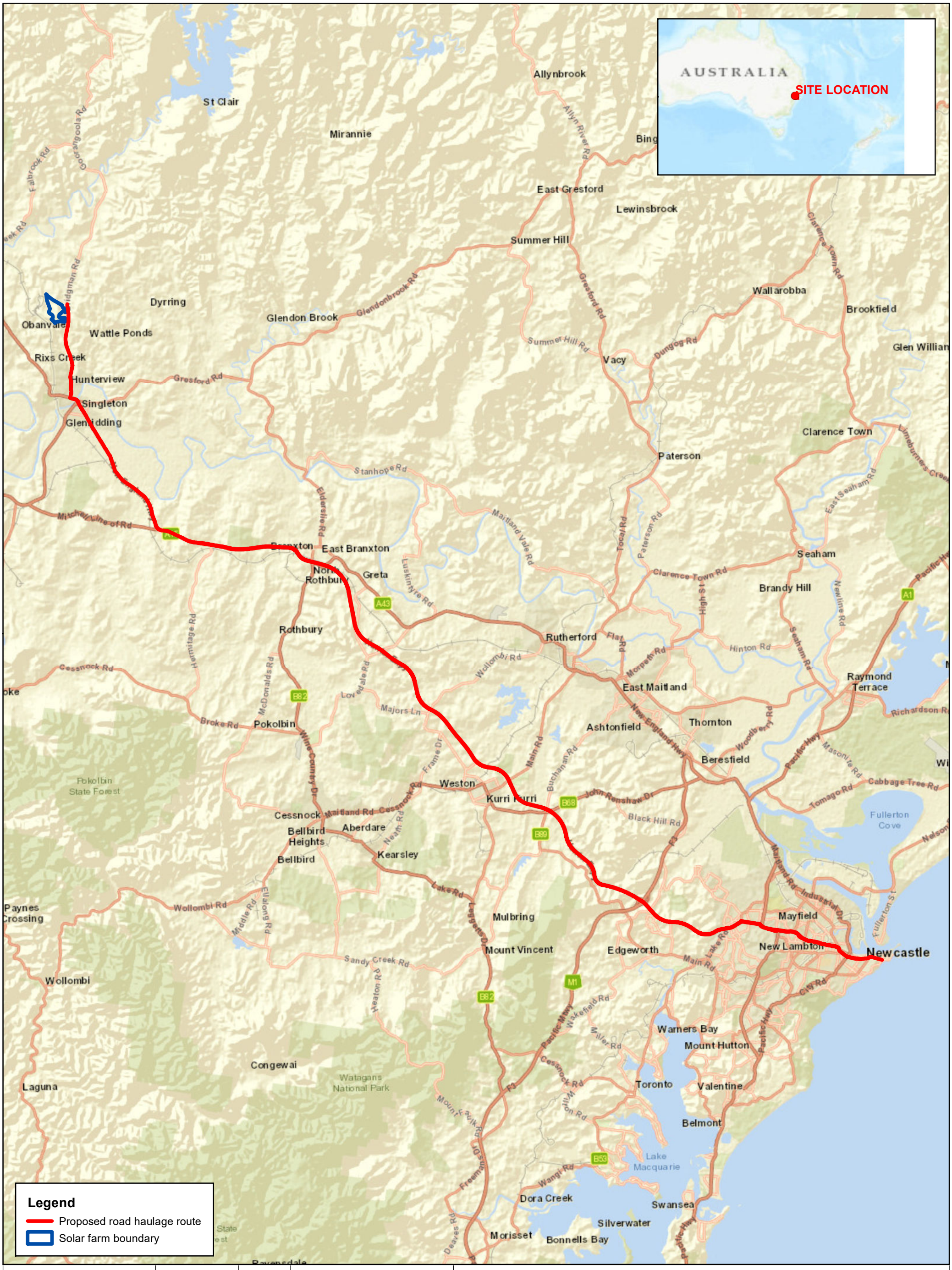
POTENTIAL IMPACTS

Noise impacts during construction would need to be considered and managed. Construction activities that may generate noise include heavy vehicles, cranes, concrete pumps, earthmoving and light vehicles and power tools. Noise during operation would generally occur through operation of electrical equipment such as the proposed substation and solar tracking system; however, this is not expected to be a significant at this stage.

PROPOSED ENVIRONMENTAL ASSESSMENT

A Noise and Vibration Impact Assessment would be prepared to consider potential impact of the proposal. The assessment would consider relevant guidelines such as:

- Interim Construction Noise Guidelines (DECC, 2009)
- NSW Noise Policy for Industry (NSW EPA, 2017).



Map: PS118591_ENV_004_A2	Author: - R.Suansri		
Date: 9/3/2020	Approved by: - M.Maund		

Data source: AECOM; Metromap; Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

1:249,528

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

BRIDGMAN SOLAR FARM

Figure 5.1
Road haulage

5.2.4 SOILS, GEOLOGY AND CONTAMINATION

EXISTING ENVIRONMENT

A search of the NSW Soil and Land Information System records a number of soil profiles northwest of the site as Mottled Magnesic-Natric Grey Kurosol (ASC), Soloth (Solod) (GSG); and west of the site Yellow Kurosol (ASC), Yellow Podzolic Soil (GSG); and Grey Kurosol (ASC), Soloth (Solod) (GSG). The development site is sloping to the east and west from a central ridge and contains a number of watercourses.

A search of the NSW EPA Contaminated Land Record did not identify any sites in Rixs Creek. There is potential that former agricultural or other activities may have resulted in minor localised contamination.

POTENTIAL IMPACTS

Earthworks would occur during construction activities including for proposed access, footings, building platforms and electrical equipment. Some vegetation would also be removed to accommodate the proposed solar farm. Material stockpiling during construction also creates potential for loss of soil and other stockpiled material.

Disturbing soil and vegetation creates potential erosion and sediment that may contaminate local watercourses or impact other properties. There is also potential that contaminated soil may be uncovered during construction that would require investigation and management.

PROPOSED ENVIRONMENTAL ASSESSMENT

The proposal would include consideration of issues such as all-weather access, appropriate stockpiling, minimising earthworks, revegetation and site stabilisation. A Preliminary Site Investigation would be prepared to consider potential for contamination. Appropriate erosion and sediment control, including minimising earthworks and unexpected finds, would be considered in the EIS with appropriate mitigation measures proposed.

5.2.5 AIR QUALITY

EXISTING ENVIRONMENT

The NSW Government Air Quality Monitoring Network for the Upper Hunter (Autumn, 2019) found that Upper Hunter air quality for 1 March to 31 May 2019 was generally good to fair. Muswellbrook and Singleton recorded very good to fair air quality indices within national benchmarks 97% and 98% of the time, respectively. All sites recorded days over the PM_{10} benchmark, ranging from two days at Aberdeen, Bulga, Jerrys Plains, Singleton and Wybong, and up to ten days at Mt Thorley. The PM_{10} readings were likely related to below average rainfall and long-range dust transported from intensely-drought affected areas. For $PM_{2.5}$, rolling annual average particle levels remained similar to those observed in previous years.

Air quality in the area is likely to be affected by mining and related activities including earthworks, blasting, vehicle movements and stockpiles. Agricultural activities, rural residential activities and general transport activities would also impact on local air quality.

POTENTIAL IMPACTS

Construction of the solar farm would disturb ground, stockpile material and remove vegetation that could result in creation of dust if not appropriately managed. Use and movement of vehicles and equipment also has potential to generate dust.

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would propose mitigation measures to reduce potential for generation of dust such as maintaining ground cover and minimising earthworks where practicable. A detailed Erosion and Sediment Control Plan would be required prior to construction activities.

5.2.6 WATER QUALITY AND HYDROLOGY

EXISTING ENVIRONMENT

A number of watercourses and water storages/dams are located on the site. The land generally slopes to the east and west following existing geomorphology. While all drainage ultimately reaches the Hunter River, the region has been modified by a range of mining activities that have altered the shape of the land and drainage patterns. The site is not mapped as flood prone land.

POTENTIAL IMPACTS

Development of the solar farm would impact a number of mapped watercourses. However, the design has attempted to avoid watercourses as far as practicable. The site is not mapped as groundwater vulnerable on the NSW Planning Portal.

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would consider potential impacts on surface and groundwater, including aspects of the design that seek to cross watercourses. In addition, construction methodology that may impact watercourses would be presented and appropriate mitigation measures developed such as minimising earthworks and adjusting location of physical, where practicable.

There is low potential for the proposal to impact on groundwater.

5.2.7 FLORA, FAUNA

EXISTING ENVIRONMENT

A preliminary Ecological Site Assessment was prepared by Aecom (2019) and is summarised below.

Vegetation communities within the footprint of the site are generally degraded, with mid-storey vegetation being virtually absent. This is highly likely to be attributable to the current and historic cattle grazing regime. Native vegetation recorded within the Proposal area included:

- *Eucalyptus crebra* (Narrow-leaved ironbark)
- *Eucalyptus moluccana* (Grey box)
- *Eucalyptus tereticornis* (Forest red gum)
- *Brachychiton populneus* (Kurrajong)
- *Notelaea microcarpa* (Velvet mock olive)
- *Microlaena stipoides* (Weeping grass).

Grasses throughout the site were dominated by a variety of exotic grasses and forbs, with some degree of native species such as *Microlaena stipoides* (Aecom, 2019).

Inspection confirmed the presence of areas representative of Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions (a Threatened Ecological Community) on the periphery and surrounding the footprint. Within the site the NSW State Vegetation Type Map Upper Hunter Version v1.0 identifies the presence of vegetation communities consistent with:

- White Box Yellow Box Blakely's Red Gum Woodland (derived grassland form)
- Swamp Oak – Weeping Grass grassy riparian forest of the Hunter Valley (Aecom, 2019).

POTENTIAL IMPACTS

Vegetation clearing has potential to impact on native grasslands. The NSW State Vegetation Type Map for the Upper Hunter indicates that the majority of the Proposal area is PCT 796: Derived grassland of the NSW South Western Slopes. This is considered by the Bionet Vegetation Classification database to be part of a Threatened Ecological Community (box gum grassy woodland) listed at both state and Commonwealth levels. The potential for this area to be deemed part of this community relies on the presence of a predominately native understorey, preferably with tussock grasses present, neither of which is met within the site (Aecom, 2019).

Other native grasslands and potentially *Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley*, although potential for this area to be deemed a TEC is considered to be low (Aecom, 2019).

PROPOSED ENVIRONMENTAL ASSESSMENT

A Biodiversity Assessment Report (BDAR) would be prepared in accordance with the Biodiversity Assessment Method (BAM). The BDAR would identify areas of high biodiversity value that may be avoided as well as areas of lower biodiversity value to accommodate the solar farm and associated infrastructure.

5.2.8 HERITAGE – ABORIGINAL

EXISTING ENVIRONMENT

The site is generally cleared with some farm dams, watercourses and grazing activities. A search of the Aboriginal Heritage Information Management System (AHIMS) identified a number of Aboriginal sites in or near the location (Appendix A).

POTENTIAL IMPACT

There is potential that the proposal may impact on a heritage item.

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would include an Aboriginal Cultural Heritage Assessment (ACHA) to address the requirements of Part 6 *National Parks and Wildlife Act 1974*. The ACHA will be undertaken in accordance with the following procedures issued by the Department of Planning Infrastructure and Environment:

- *Code of Practice of Archaeological Investigation of Aboriginal Objects in NSW*
- *Guide to Investigation, Assessing and Reporting on Aboriginal Cultural Heritage in NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

5.2.9 HERITAGE – NON-ABORIGINAL

EXISTING ENVIRONMENT

The site is generally cleared and used for grazing. No known heritage items are located on the site. A search of the NSW Environment, Energy and Science heritage database identified two heritage items in Rixs Creek:

- Coke Ovens, New England Highway
- Rixs Creek Coke Ovens & Associated Works.

POTENTIAL IMPACTS

It is unlikely that the proposed development would impact on non-Aboriginal heritage.

PROPOSED ENVIRONMENTAL ASSESSMENT

An updated search of relevant databases would be presented in the EIS and it is likely that a mitigation measure involving an unexpected finds would be included.

5.2.10 VISUAL

EXISTING ENVIRONMENT

Visual features of the site include undulating hills, several watercourses and scattered vegetation. Some areas of vegetation near watercourses have been fenced and revegetated. There is also existing erosion in areas with low vegetation cover. A number of dams provide water for grazing stock.

The visual environment includes coal mines and related infrastructure as well as some rural houses east of Bridgman Road.

POTENTIAL IMPACTS

The solar farm would significantly change the visual environment, however the design would seek to minimise this impact through appropriate use of terrain and materials.

PROPOSED ENVIRONMENTAL ASSESSMENT

A Visual Impact Assessment would be prepared to inform the design and EIS. The assessment would consider existing site conditions, visual catchment and key viewpoints to understand potential visual impact of the proposal.

5.2.11 SOCIAL AND ECONOMIC

EXISTING ENVIRONMENT

According to the 2016 census data (ABS, 2016) Rixs Creek had a median weekly household income of $1,874 in 2016. The average number of people per household was 3.6 and the median rent was $255 each week. However, there were only 7 private dwellings in Rixs Creek reflecting the low density nature of the area as a mining and agriculture based community.

POTENTIAL IMPACTS

The proposal would generate employment during construction and operation (refer to Section 3.2.5). There would also be demand during construction and ongoing demand for services for local and other businesses such as food, clothing, accommodation and equipment suppliers.

PROPOSED ENVIRONMENTAL ASSESSMENT

A summary of existing information on the local area and region would be sourced from the ABS and included in the EIS. In addition, estimated employment and economic opportunities resulting from the proposal would be reported. It is considered unlikely that the proposal would result in negative social and economic impacts that would require mitigation.

5.2.12 WASTE

EXISTING ENVIRONMENT

Current grazing activity would generate minor amounts of agricultural type waste.

POTENTIAL IMPACTS

Waste would be generated during construction such as excess packaging, soil, steel, concrete and electrical wiring. Operation of the solar farm would also generate waste through maintenance and repair.

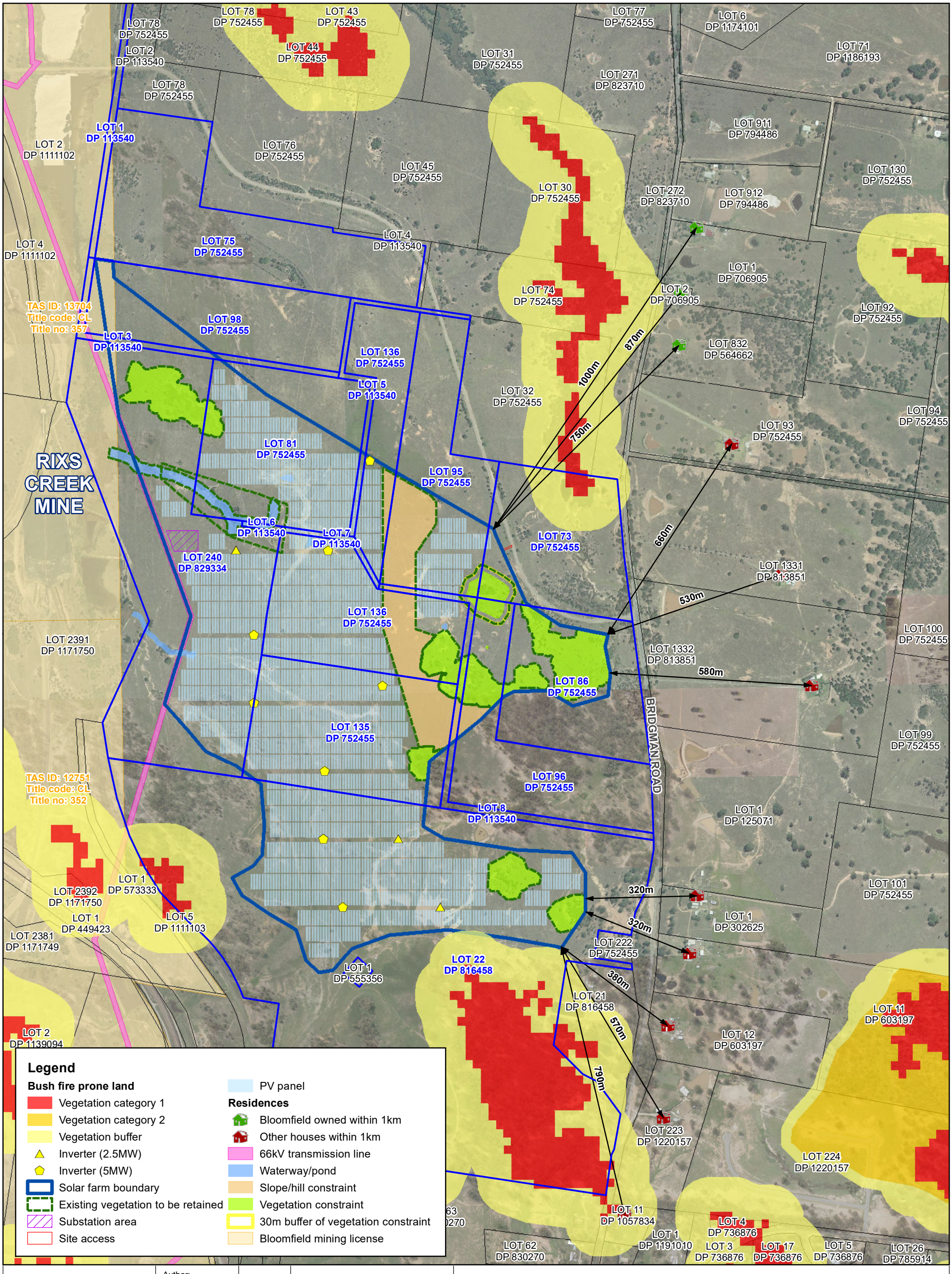
PROPOSED ENVIRONMENTAL ASSESSMENT

Nature and volume of wastes likely to be generated would be presented in the EIS along with proposed mitigation measures, including preparation of a Waste Management Plan.

5.2.13 HAZARDS

EXISTING ENVIRONMENT

The northern part of Lot 73 DP752455 and southern and western parts of Lot 22 DP816458 are mapped as bushfire prone; however, no part of the project would be constructed in that area (refer to Figure 5.2).



Map: PS118591_ENV_005_A2 | Author: - R.Suansri

Date: 9/3/2020 | Approved by: - M.Maund

Data source: AECOM; Metromap;

0 100 200 m

1:10,000

Coordinate system: GDA 1994 MGA Zone 56

Scale ratio correct when printed at A3

BRIDGMAN SOLAR FARM

Figure 5.2
Bushfire

POTENTIAL IMPACTS

The facility would be battery ready with allowance made to install up to 20MW of battery storage (as part of future works). Future applications may consider the proposed batteries and as such a Preliminary Hazard Analysis would not be required for the EIS.

Electric energy produces electric and magnetic fields (EMF) and the Australian Radiation and Protection and Nuclear Safety Agency (ARPANSA) provides the following advice on powerlines:

> 'Powerlines and other electricity supply infrastructure such as transformers and substations as well as other electrical sources such as electrical wiring and common appliances (electric blankets, televisions, hair dryers, computers, etc) all produce extremely low frequency (ELF) electric and magnetic fields (EMF).
>
> The scientific evidence does not firmly establish that exposure to the electric and magnetic fields found around the home, the office or near powerlines causes health effects.' (ARPANSA, 2020).

A solar farm is not a special fire protection purpose and subdivision is not proposed so approval is not required from NSW Rural Fire Service for development on bushfire prone land.

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would address current understanding of EMF and relevant policies. A specialist Bushfire Threat Assessment would be prepared as part of the EIS to consider bushfire risk.

5.2.14 CUMULATIVE

PROPOSED ENVIRONMENTAL ASSESSMENT

The EIS would include discussion on cumulative environmental impacts of the proposal on the environment. The discussion would involve external developments that may be proposed and may interact with the solar farm and within project impacts that in combination may have a more significant impact that in isolation.

6 CONCLUSION

The Scoping Report has provided a summary of the proposed development that would be advanced through detailed design and involves a request for the SEARs. The proposal would be considered State Significant Development under SEPP (State and Regional Development) 2011 and assessed under Part 4 of the EP&A Act. An EIS would be prepared to consider environmental impacts from the proposed development, including relevant environmental planning instruments.

While relevant environmental issues would be considered in the EIS, at this stage the key issues are Aboriginal heritage, agricultural land, biodiversity, water quality and visual impact. The EIS would assess environmental impacts of the proposal and included appropriate mitigation measures to ameliorate the impact.

7 REFERENCES

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8 LIMITATIONS

This Report is provided by WSP Australia Pty Limited (*WSP*) for Mitsui & Co (Aust) Ltd (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 17 December 2019 and agreement with the Client dated 17 December 2019 (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

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APPENDIX A

AHIMS SEARCHES

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Bloom1

Client Service ID : 482454

WSP Australia Pty Ltd

Level 3 55 Bolton Street
Newcastle New South Wales 2300

Attention: Mark Maund

Email: mark.maund@wsp.com

Date: 07 February 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 3, DP:DP113540 with a Buffer of 50 meters, conducted by Mark Maund on 07 February 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Bloom3

Client Service ID : 482456

WSP Australia Pty Ltd

Level 3 55 Bolton Street
Newcastle New South Wales 2300

Attention: Mark Maund

Email: mark.maund@wsp.com

Date: 07 February 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 22, DP:DP816458 with a Buffer of 50 meters, conducted by Mark Maund on 07 February 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

4	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Bloom2

Client Service ID : 482455

WSP Australia Pty Ltd

Level 3 55 Bolton Street
Newcastle New South Wales 2300

Attention: Mark Maund

Email: mark.maund@wsp.com

Date: 07 February 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 73, DP:DP752455 with a Buffer of 50 meters, conducted by Mark Maund on 07 February 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

2	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : Bloom4

Client Service ID : 482458

WSP Australia Pty Ltd

Level 3 55 Bolton Street
Newcastle New South Wales 2300

Attention: Mark Maund

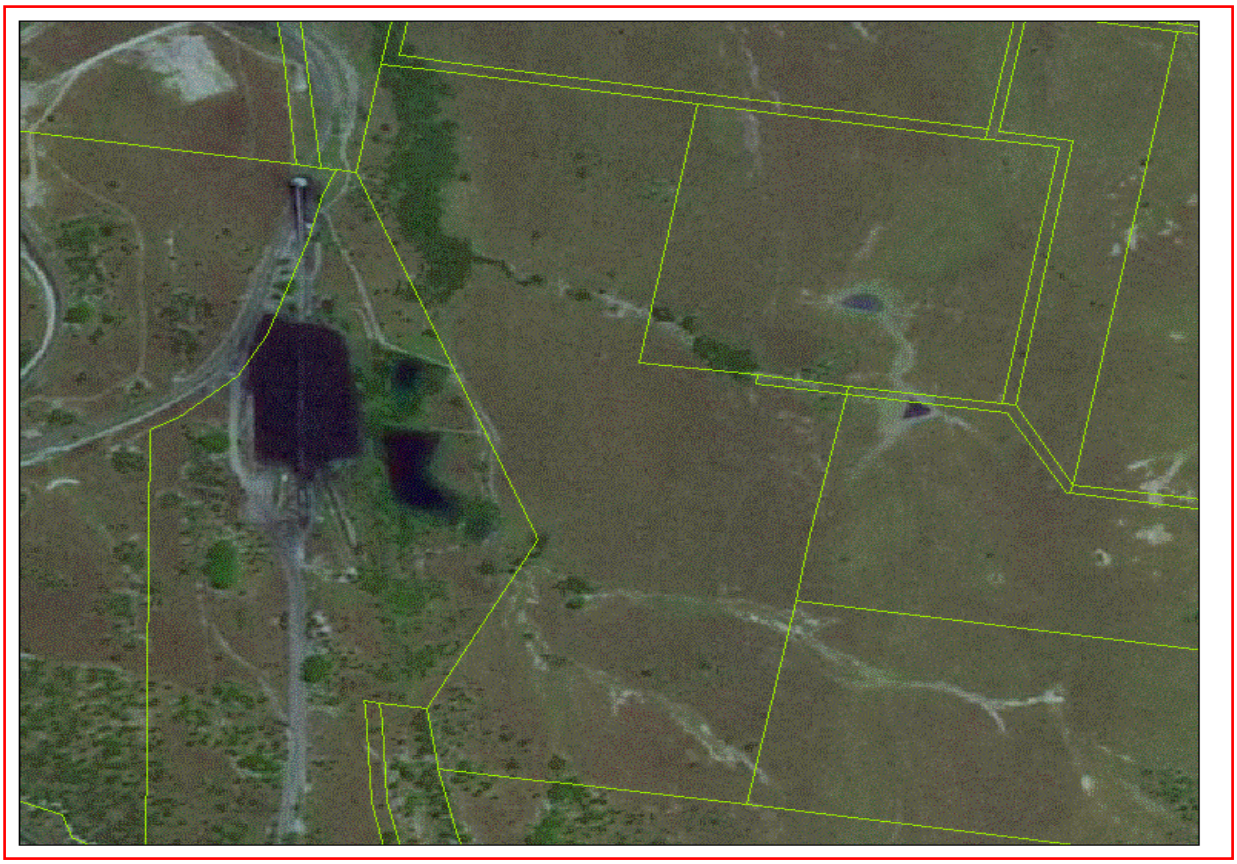
Email: mark.maund@wsp.com

Date: 07 February 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 240, DP:DP829334 with a Buffer of 50 meters, conducted by Mark Maund on 07 February 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

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ABOUT US

WSP is one of the world's leading engineering professional services consulting firms. We are dedicated to our local communities and propelled by international brainpower. We are technical experts and strategic advisors including engineers, technicians, scientists, planners, surveyors, environmental specialists, as well as other design, program and construction management professionals. We design lasting Property & Buildings, Transportation & Infrastructure, Resources (including Mining and Industry), Water, Power and Environmental solutions, as well as provide project delivery and strategic consulting services. With approximately 48,000 talented people globally, we engineer projects that will help societies grow for lifetimes to come.