Appendix X

Environmental review of proposed power supply to the mine development and pipeline development

REGIS RESOURCES LTD

McPhillamys Gold Project

Environmental review of proposed power supply to the mine development and pipeline development

August 2020

PREPARED FOR LFB RESOURCES NL

EMM
creating opportunities

EMM
creating opportunities

Servicing projects throughout Australia and internationally

SYDNEY
Ground Floor, 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE
Level 3, 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE
Level 1, 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

ADELAIDE
Level 4, 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE
Ground Floor, 188 Normanby Road
Southbank VIC 3006
T 03 9993 1905

PERTH
Suite 9.02, Level 9, 109 St Georges Terrace
Perth WA 6000
T 02 9339 3184

CANBERRA
PO Box 9148
Deakin ACT 2600

McPhillamys Gold Project

Environmental review of proposed power supply to the mine development and pipeline development

Report Number

J180395 RP10

Client

LFB Resources NL

Date

11 August 2020

Version

v2 Final

Prepared by

Mary-Anne Siebert
Senior Environmental Scientist
11 August 2020

Approved by

Janet Krick
Senior Environmental Planner
11 August 2020

Table of Contents

Tables

Figures

1 Introduction

1.1 Background to the McPhillamys project

LFB Resources NL, a 100% owned subsidiary of Regis Resources Ltd (Regis), is seeking State significant development consent under Division 4.1 of Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of the McPhillamys Gold Project (the project), a greenfield open cut gold mine and associated water supply pipeline in the Central West of New South Wales (NSW). The project application area for the McPhillamys Gold Project is illustrated at a regional scale in Figure 1.1.

The project comprises two key components:

- the mine site where the ore will be extracted and processed (herein referred to as the mine development), and;
- an associated water pipeline which will enable the supply of water from near Lithgow to the mine site (herein referred to the pipeline development).

The mine development is approximately 8 kilometres (km) north-east of Blayney within the Blayney and Cabonne local government areas (LGAs).

Up to 8.5 Million tonnes per annum (Mtpa) of ore will be extracted from the McPhillamys gold deposit over a total project life of 15 years. The mine development will include a conventional carbon-in-leach processing facility, waste rock emplacement, an engineered tailings storage facility (TSF) and associated mine infrastructure including workshops, administration buildings, roads, water management infrastructure, laydown and hardstand areas, and soil stockpiles.

Water will be supplied to the mine development via an approximately 90 km long pipeline, transferring surplus water from Centennial Coal Company Limited's (Centennial's) Angus Place Colliery (Angus Place) and Springvale Coal Services Site (SCSS), and Energy Australia NSW Pty Ltd's (Energy Australia's) Mount Piper Power Station (MPPS) near Lithgow, to the mine development.

The pipeline development will include approximately four pumping station facilities, pressure reducing systems and a communication system. The pipeline will have a nominal flow of 13 megalitres per day (ML/day) on average (and up to a maximum of 15.6 ML/day) to transfer water to the mine development for mining and processing operations.

1.2 Overview of project power supply

The construction and operation of the power supply for the project is subject to separate assessment under Part 5 of the EP&A Act and any relevant notification requirements (eg State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) Division 1 and Division 5 Clause 42).

The mine development will have an electricity requirement of 26–28 megawatts (MW). Electricity will be supplied to the mine development from the Transgrid 132 kV system Line 948 which passes between Bathurst and Orange approximately 10 km to north of the mine development project boundary.

Power will be supplied to pumping station facilities No.1 to No.3 via the existing Endeavour Energy network. Pumping station facility No.4 will be connected to the existing Essential Energy network. The pumping station facilities will have an estimated electricity requirement of up to500 kW for pumping station facility No.1, 1 MW for pumping station facility No.2, 1.8 MW for pumping station facility No.3 and 1 MW for pumping station facility No.4.

Ownership of the power supply infrastructure would be transferred to TransGrid, Endeavour Energy and Essential Energy, being the relevant electricity supply authorities, at the completion of construction. Accordingly, design and construction of the power supply infrastructure would be in accordance with the relevant electricity provider's construction and design standards.

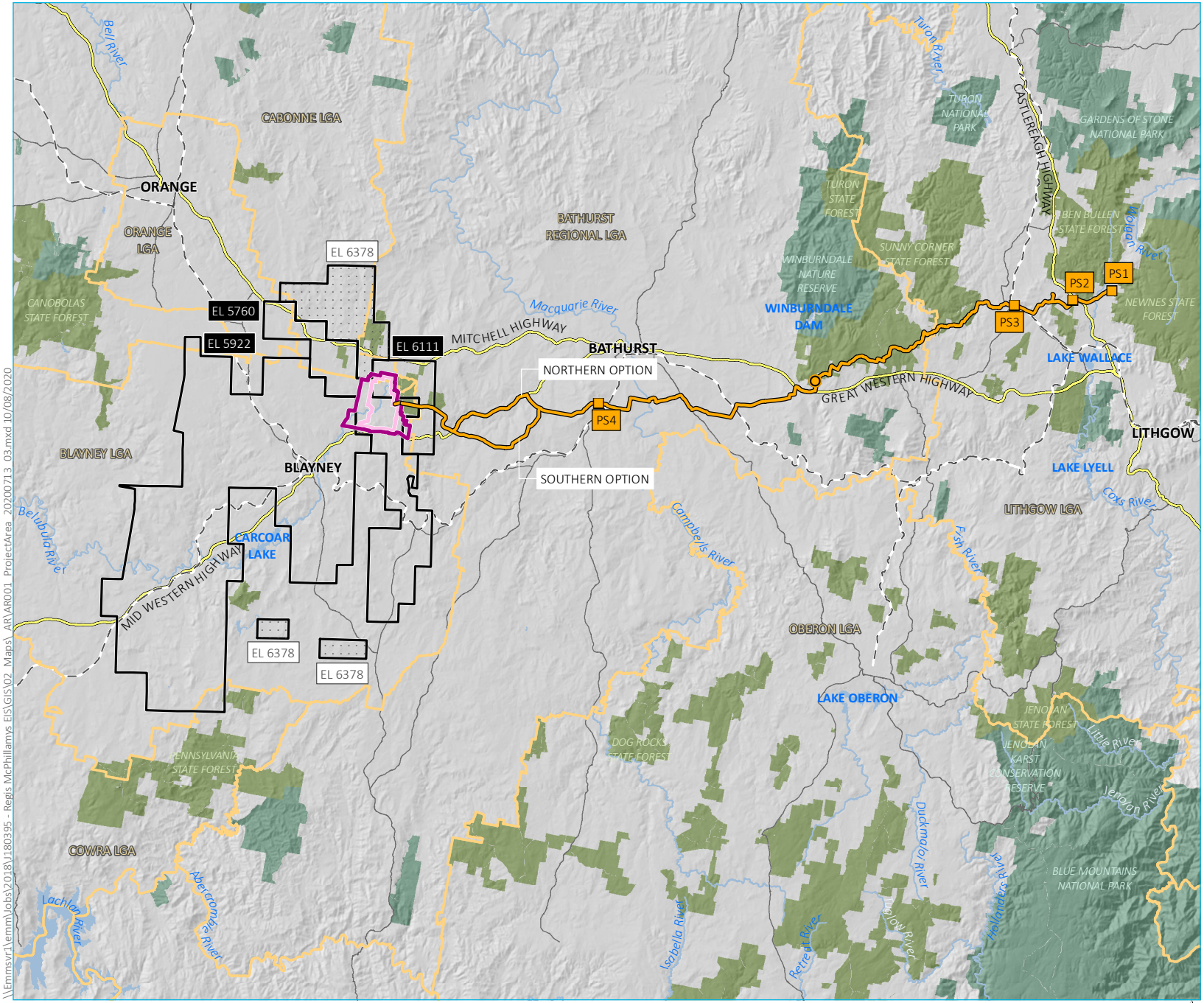
Regis has engaged Arcadis Australia Pacific Pty Ltd (Arcadis), an accredited service provider under the Electricity Supply (Safety and Network Management) Regulation 2014, to design the required power supply connections.

1.3 Purpose of this report

The purpose of this report is to assist the consent authority for the McPhillamys Gold Project to consider the likely impacts of the required power supply infrastructure for the project. Accordingly, this document:

- provides an overview of the respective power supply infrastructure required for the mine and pipeline developments, including identification of the proposed power line corridors and associated study areas;
- key environmental and land use constraints identified within the study areas requiring further assessment; and
- provides commentary on the anticipated biophysical, social and economic impacts of the power supply components required for the project.

The construction and operation of the different power supply infrastructure components will be assessed by the relevant electricity supply authority in accordance with the requirements of Part 5 of the EP&A Act. While this document provides some information on the likely impacts of the project's required power supply infrastructure, the environmental assessments for the respective power supply components will examine the impacts in further detail, in accordance with the EP&A Act and regulations.



KEY

Project application area
- Mine development project area (2,514.06 ha)
- Mining lease application area (1,806.17 ha) (Note: boundary offset for clarity)
- Pressure reducing system
- Pumping station facility
- Pipeline corridor

Existing environment
- Rail line
- Primary road
- Arterial road
- River
- Waterbody
- NPWS reserve
- State forest
- Local government area

Exploration lease boundaries (of interest)
- Held by LFB Resources NL (Regis)
- Held by others

Source: EMM (2020); Regis Resources (2020); DPE (2018); DFSI (2017); GA (2011)

0 10 20 km

GDA 1994 NSW Lambert

N

\\Emmsvr1\emmJobs\2018\J180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR\AR001 ProjectArea 20200713 03.mxd 10/08/2020

McPhillamys Gold Project – project application area

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 1.1

REGIS RESOURCES LTD

EMM creating opportunities

2 Overview of the project power supply

2.1 Study areas for power supply corridors

The study areas considered in this report consist of the proposed power supply corridors for the mine development and respective pumping station facilities each with a 500 m study area (refer Figure 1.1 to 1.6).

Key considerations in selection of the final power supply corridors will include:

- consultation with TransGrid, Endeavor Energy, Essential Energy and affected landholders;
- location of connection points into existing transmission network;
- interactions with Centennial infrastructure for pumping station facilities No.1 and No.2; and
- interactions with other services and utilities.

2.2 Overview of power supply for mine development

The mine development will have an electricity requirement of 26–28 MW. Electricity will be supplied from the Transgrid 132 kV system Line 948 which passes between Bathurst and Orange approximately 10 km to north of the mine development project boundary.

A new, approximately 15 km in length, overhead power line will be constructed, comprising poles and wires from a new substation on the Transgrid 132 kV system line, travelling in a north-south direction to the mine development. The power line will enter the mine project area through the northern boundary before travelling to the west of the tailings storage facility (TSF) to the mine development switchyard located to the north of the processing plant. The power line will require a 45 m wide easement (outside of the mine project area).

Of the 15 km, approximately 4 km will be located within the mine development project area and the remaining 11 km will be located to the north of the mine development.

The study area for the power supply corridor for the mine development is shown in (Figure 2.1).

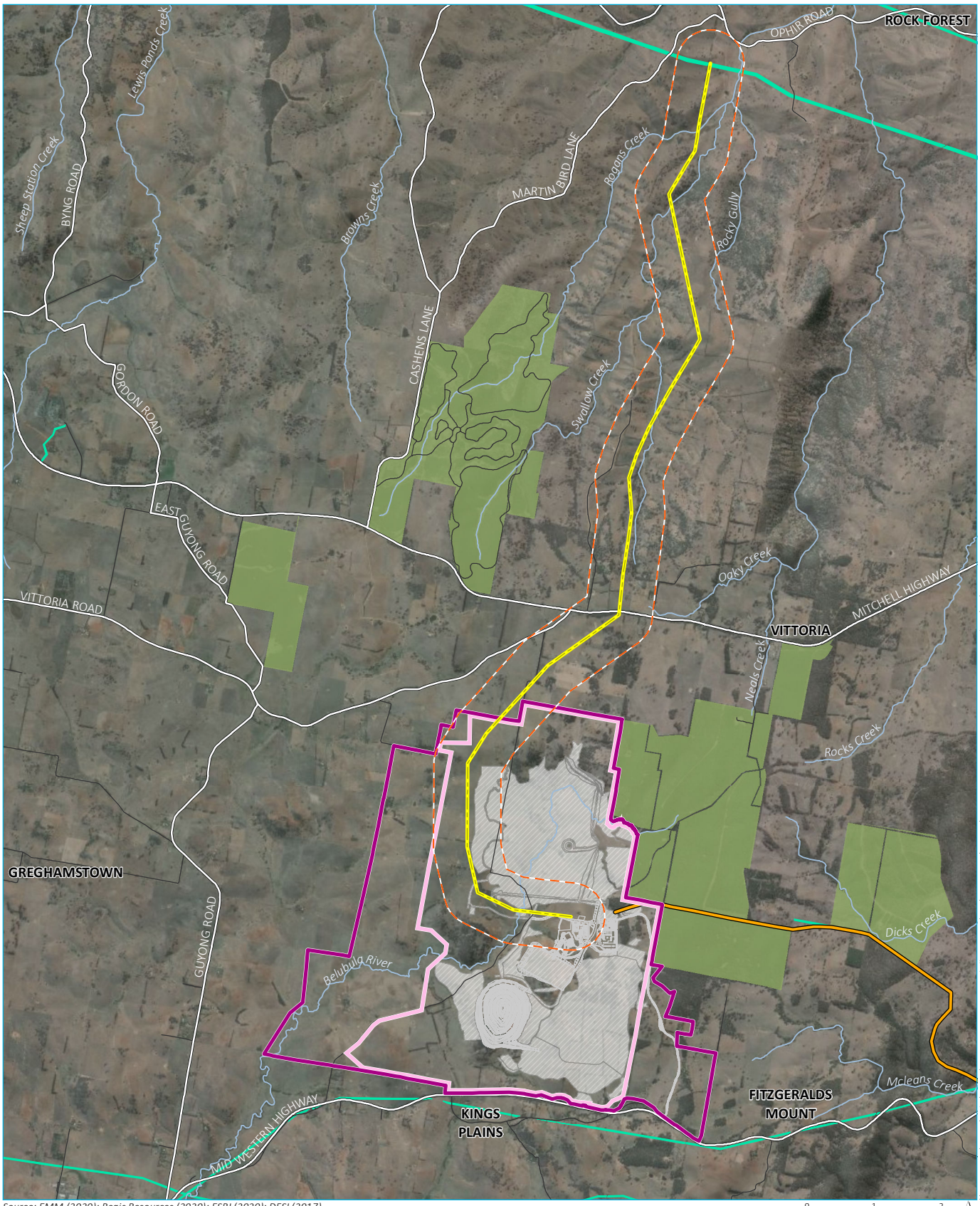
2.3 Overview of power supply for the pipeline development

Four pumping station facilities will be constructed to service the pipeline development. The pumping station facilities will each require establishment of new above ground power lines, within a 45 m easement, connecting to the existing Endeavor Energy (pumping station facilities No.1 No.3) and Essential Energy (pumping station facility No.4 (Essential Energy) networks. An overview of proposed power supply arrangements is provided in Table 2.1.

The study area for each power supply corridor for the respective pumping stations is shown in Figure 2.1 to Figure 2.4.

Table 2.1 Pumping station power supply overview

Pumping station facility	Pumping station facility name	Approximate length of proposed powerline	Comments
1	Angus Place	430 m	New above ground power line is required to connect pumping station facility No.1 to the existing Endeavour Energy power supply located 300-400 m to the west on the western side of Wolgan Valley Road. Power supply corridor will cross over Wolgan Valley Road. No sensitive receptors were identified within the study area. Refer Figure 2.1.
2	Springvale Coal Services Operations (SCSO)	70 m	New above ground power line required to connect the pumping station facility No.2 to the existing Endeavour Energy supply located 150–250 m to the north-east on the north-eastern side of the Castlereagh Highway. Power supply corridor will cross over the Castlereagh Highway and is located approximately 55 m from a rail line. Power supply corridor is located within 150 m of the Wallerawang Colliery. No sensitive receptors were identified within the study area. Refer Figure 2.2.
3	Pipers Flat Rd	210 m	New above ground power line required to connect the pumping station facility No.3 to the existing Endeavour Energy supply located 270 m to the south-west. Power supply corridor will cross Pipers Flat Road and also a rail line (the Gwabegar line). Power supply corridor is located approximately 3 km to the west of the MPPS. The nearest residential dwelling is located approximately 180 m to the east of the power supply corridor. Refer Figure 2.3.
4	Bathurst Bike Park	260 m	Power line is required to connect the pumping station facility No.4 to the existing Essential Energy supply located 250-350 m to the north within the Bathurst Waste Management Centre. The Bathurst Bike Park is located within the study area and the proposed power supply corridor for this pumping station facility will intersect a small area of the bike trail network. There are no residences within the study area. Refer Figure 2.4.



\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER001_ETLMineSA_20200803_01.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Mine development general layout
- Pipeline

Existing environment

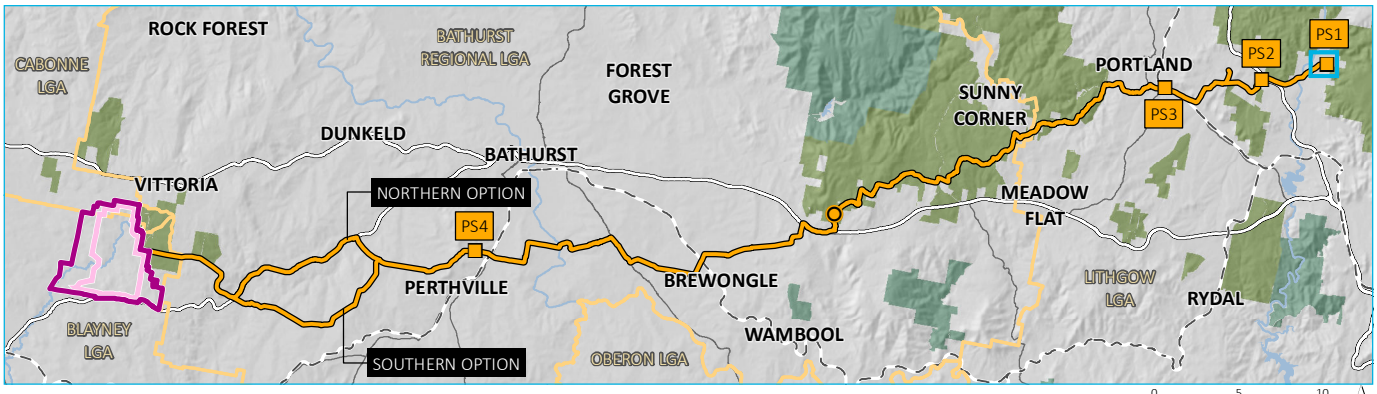
- Major road
- Minor road
- Named watercourse
- Easement
- Vittoria State Forest

Power supply route and study area – mine development

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 2.1

REGIS RESOURCES LTD

EMM creating opportunities



\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER002_PS1StudyArea_20200807_02.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017)

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

Existing environment

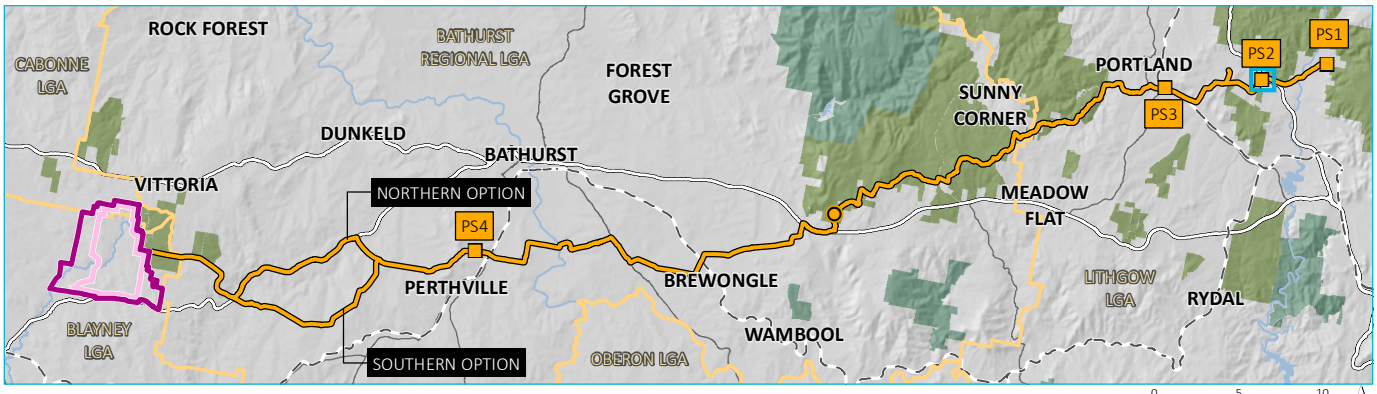
- Rail line
- Primary road (overview map) Major road (main map)
- Arterial road (overview map) Minor road (main map)
- River (overview map) Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Power supply route and study area – pumping station facility No.1

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 2.2

REGIS RESOURCES LTD

EMM creating opportunities



\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER003_PS2StudyArea_20200807_02.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017)

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

Existing environment

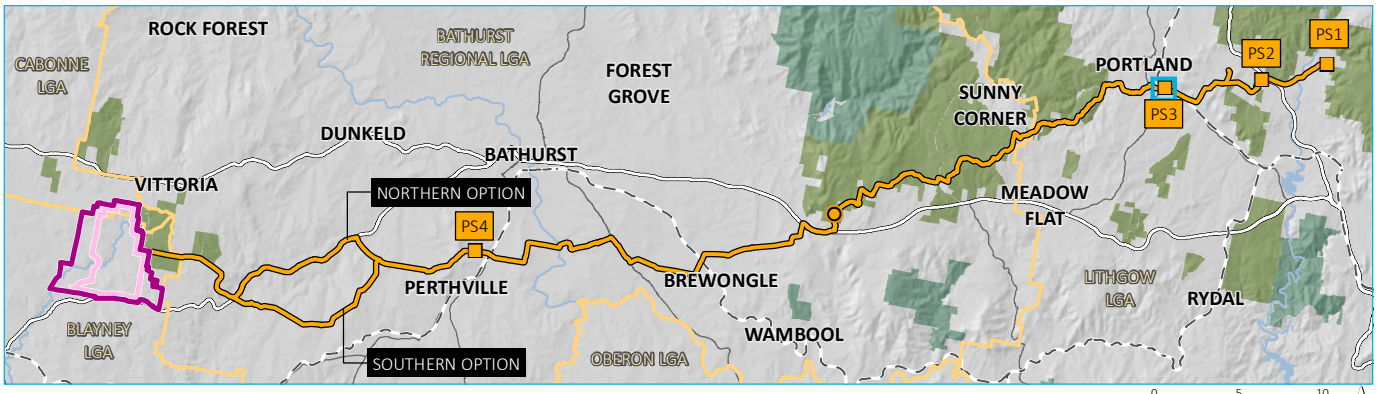
- Rail line
- Primary road (overview map) Major road (main map)
- Arterial road (overview map) Minor road (main map)
- River (overview map) Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Power supply route and study area – pumping station facility No.2

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 2.3

REGIS RESOURCES LTD

EMM creating opportunities



Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017)

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER004_PS3StudyArea_20200803_01.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

Existing environment

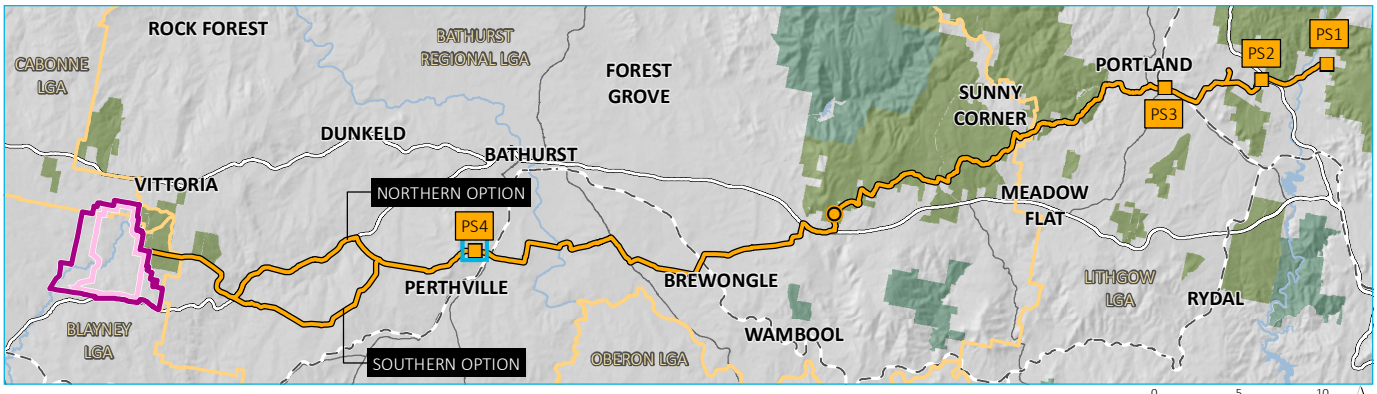
- Rail line
- Primary road (overview map) Major road (main map)
- Arterial road (overview map)
- River (overview map) Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- Easement
- NPWS reserve
- State forest
- Local government area

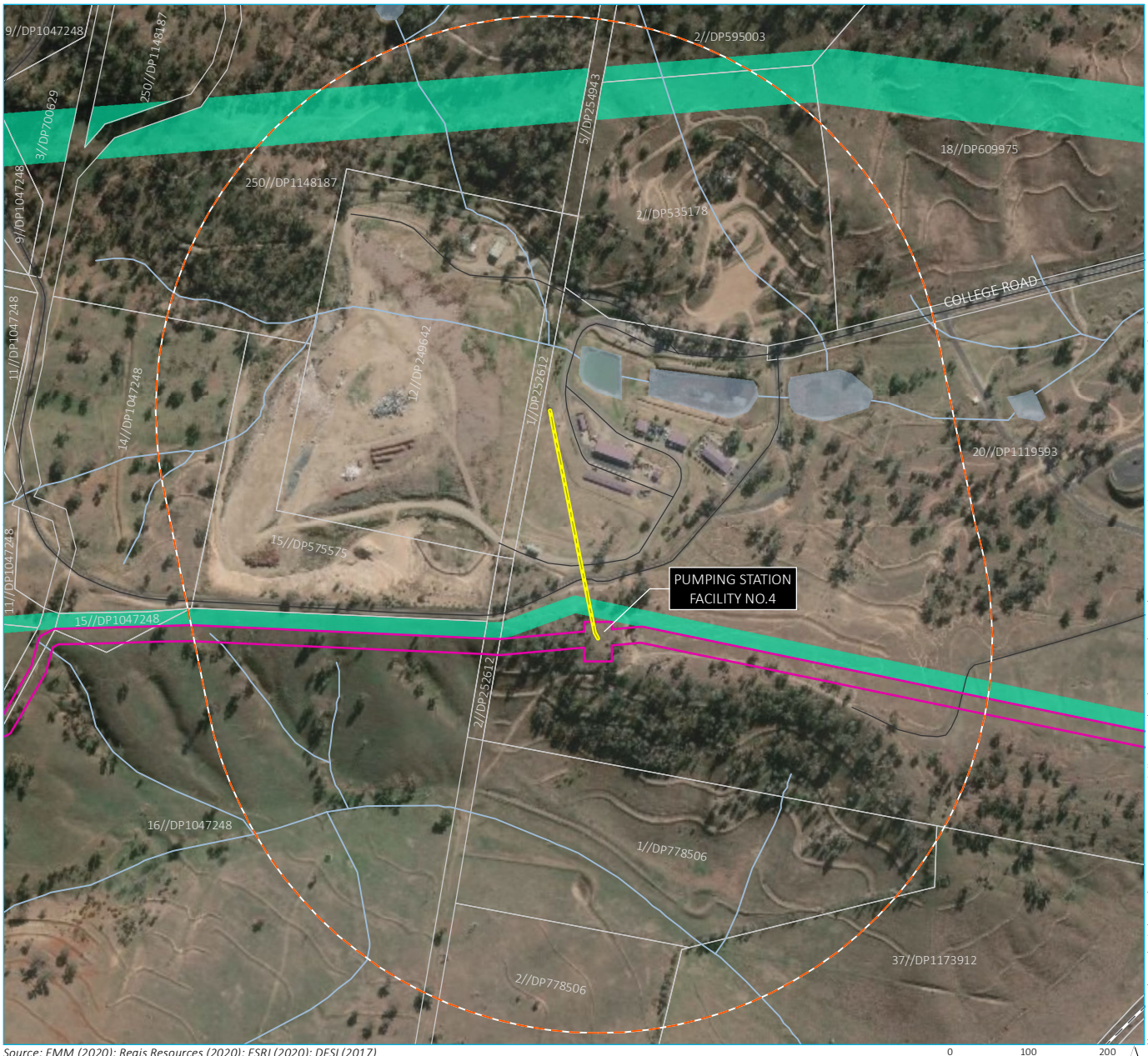
Power supply route and study area – pumping station facility No.3

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 2.4

REGIS RESOURCES LTD

EMM creating opportunities





Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017)

0 100 200 m
GDA 1994 MGA Zone 55
N

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER005_PS4StudyArea_20200807_02.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

Existing environment

- Rail line
- Primary road (overview map)
- Arterial road (overview map) Minor road (main map)
- River (overview map) Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- Easement
- NPWS reserve
- State forest
- Local government area

Power supply route and study area – pumping station facility No.4

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 2.5

REGIS RESOURCES LTD
EMM creating opportunities

2.5 Consultation

Arcadis, as the accredited service provider, is in ongoing consultation, on behalf of Regis, with TransGrid, Endeavour Energy and Essential Energy regarding energy and design requirements.

Regis is also in ongoing consultation with affected landholders regarding the final power supply corridor and design to mitigate potential impacts.

2.6 Proposed easement

An easement (nominally 45 m wide) will be created for the power supply to the mine development.

An easement (nominally 20 m wide) will be created for the power supply corridors for the pumping station facilities.

2.7 Proposed design, construction and operation

As noted above, as the ownership of the power supply developments will be transferred to TransGrid, Endeavour Energy and Essential Energy, design and construction of the power supply developments will be in accordance with the relevant electricity provider's construction and design standards.

The powerlines would be attached to approximately 18 m up to 24 m high poles. Each pole would be spaced at a distance ranging from approximately 80 m to 200 m.

2.7.1 Construction methods

Key construction activities are anticipated to comprise:

- establishment of construction works sites along each power supply corridor for the laydown of equipment and materials and to support plant and machinery;
- establishment of level construction benches in areas of uneven topography;
- installation of new poles and wires; and
- construction of new and repair of existing access tracks as required.

The precise construction methodology would be determined at the post-contract/construction stage.

The anticipated sequence of works during construction would include:

- survey work;
- installing pre-construction mitigation measures, such erosion, sediment and water quality controls, and fencing sensitive areas;
- relocating utilities and services (if required);
- clearing vegetation along the easement;
- establishing access tracks;
- erecting poles;

- stringing conductors and earth wire;
- testing and commissioning;
- rehabilitating topsoil and revegetation; and
- restoring the site (including general site clean-up, temporary construction facilities and temporary environmental controls).

It is expected that the construction compounds established for the construction of the respective pumping station facilities, will be utilised as construction compounds and laydown areas for the construction of the power supply infrastructure.

For the construction of the mine development power supply infrastructure, a construction compound and temporary laydown areas may be required to be established along the power supply corridor. These will be identified in the environmental assessment for the Part 5 approval, and would be located to avoid impacts on native vegetation, watercourse and sensitive receivers. The existing construction laydown areas for the construction of the mine development, within the mine development project area would be used for construction of the southern portion of the mine development power supply.

2.7.2 Construction hours and scheduling

Construction works are expected to be conducted predominantly during the Interim Construction Noise Guideline's (ICNG) (DECC 2009) standard construction hours from 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays, although some out of hours works may be required at the request of Transport for NSW (TfNSW) (ie road crossings) or property owners to minimise specific impacts. Any variations to the nominated construction hours will be communicated to relevant neighbouring landowners.

The construction schedule for the respective power supply developments will be determined by the construction contractor.

2.7.3 Operation and maintenance requirements

Key activities during operation would comprise supply of power and routine maintenance of the infrastructure.

Likely maintenance and operation activities associated with the power supply infrastructure would include but not limited to:

- vegetation trimming to maintain electrical safety clearances and asset protection zones;
- access track maintenance;
- unplanned fault and breakdown repairs;
- insulator and conductor repair;
- pole replacement where pole integrity is reduced; and
- routine inspections.

Maintenance will be conducted periodically and would consist of on-site attendance by small work groups using light vehicles and small to medium plant.

3 Environmental review

Detailed REFs describing and assessing the impacts of the respective power supply infrastructure components required to service the project will need to be prepared and submitted to the relevant electricity provider for determination. However as noted in Section 1.3, to assist the consent authority for the project to consider the likely impacts of this power supply infrastructure, this section considers the anticipated biophysical, social and economic impacts of the power supply components required for the project. This section also identifies key environmental and land use constraints identified within the respective study areas requiring further assessment in the Part 5 approval process.

3.1 Land ownership

3.1.1 Mine development power supply

The majority of the study area is freehold land with the exception of where the study area crosses the Mitchell Highway (a classified road). Regis own the land intersected by the proposed power supply corridor within the mine development project area, and land intersected by the proposed power supply corridor between the mine development and the Mitchell Highway. North of the Mitchell Highway, the power supply corridor intersects two land holdings before connecting to the TransGrid Line 948.

3.1.2 Pipeline development power supply

A summary of land ownership relevant to the pipeline development power supply requirements is provided below:

- Pumping station facility No.1 (Angus Place): The majority of the study area is Centennial owned freehold land with the exception of a portion in the south-east that is state forest (not in the vicinity of the proposed power supply corridor), road corridors and service easements.
- Pumping station facility No.2 (CSCO): The majority of the study area is Centennial owned freehold land. The proposed power supply corridor is located predominantly within the Pumping station facility No.2 compound before crossing the Castlereagh Highway (a classified road).
- Pumping station facility No.3 (Pipers Flat): The entire study area contains freehold land with the exception of Pipers Flat Road and the Gwabegar rail line and Range Road. The proposed power supply corridor crosses or runs in parallel with these roads and rail corridors.
- Pumping station facility No.4 (Bike Park): The proposed power supply corridor and the majority of the study area is freehold land owned by Bathurst Regional Council.

3.2 Land use

The proposed power supply infrastructure would not affect the continuing movement of people, vehicles, animals and machinery across the proposed route.

3.2.1 Mine development power supply

The study area is located within three Local Government Areas (LGAs):

- the northern portion is in the Bathurst Regional Council (on land zoned RU1 Primary Production under the Bathurst Regional Local Environmental Plan (LEP) 2014);

- the middle portion is in the Cabonne Council (on land zoned RU1 Primary Production under the Cabonne LEP 2012); and
- the southern portion is in Blayney Shire Council (on land zoned RU1 Primary Production under the Blayney LEP 2012).

The entire route is on land zoned RU1 Primary Production. Pursuant to State Environmental Planning Policy (Infrastructure) 2007, the power supply infrastructure will be permissible without consent (ie subject to Part 5 approval under the EP&A Act).

Existing land use within the study area is predominantly for agriculture, particularly grazing. The Mitchell Highway is also an important land use within the study area, representing a key transport link between Orange and Bathurst. Consultation with landholders would inform the final power supply corridor and design and would seek to mitigate potential impacts on existing land uses.

3.2.2 Pipeline development power supply

The proposed power supply infrastructure required for the respective pumping station facilities are located within two LGAs:

- Pumping station facility No.1 (Angus Place) is in the Lithgow LGA.
- Pumping station facility No.2 (SCSO)is in the Lithgow Local Government Area.
- Pumping station facility No.3 (Pipers Flat) is in the Lithgow Local Government Area.
- Pumping station facility No.4 (Bike Park) is in the Bathurst Regional Local Government Area.

All of the proposed power supply corridors are within land zoned as RU1 Primary Production under the above LEPs.

Land use in the vicinity of the proposed power supply corridors for pumping station facilities No.1 and No.2 is predominantly associated with existing Centennial mining operations with areas of agricultural land use and environmental management within the wider study areas.

Land use in the immediate vicinity of the proposed power supply corridor for pumping station facility No.3 is associated with transport infrastructure of Pipers Flat Road and Gwabegar rail line with areas of agricultural land use and environmental conservation and management in the wider study area.

Land use in the immediate vicinity of the proposed power supply corridor for pumping station facility No.4 is predominately associated with the Bathurst Bike Park (a mountain bike trail network) and the Bathurst Waste Management Centre.

3.3 Noise and vibration

Potential impacts to the existing noise and vibration environment would be likely limited to the construction phase, associated the vegetation clearance (for mine development power supply) and machinery and plant required to install the poles and wires. Construction noise impact activities will be temporary and transitory and occur predominantly during standard construction hours (refer Section 2.7.2) and in general accordance with the ICNG and the relevant electricity provider's requirements. Appropriate noise mitigation measures will be incorporated into the respective construction environmental management plans (CEMPs).

Noise will be assessed qualitatively in accordance with the ICNG in the respective REFs for the power supply developments. Noise or vibration impacts are not expected during the operation phase of the respective power supply developments.

3.3.1 Mine development power supply

The existing noise and vibration environment in the study area is primarily influenced by nearby farming activities and traffic flows on Mitchell Highway.

There are approximately 12 residential receivers within the study area (excluding Regis owned residences both within and to the north of the mine project area). The nearest residence to the proposed power supply corridor is located approximately 190 m from the proposed power supply corridor.

Potential noise and vibration impacts on these receivers will be assessed in the REF for the mine development power supply. Notwithstanding, based on the distance, temporal nature and scale of the construction activities, noise impacts are not anticipated to be significant.

3.3.2 Pipeline development power supply

i Pumping station facilities No.1 and No.2

The existing noise and vibration environment in the respective study areas for the power supply infrastructure for pumping station facilities No.1 and No.2 is expected to be predominately associated with the existing mining land use. The existing noise environment for pumping station facility No.2 is also influenced by the Castlereagh Highway. Any noise or vibration impacts resulting from the construction of the power supply infrastructure are unlikely to measurably exceed existing baseline levels.

There are no sensitive receivers located within the respective study areas.

ii Pumping station facility No.3

The existing noise and vibration environment in the study area is expected to be primarily influenced by transport infrastructure of Pipers Flat Road and Gwabegar rail line and the existing agricultural land use. The noise environment for the study area may also be influenced by the Mount Piper Power Station (MPPS) located approximately 3 km to the north-east.

There are approximately 6 sensitive receivers within the study area with the nearest residential receiver located approximately 160 m to the east of the proposed power supply corridor. Potential noise and vibration impacts on these receivers will be assessed in the relevant REF, notwithstanding, based on the distance, temporal nature and scale of the construction activities, noise impacts are not anticipated to be significant.

iii Pumping station facility No.4

The existing noise and vibration environment in the study area is expected to be primarily influenced by activities carried out at the Bathurst Waste Management Centre. People accessing this waste facility and the Bathurst Bike Park may be expected to experience low levels of disturbance due to the construction activities. These potential impacts will be assessed in the relevant REF. Based on the temporal nature and scale of the construction activities, noise impacts are not anticipated to be significant.

There are no residences within the study area.

3.4 Air quality

Air quality impacts will be predominantly associated with the construction phase and will likely comprise dust from excavation activities and dust and exhaust emissions from vehicle movements. Given the nature of the works, it is unlikely that there would be an odour impact. Construction activities will be temporary and transitory and will be undertaken in accordance with the CEMP, including appropriate dust mitigation controls.

Minor air quality impacts are expected during the operation phase associated with vehicle movements used for maintenance or repair activities.

3.5 Hydrology

Potential surface water impacts associated with the respective power supply developments, will be minimised by the placement of poles away from watercourses and the use of erosion and sediment control measures in accordance with *Managing Urban Stormwater Soils and Construction* (Landcom 2004), during construction of the respective power supply developments.

3.5.1 Mine development power supply

North of the Mitchell Highway the proposed power supply corridor crosses the following watercourses (Figure 3.1):

- Rogans Creek (Strahler order 4);
- Swallow Creek (Strahler order 5); and
- Jacksons Swamp (Strahler order 3).

A portion of Rocky Gully (a Strahler order 2 creek) also exists within the study area, but will not be crossed by the proposed power supply corridor.

South of the Mitchell Highway the proposed power supply corridor crosses the Belubula River within the mine development disturbance area. Upstream reaches of the Belubula River will be diverted around the mine disturbance area.

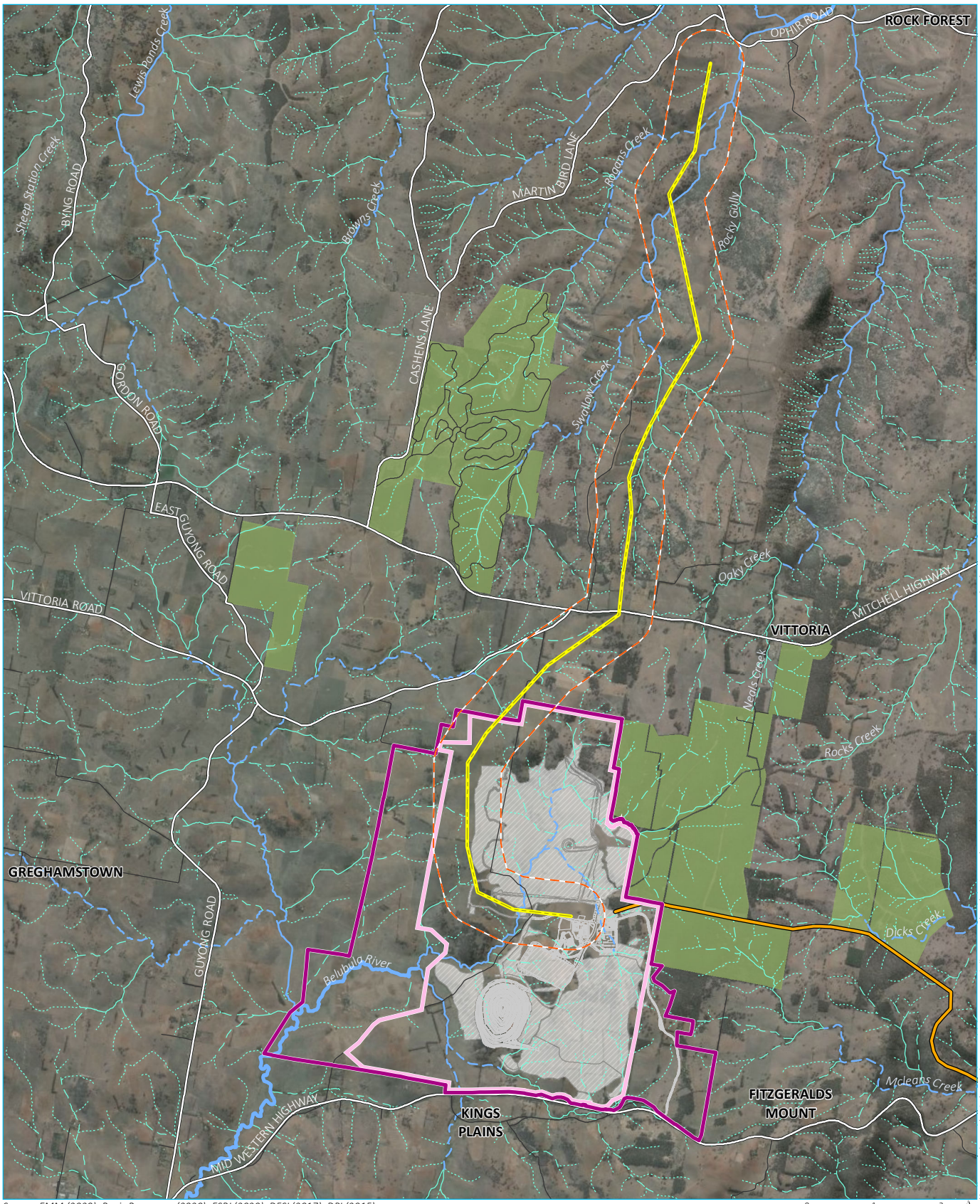
Provided appropriate sediment and erosion control management measures are implemented through the CEMP, indirect impacts on these watercourses are considered unlikely.

3.5.2 Pipeline development power supply

No watercourses will be intersected by the proposed power supply corridors for the pumping station facility power supply developments.

The following watercourse are within the respective study areas, however provided appropriate sediment and erosion control management measures are implemented through the respective CEMPs, no direct or indirect impacts on these watercourses are unlikely:

- Pumping station facility No.1: Kangaroo Creek (Strahler order 3);
- Pumping station facility No.2 Wangcol Creek (Strahler order 3);
- Pumping station facility No.3 Pipers Flat Creek (Strahler order 4); and
- Pumping station facility No.4: unnamed watercourse (Strahler order 2 and 3).



\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER006_MineHydrology_20200803_01.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); DFSI (2017); DPI (2015)

0 1 2 km

GDA 1994 MGA Zone 55

N

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Mine development general layout
- Pipeline

Existing environment

- Major road
- Minor road
- Vittoria State Forest

Strahler stream order

- 1st order
- 2nd order
- 3rd order
- 4th order
- 5th order
- 6th order

Hydrology – mine development power supply corridor

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.1

REGIS RESOURCES LTD

EMM creating opportunities

3.6 Soils and land capability

3.6.1 Mine development power supply

Elevations within the study area range from approximately 670 m Australian Height Datum (AHD) to approximately 1,010 m AHD.

A review of the eSpade mapping database and the Soil and Land Capability Assessment (SSM 2019) prepared for the EIS shows the study area is characterised by the Vittoria Blayney soil landscapes to the south of the Mitchell Highway and the Rocks soil landscape to the north of the Mitchell Highway. The soil landscapes and soil characteristics of the study area are summarised in Table 3.1.

Table 3.1 Soil profile – Mine development power supply

Soil landscape	Australian soil classification	Land and soil capability	Constraints
Rocks	Kurosols, Chromosols and Dermosols	4 and 5	Moderate erosion and structure degradation hazard. Moderate sheet erosion
Blayney Victoria	Chromosols and Dermosols	Predominantly 4	Moderate erosion and structure degradation hazard. Minor gullying

The eSpade mapping of the land and soil capability of the area shows a rating of 4 (moderate to severe limitations) south of the Mitchell Highway and moving into the entire mine project area. The land and soil capability worsens to 5 (severe limitations) north of the Mitchell Highway, along the proposed power supply corridor.

The majority of the study area, both to the south and just to the north of the Mitchell Highway, is mapped as having low potential for naturally occurring asbestos (NOA) (Division of Resources and Energy n.d).

A review of the eSpade mapping and SSM (2019 indicate there are no areas of acid sulphate soil (ASS) mapped in the broader Blayney and Bathurst areas. There is no biophysical strategic agricultural land (BSAL) mapping shown in the vicinity of the study area. Although it should be noted areas of BSAL were identified approximately 450 m to the south-west of the study area during the BSAL investigation for the mine development.

Erosion and sediment control measures would be implemented in accordance with the CEMP and Landcom 2004 to mitigate potential impacts on soils during construction. NOA will be assessed in the REF for the mine development power supply and if required a NOA procedure will be incorporated into the CEMP.

3.6.2 Pipeline development power supply

The EIS prepared for the McPhillamys Gold Project (EMM 2019) considered the existing soil resources within the pipeline development. A summary of the soils at each power supply corridor study area is provided below.

Erosion and sediment control measures will be implemented in accordance with the CEMP and Landcom 2004 to mitigate potential impacts on soils during construction.

i Pumping station facility No.1

The soil landscapes and soil characteristics in and near Pumping Station Facility No.1 power supply study area summarised in Table 3.2 (as reported in Appendix W of the EIS).

Table 3.2 Soil profile – Pumping station facility No.1

Soil landscape	Australian soil classification	Land and soil capability	Constraints
Cullen Bullen	Kurosols	4	Moderately gully erosion and minor sheet erosion common where cleared.

Kurosol soils generally have very low agricultural potential with high acidity and low chemical fertility.

There are no ASS or BSAL areas mapped in the vicinity of the study area.

ii Pumping station facility No.2 (SCSO)

The soil landscapes and soil characteristics in and near Pumping Station Facility No.2 power supply study area summarised in Table 3.3 (as reported in Appendix W of the EIS).

Table 3.3 Soil profile – Pumping station facility No.2

Soil landscape	Australian soil classification	Land and soil capability	Constraints
Disturbed terrain	Not applicable	Not applicable	Not applicable
Lithgow	Kurosols	4	Moderate gully erosion and along some drainage lines. Some sheet erosion.

Most of the study area consists of disturbed terrain. Adjacent areas are mapped as the Lithgow soil landscape comprising kurosol soils. As noted above, Kurosol's generally have very low agricultural potential with high acidity and low chemical fertility.

There are no ASS or BSAL areas mapped in the vicinity of the study area.

iii Pumping station facility No.3 (Pipers Flat)

The soil landscapes and soil characteristics in and near Pumping Station Facility No.3 power supply study area summarised in Table 3.4 (as reported in Appendix W of the EIS).

Table 3.4 Soil profile – Pumping station facility No.3

Soil landscape	Australian soil classification	Land and soil capability	Constraints
Capertee	Kurosols	6	Cleared land is susceptible to gully erosion
Lithgow	Kurosols	6 and 8	Moderate gully erosion and along some drainage lines. Some sheet erosion.

The proposed power supply corridor is located within the Capertee soil landscape with areas of the study area to the east mapped as the Lithgow soil landscape. Both of these landscapes comprise kurosol soils in the study area.

There are no ASS or BSAL areas mapped in the vicinity of the study area.

iv Pumping station facility No.4

The soil landscapes and soil characteristics in and near Pumping Station Facility No.4 power supply study area summarised in Table 3.5 (as reported in Appendix W of the EIS).

Table 3.5 Soil profile – Pumping station facility No.4

Soil landscape	Australian soil classification	Land and soil capability	Constraints
Bathurst	Chromosols	5	Severe gullying in drainage depressions

The Bathurst soil landscape comprises chromosols in the study area. These soils have a risk of gully erosion in drainage depressions.

There are no ASS or BSAL areas mapped in the vicinity of the study area.

3.7 Contamination

Localised, minor soil contamination has the potential to occur due to the proposed power supply developments but would be limited to accidental chemical spills during construction or maintenance activities and would be expected to be minor. Hydrocarbon management practises will be implemented to prevent hydrocarbon spills during construction, and spill containment materials will be available to clean up spills if they occur.

The potential for contamination to be encountered during construction of the respective power supply developments is considered in the sections below. Mitigation measures would be implemented to manage any unexpected contamination identified during construction, including the development of an unexpected finds protocol in relation to contamination. Such measures would be documented in the approved CEMP.

3.7.1 Mine development power supply

A search of the NSW Environmental Protection Authority (EPA) list of contaminated sites notified to the EPA undertaken on 28 May 2020 showed no contaminated sites listed in the study area.

The likelihood of contamination occurring in the mine project area was assessed in the EIS to determine whether the site was suitable for the uses proposed. The investigation concluded there was no material evidence of widespread or significant contamination activities and/or contamination sources in the project area. Regis has not encountered evidence of land contamination during any of its extensive exploration and environmental studies (EMM 2019). The agricultural land use to the north of the project boundary in the proposed power supply study area is comparable to that of the mine project area. No potentially contaminating activities arising from this agricultural land use (ie farm sheds, livestock drenching infrastructure) have been identified within the study area. Accordingly, contamination is not expected to be encountered during construction of the mine power supply development.

3.7.2 Pipeline development power supply

A search of the NSW EPA list of contaminated sites notified to the EPA undertaken on 12 July 2020 for the Lithgow City Council area and the Bathurst Regional Council areas showed no contaminated sites listed in the respective study areas.

The pipeline corridor passes through or close to the following sites which are identified in the NSW OEH contaminated sites notified to the EPA:

- Angus Place Colliery, Wolgan Road Lidsdale;
- Mount Piper Extension Development Site, 2847 Boulder Road Blackmans Flat;
- Lamberts Gully Mine, Castlereagh Highway Blackmans Flat;
- Ivanhoe Colliery, Pipers Flat Road Portland; and
- Mt Piper Power Station, 350 Boulder Road Portland.

Each site is identified as "Regulation under CLM Act not required", meaning that the EPA has completed an assessment of the contamination and decided that regulation under *the Contaminated Land Management Act 1997* is not required. Accordingly, contamination is not expected to be encountered during construction of the pipeline power supply developments. Notwithstanding any excess soil emanating from Centennial's Angus Place or SCSO to be disposed of off-site will be characterised and disposed of in accordance with the waste classification guidelines (EPA 2014).

3.8 Biodiversity

Potential biodiversity impacts for the respective power supply developments are considered below.

3.8.1 Mine development power supply

The biodiversity of the mine development power supply study area within the mine development project area has been assessed by EMM (2020) including detailed mapping of plant community types (PCTs). Regional vegetation mapping to the north of the mine development project area has been reviewed and this has informed the proposed power supply corridor.

Regional vegetation mapping indicates the following PCT within the study area to the north of the mine development project boundary:

- PCT 727 – Broadleaved Peppermint – Brittle Gum – Red Stringybark dry open forest on the South Eastern Highlands Bioregion; and
- PCT 1330 – Yellow Box -Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion.

Within the mine development project area, the power supply study area predominately avoids native vegetation apart from small patches of the above PCTs (as mapped by EMM 2020).

Based on the results obtained during surveys for the mine development, all patches of PCT 1330 to the north of the mine development project area are likely to align with the *Biodiversity Conservation Act 2016* (BC Act) listed White Box - Yellow Box – Blakely's Red Gum Woodland (EES 2019), while patches with a condition class of medium and high are likely to align the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and derived Native Grassland (DoE 2019).

The PCTs in the study area are shown in Figure 3.2.

Further biodiversity assessment, including field surveys will be carried out to accurately map the extent of PCTs and threatened species habitats to support the REF. Field survey should comprise mapping vegetation and habitat assessment for threatened species within the power supply study area. Field surveys would give greater certainty over the area of native vegetation, threatened ecological communities and threatened species habitats to be removed, and facilitate robust impact assessment in accordance with the BC Act.

3.8.2 Pipeline development power supply

A revised biodiversity assessment for the pipeline development (EMM 2020) has mapped native vegetation in the pipeline corridor. This vegetation mapping is shown in the context of the respective pumping station facilities power supply developments in Figure 3.3 to Figure 3.6. Any vegetation clearing or disturbance required as part of the power supply developments, would be assessed in accordance with the requirements of relevant NSW and Commonwealth legislation.

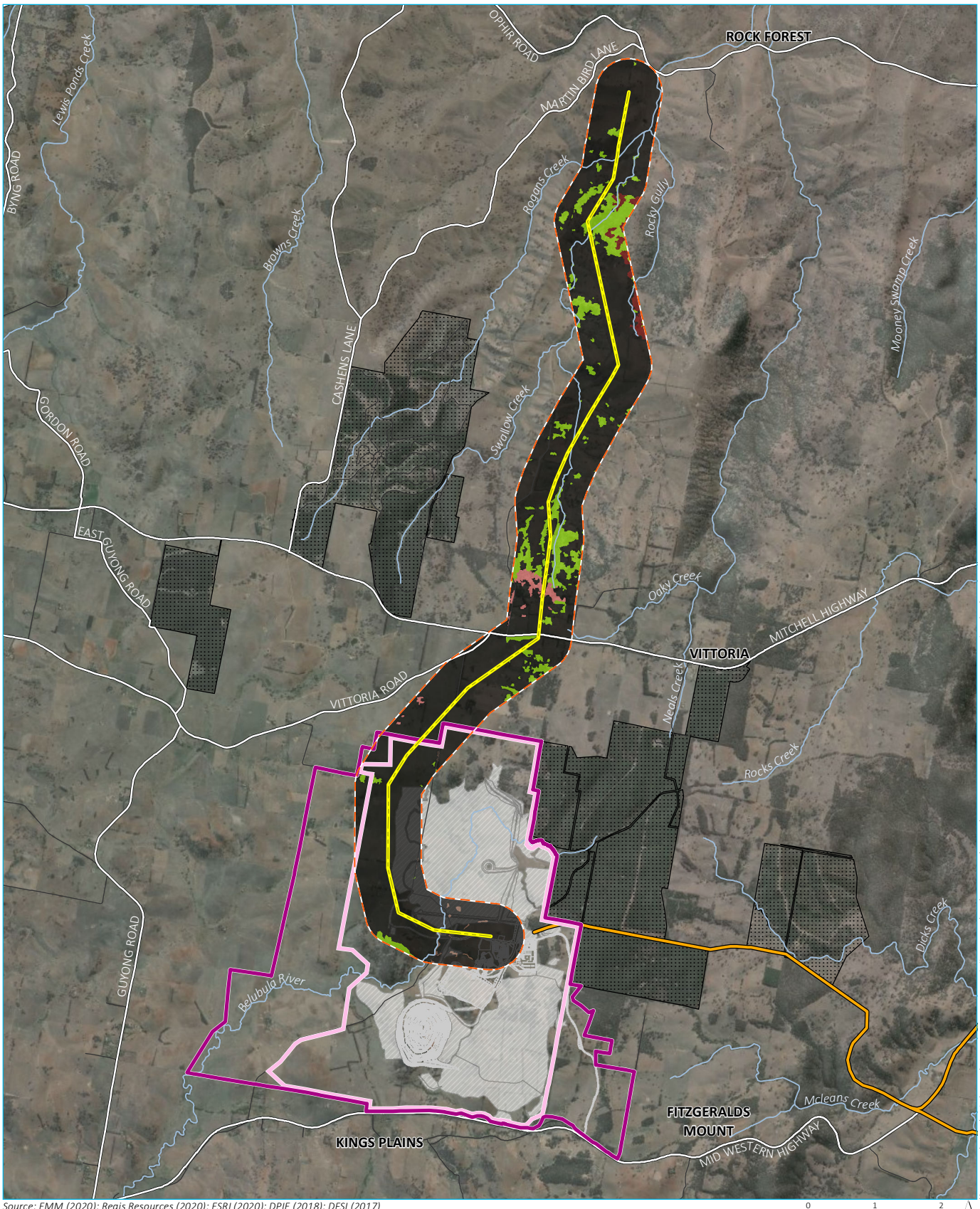
Potential biodiversity impacts for each power supply development are summarised as follows:

- Pumping station facility No.1 – proposed power supply corridor follows existing access track in areas previously disturbed by mining land use. Minor removal and trimming of native vegetation may be required to install the above ground power line.

- Pumping station facility No.2 – proposed power supply corridor does not intersect and is not located in the immediate vicinity to native vegetation, accordingly no impacts on native vegetation will occur.

- Pumping station facility No.3 – proposed power supply corridor is not located in areas of mapped native vegetation. Minor trimming may be required.

- Pumping station facility No.4 – proposed power supply corridor intersects an area of EPBC listed Box Gum Woodland directly to the north of the pumping station facility compound. However, the proposed power supply development is not expected to significantly impact threatened species or ecological communities, or their habitats based on a 20 m easement combined with the implementation of appropriated avoidance measures, including micro siting of power poles, to avoid clearance of native vegetation as far as practicable.



Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2018); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER007_MinePCTs_20200810_02.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Mine development general layout
- Pipeline

Existing environment

- Major road
- Minor road
- Named watercourse
- Vittoria State Forest
- Non-native

Plant community types (SVTM Central Tablelands v1.0 VIS 4778; EMM (2019); EnviroKey (2017))

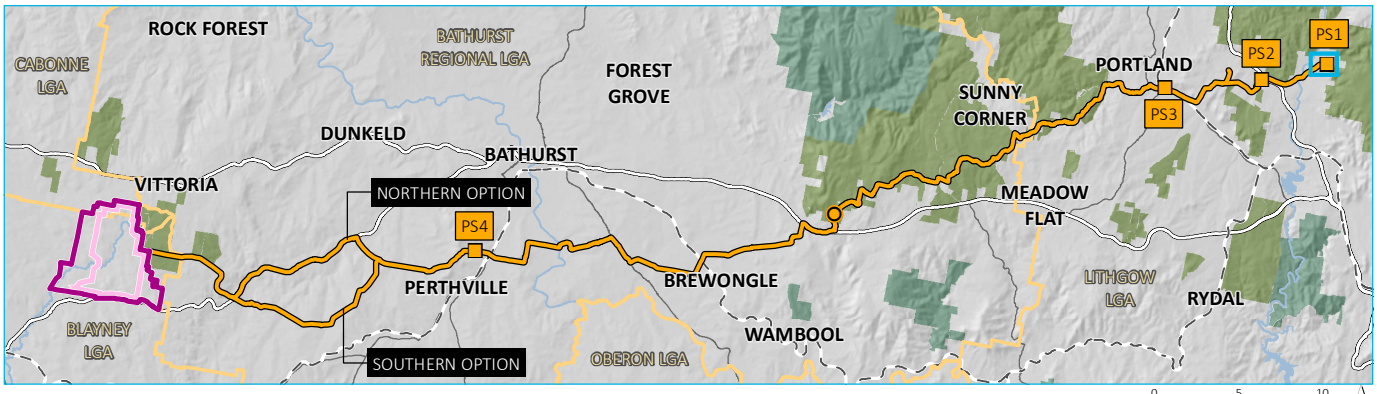
- PCT 727 | Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion
- PCT 797 | Derived grassland of the South Eastern Highlands Bioregion and South East Corner Bioregion
- PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion
- PCT 1101 | Ribbon Gum - Snow Gum grassy open forest on flats and undulating hills of the eastern tableland, South Eastern Highlands Bioregion
- PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

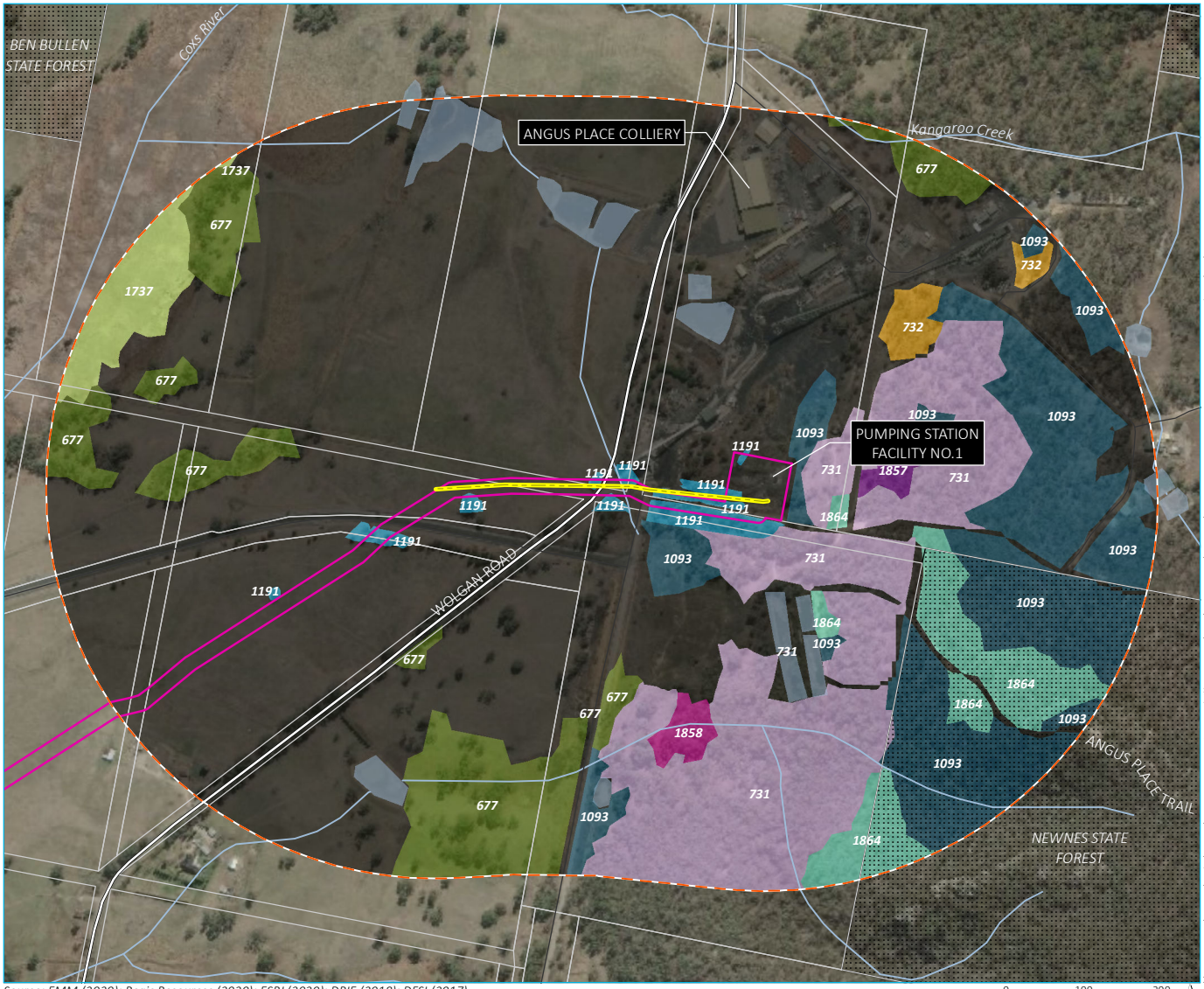
Plant community types – mine development power supply

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.2

REGIS RESOURCES LTD

EMM creating opportunities





\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER008_PS1PCTs_20200810_03.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2018); DFSI (2017)

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

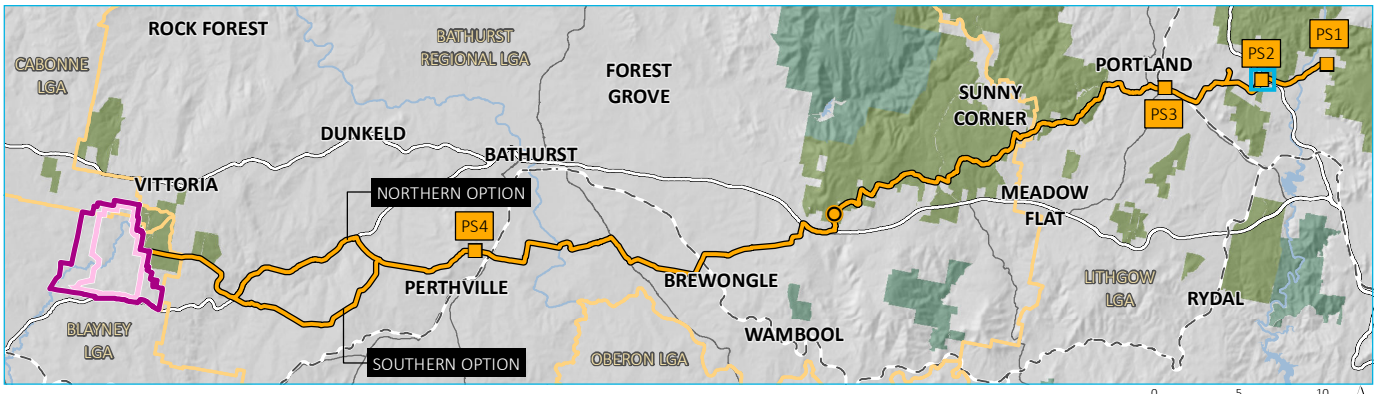
Existing environment
- Rail line
- Primary road (overview map)
- Major road (main map)
- Arterial road (overview map)
- Minor road (main map)
- River (overview map)
- Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- State forest (main map)
- State forest (overview map)
- NPWS reserve (overview map)
- Local government area
- Non-native vegetation

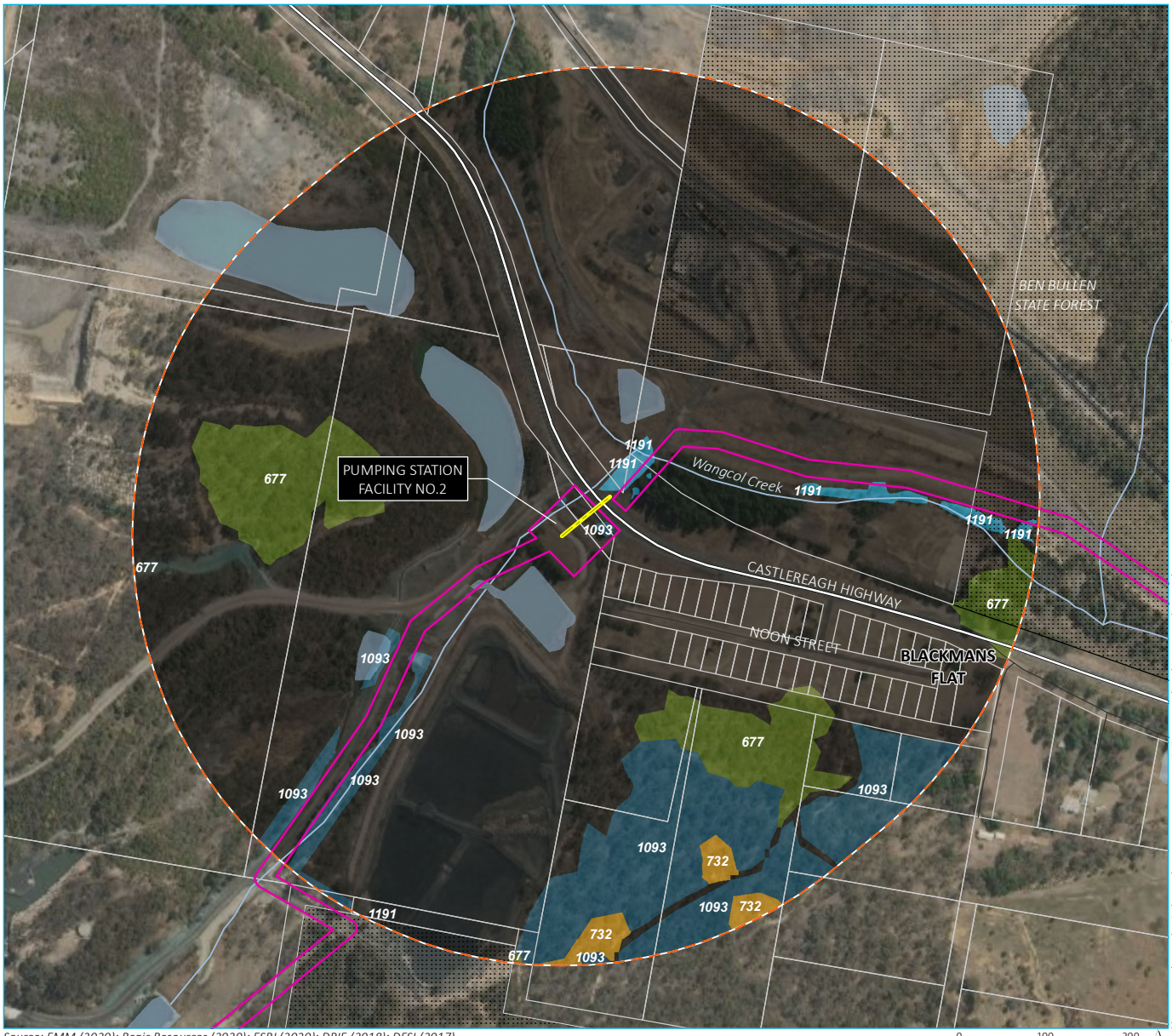
Plant community types (SVTM Central Tablelands v0.1 VIS 4778; EMM (2020))
- PCT 677 | Black Gum grassy woodland of damp flats and drainage lines of the eastern Southern Tablelands, South Eastern Highlands Bioregion
- PCT 731 | Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion
- PCT 732 | Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion
- PCT 1093 | Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion
- PCT 1191 | Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion
- PCT 1737 | Typha rushland
- PCT 1857 | Central Tableland Sand-slope Scribbly Gum Woodland
- PCT 1858 | Cudgegong Footslopes Forest
- PCT 1864 | Western Blue Mountains Pagoda Woodland

Plant community types – pumping station facility No. 1

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.3

REGIS RESOURCES LTD
EMM creating opportunities





Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2018); DFSI (2017)

0 100 200 m
GDA 1994 MGA Zone 55
N

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER009_PS2PCTs_20200810_03.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility

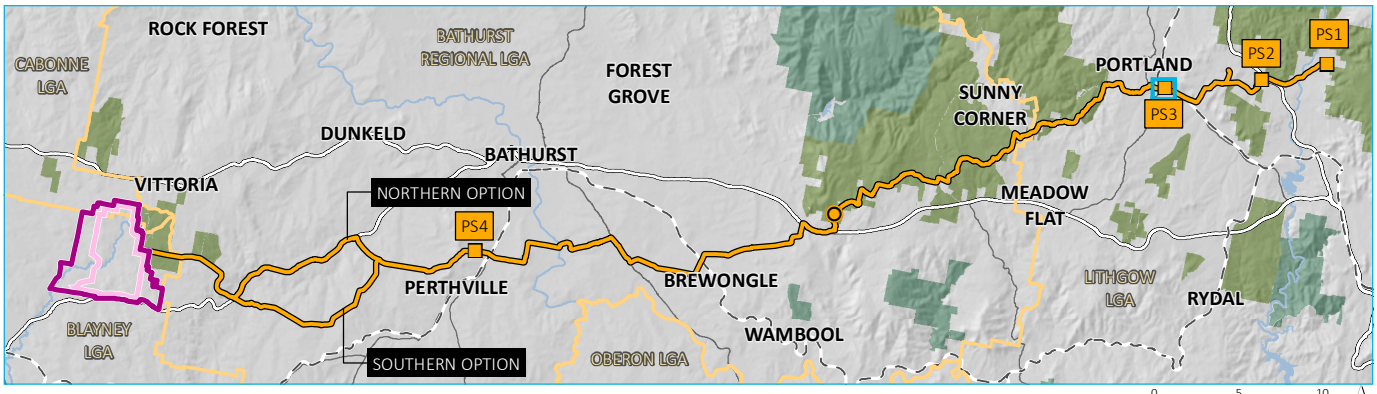
Existing environment
- Rail line
- Primary road (overview map)
- Major road (main map)
- Arterial road (overview map)
- Minor road (main map)
- River (overview map)
- Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- State forest (main map)
- State forest (overview map)
- NPWS reserve (overview map)
- Local government area
- Non-native vegetation

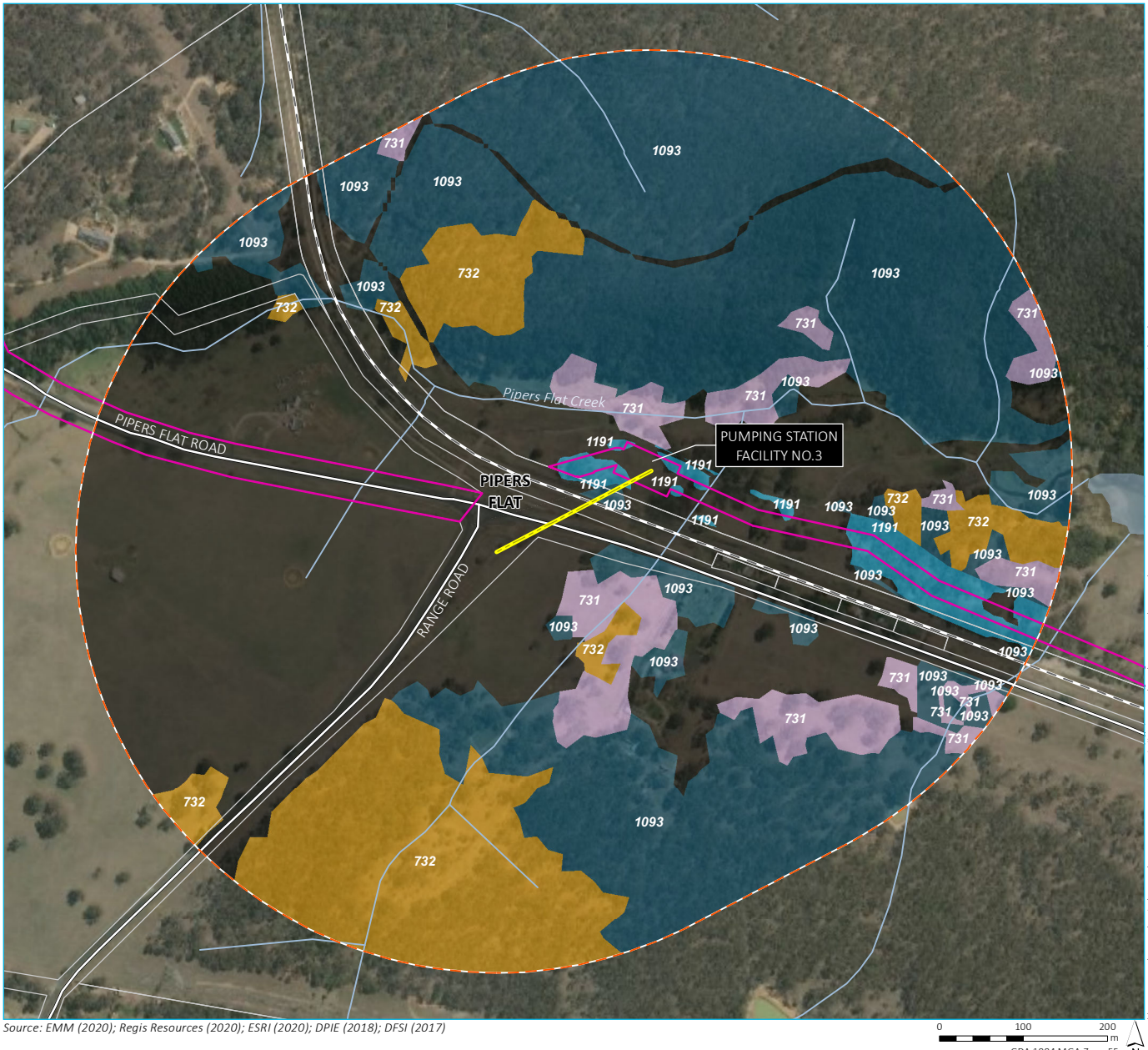
Plant community types (SVTM Central Tablelands v0.1 VIS 4778; EMM (2020))
- PCT 677 | Black Gum grassy woodland of damp flats and drainage lines of the eastern Southern Tablelands, South Eastern Highlands Bioregion
- PCT 732 | Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion
- PCT 1093 | Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion
- PCT 1191 | Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion

Plant community types – pumping station facility No. 2

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.4

REGIS RESOURCES LTD
EMM creating opportunities





Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2018); DFSI (2017)

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER010_PS3PCTs_20200810_03.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility
- Pipeline

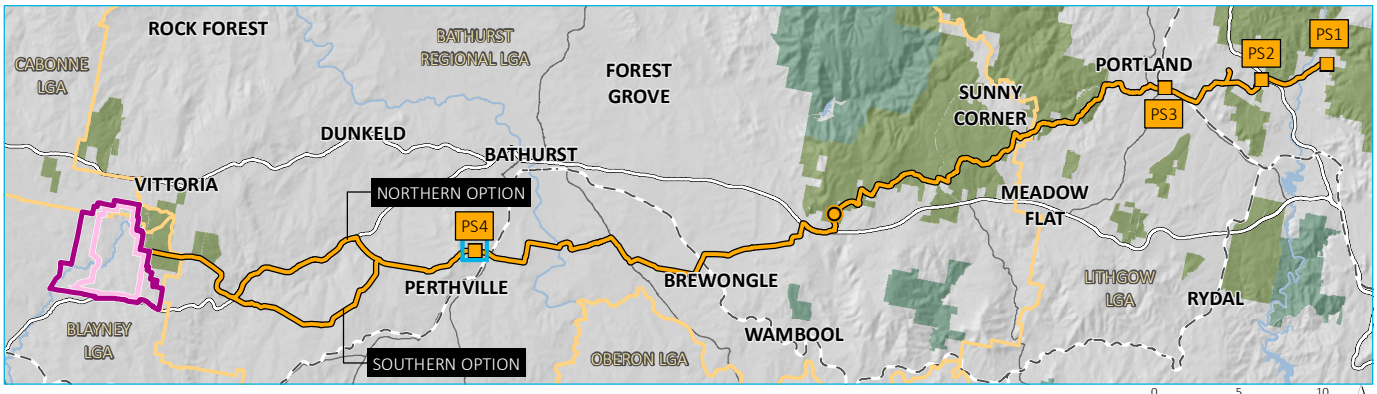
Existing environment
- Rail line
- Primary road (overview map)
- Major road (main map)
- Arterial road (overview map)
- River (overview map)
- Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- NPWS reserve (overview map)
- State forest (overview map)
- Local government area
- Non-native vegetation

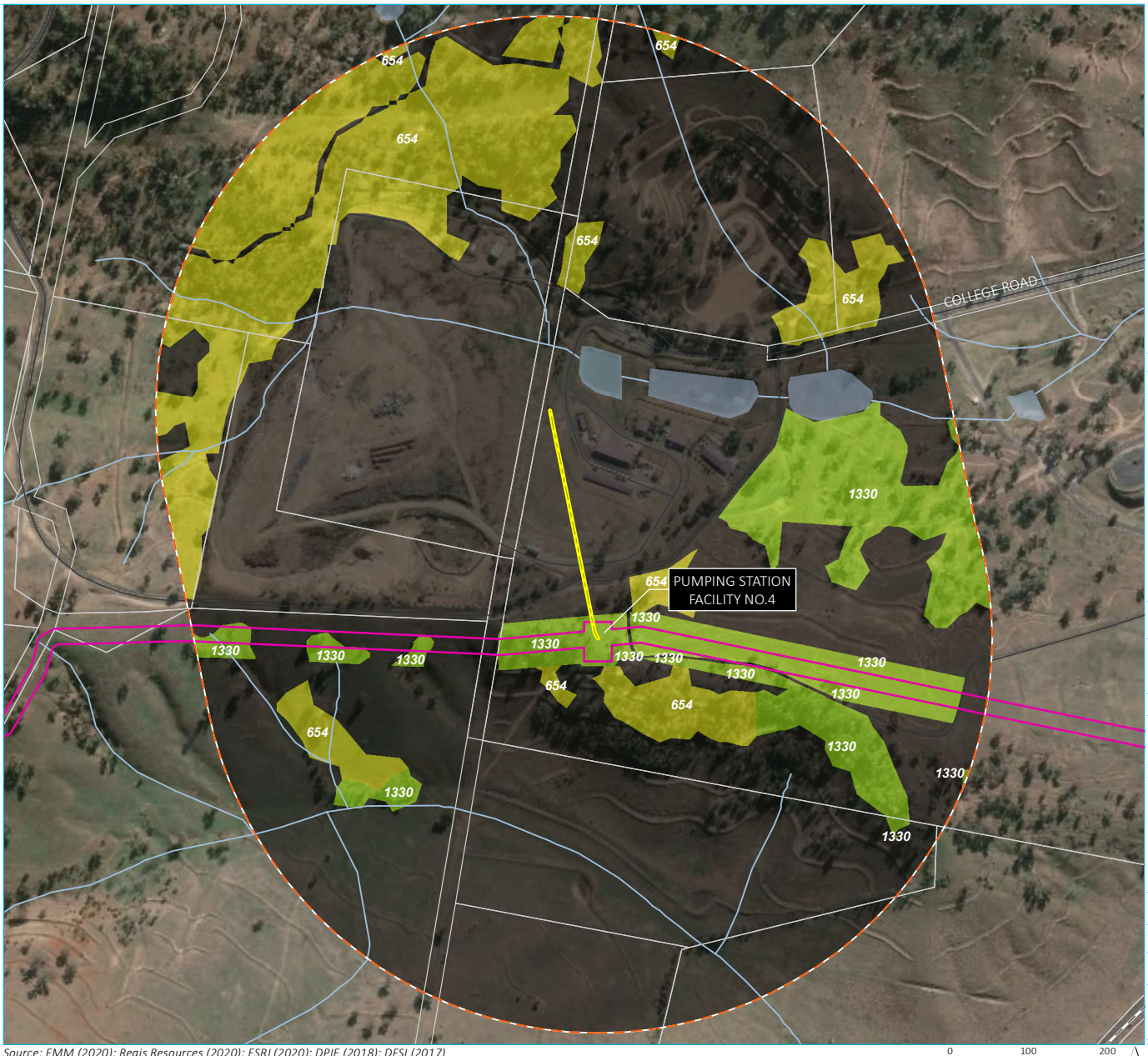
Plant community types (SVTM Central Tablelands v0.1 VIS 4778; EMM (2020))
- PCT 731 | Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion
- PCT 732 | Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion
- PCT 1093 | Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion
- PCT 1191 | Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion

Plant community types – pumping station facility No. 3

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.5

REGIS RESOURCES LTD
EMM creating opportunities





Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2018); DFSI (2017)

0 100 200 m
GDA 1994 MGA Zone 55
N

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER011_PS4PCTs_20200810_03.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pipeline corridor
- Pressure reducing system
- Pumping station facility

Existing environment
- Rail line
- Primary road (overview map)
- Arterial road (overview map)
- Minor road (main map)
- River (overview map)
- Watercourse/drainage line (main map)
- Waterbody
- Cadastral boundary
- NPWS reserve (overview map)
- State forest (overview map)
- Local government area
- Non-native vegetation

Plant community types (SVTM Central Tablelands v0.1 VIS 4778; EMM (2020))
- PCT 654 | Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion
- PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

Plant community types – pumping station facility No. 4

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.6

REGIS RESOURCES LTD
EMM creating opportunities

3.9 Bushfire

Areas within each of the respective power supply developments have been mapped as bushfire prone land. The developments represent an ignition risk during construction and operation. The respective power supply developments would be designed, constructed and maintained to comply with the relevant electricity provider's guidelines in relation to vegetation safety clearances and bushfire management.

Bushfire risk will be managed for the life of the respective power supply developments through the implementation of an approved bushfire management plan prepared in accordance with the relevant sections of Planning for Bush Fire Protection 2019 (NSW Rural Fire Service).

3.10 Aboriginal cultural heritage

A review of the Aboriginal Cultural and Historic Heritage Assessments for the mine development (Landskape 2019) and pipeline development (OzArk 2019) was carried out to identify potential Aboriginal cultural heritage constraints within the respective study areas. In addition, a search of the Aboriginal Heritage Information Management System (AHIMS) was conducted for the mine power supply study area.

Two Aboriginal cultural heritage items identified during the mine development Aboriginal cultural heritage assessment (Landskape 2019), namely isolated finds (ID MGP-A37 and MGP-A26) are recorded within the study area outside of the mine disturbance footprint (Figure 3.7). These have been previously documented in the EIS. The AHIMS search identified no sites in the study area to the north of the mine development project area.

A review of the Aboriginal cultural heritage assessment for the pipeline development (OzArk 2019) did not identify any items of Aboriginal cultural heritage in the vicinity of the proposed power supply corridors.

Based on this information, it is expected that the power supply developments would not significantly impact Aboriginal cultural heritage with the completion of assessments in accordance with the relevant guidelines and implementation of appropriate avoidance and mitigation measures. Aboriginal cultural heritage will be managed in accordance with the construction environmental management plan (CEMP). The CEMP will include an unanticipated finds protocol to prevent unintended impacts to items or features of Aboriginal cultural heritage.

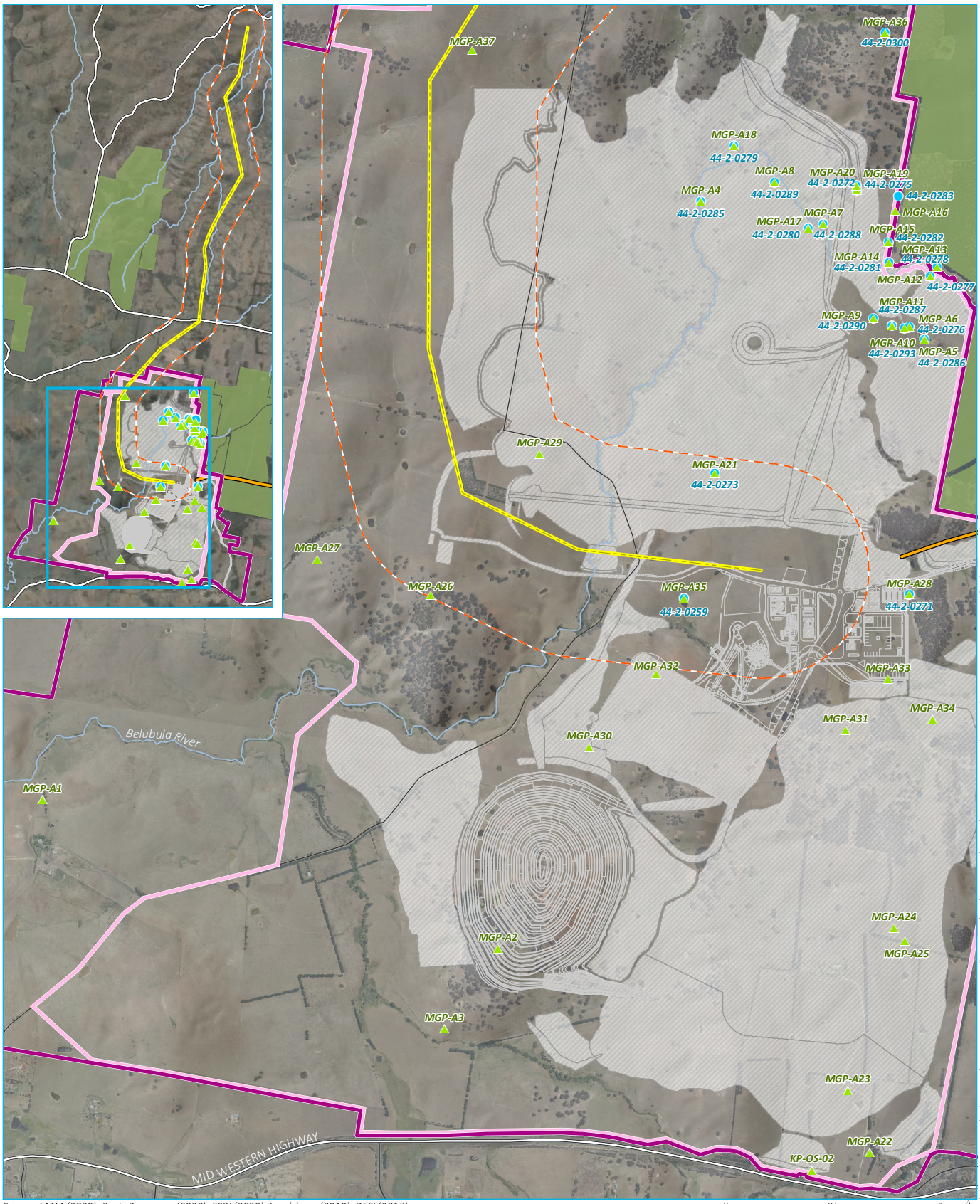
3.11 Historic heritage

A review of the Aboriginal Cultural and Historic Heritage Assessments for the mine development (Landskape 2019) and OzArk 2019) was carried out to identify potential historic heritage constraints within the respective study areas

One historical heritage site, Hallwood Farm Complex (MGP-H23), is recorded within the study area, however outside of the mine disturbance footprint (refer Figure 3.8). This site, while not listed on local or state heritage registers, was identified during the mine historical heritage assessment as having potential state significance (Landskape 2019). The site is located approximately 300 m from the proposed power supply corridor and accordingly impact on this item is not anticipated.

There are no historic heritage items in the vicinity of the proposed power supply corridors for the respective pumping station facilities.

Historical heritage will be managed in accordance with the construction environmental management plan (CEMP). The CEMP will include an unanticipated finds protocol to prevent unintended impacts to items or features of historic heritage.



\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER012_MineAboriginal_20200803_01.mxd 10/08/2020

Source: EMM (2020); Regis Resources (2020); ESRI (2020); Landskape (2019); DFSI (2017)

0 0.5 1 km

GDA 1994 MGA Zone 55

N

KEY

- AHIMS site
- Aboriginal heritage site (Landskape, 2019)
- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Mine development general layout
- Pipeline

Existing environment

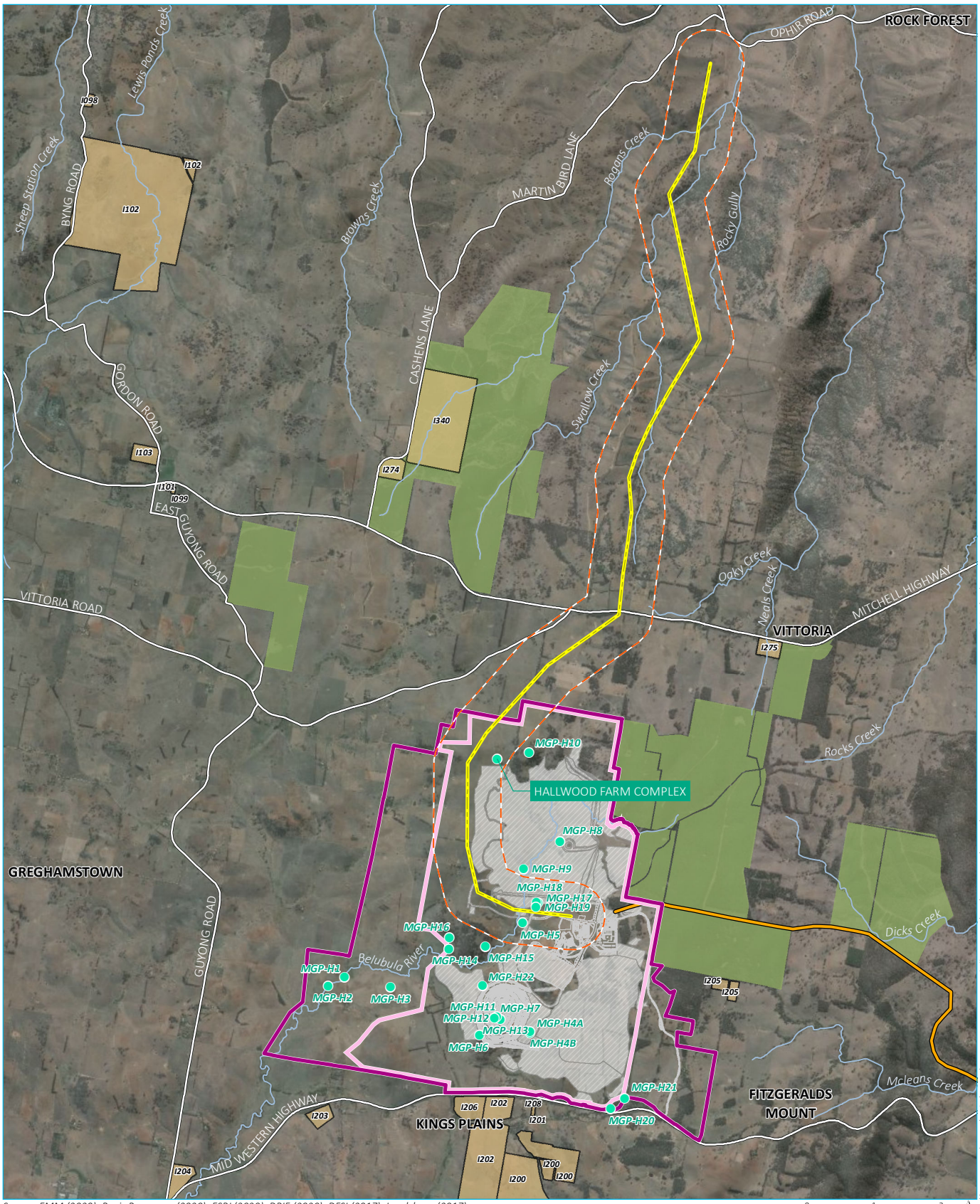
- Major road
- Minor road
- Named watercourse
- Vittoria State Forest

Aboriginal heritage areas – mine development power supply

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.7

REGIS RESOURCES LTD

EMM creating opportunities



Source: EMM (2020); Regis Resources (2020); ESRI (2020); DPIE (2020); DFSI (2017); Landskape (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\Emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_PSER\PSER013_MineHistoric_20200803_01.mxd 10/08/2020

KEY

- Power supply route
- Power supply study area (500 m buffer)

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Mine development general layout
- Pipeline
- Historic heritage site (Landskape, 2017)

Listed heritage item (LEP) (DPIE, 2020)

- Item - General

Existing environment

- Major road
- Named watercourse
- Vittoria State Forest

Historical heritage areas – mine development power supply

McPhillamys Gold Project
Environmental review of proposed power supply to the mine development and pipeline development
Figure 3.8

REGIS RESOURCES LTD

EMM creating opportunities

3.12 Visual and landscape character

During construction there would be minor visual impacts associated with the construction activities and the presence of construction work sites, vehicles, plant and equipment. Construction works may be visible from some dwellings and from nearby roads.

Visual modifications as a result of the respective power supply developments would include:

- potential vegetation clearing, minimised through the use of existing cleared land;
- vertical poles;
- horizontal wires between poles; and
- earth moving equipment and elevated work platforms during short term construction activities.

3.12.1 Mine development power supply

The mine development power supply north of the mine development would be located in an agricultural area with areas of native vegetation.

As the topography is undulating (elevations within the study area range from approximately 670 m AHD) to approximately 1,010 m AHD), the power supply development would primarily be viewed against a landscape background and, therefore, would have only a low-level contrast.

Once constructed, the power supply development will be visible to nearby dwellings and motorists using the Mitchell Highway, however the overall visual impact is considered to be low. Power lines are a common visual component in the broader regional landscape.

3.12.2 Pipeline power supply

The respective power supply developments will be located in areas with existing electrical infrastructure. The respective study areas are in the vicinity of mining, industrial or waste management land use with power supply infrastructure a common visual component of the broader landscape. Accordingly, the respective power supply developments are not likely to result in a significant impact on visual amenity.

3.13 Traffic and access

The following road crossings will be required for the respective power supply developments:

- Mine development power supply Mitchell Highway;
- Pumping station facility No.1: proposed power supply corridor will cross Wolgan Valley Road;
- Pumping station facility No.2: proposed power supply corridor will cross the Castlereagh Highway; and
- Pumping station facility No.3: proposed power supply corridor will cross Pipers Flat Road and the Gwabegar rail line.

Required crossings of road and rail infrastructure will be designed and constructed in accordance with the relevant electricity authority. Appropriate consent will be sought as required for the overhead stringing works and minimum clearances will be applied.

There may be some temporary, minor disruption to traffic during construction which would be managed through a construction traffic management plan as part of the CEMP. Construction works may also result in minor temporary disruption to landholders' use of access tracks and general movement around their property.

During operation, the powerlines would only be visited by vehicles on an intermittent basis for general maintenance purposes.

3.14 Social and economic

The respective power supply developments are required to meet the required electricity demands of the McPhillamys Gold Project. Therefore, it will provide indirect social and economic benefits through power security project and subsequent benefits to the local and regional economy.

Short term impacts on sensitive receivers identified for the mine development and pumping station facility No.3 power supply developments may be experienced during construction in the form of amenity impacts.

Minor, short term impacts to agricultural activities for the mine development power supply development may potentially occur, however ongoing consultation with affected landholders through the design and construction process is expected to mitigate potential impacts.

3.15 Electric and magnetic field

Electric and magnetic fields (EMF) are part of the natural environment and are present in the atmosphere, with static magnetic fields created by the Earth's core. EMF is also produced wherever electricity or electrical equipment are in use.

Power lines, electrical wiring, household appliances and electrical equipment all produce EMF. Due to the separation of the respective powerline developments from sensitive receivers, EMF impacts associated with the developments are not expected to be significant. Consideration of EMF impacts would occur as part of an assessment under Part 5 of the EP&A Act.

4 Conclusion

The construction and operation of the power supply for the project is subject to separate assessment under Part 5 of the EP&A Act. Accordingly, the purpose of this report is to assist the consent authority for the McPhillamys Gold Project to consider the likely impacts of the required power supply infrastructure associated with the project.

Electricity will be supplied to the mine development from the Transgrid 132 kV system Line 948 which passes between Bathurst and Orange approximately 10 km to north of the mine development project boundary.

Power will be supplied to pumping station facilities No.1−No.3 via the existing Endeavour Energy network. Pumping station facility No.4 will be connected to the existing Essential Energy network.

Ownership of the power supply infrastructure would be transferred to TransGrid, Endeavour Energy and Essential Energy at the completion of construction. Accordingly, design and construction of the power supply infrastructure would be in accordance with the relevant electricity provider's construction and design standards.

This environmental review considered the anticipated biophysical, social and economic impacts of the power supply components required for the project and did not identify any significant environmental impact associated with the respective power supply developments.

Consultation with relevant stakeholders will continue as part of the Part 5 assessment process regarding potential biodiversity and Aboriginal Heritage impacts associated with the mine development power supply and options to reduce potential impacts will be implemented as applicable.

For the pipeline power supply developments, power infrastructure will be developed within predominately existing disturbed areas for pumping station facilities No.1−No.3 and it is unlikely that any additional native vegetation clearing will be required, The proposed power supply corridor for pumping station facility No.4 may impact on EPBC listed Box Gum Woodland. However, based on a 20 m easement combined with the implementation of appropriated avoidance measures, including micro siting of power poles, potential impact on threatened species or ecological communities, or their habitats is not expected to be significant. Further, given the short duration and limited nature of the works and minimal nearby sensitive receivers, no significant impacts are anticipated on any sensitive receivers allow minor short term amenity impacts may be experienced for sensitive receivers in the vicinity of the mine development and pumping station facility No.3 power supply developments.

As noted in Section 1.3, this document provides some information on the likely impacts of the construction and operation of the project's required power supply infrastructure, the REFs for the respective power supply components will examine the impacts in further detail, in accordance with the EP&A Act and regulations.

5 References

DoE 2019, White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland in Community and Species Profile and Threats Database, Department of the Environment, Canberra, viewed 11 December 2019, http://www.environment.gov.au/sprat

DPIE 2020, eSPADE *NSW Soil and Land Information system* (SALIS), NSW Department of Planning, Industry and Environment, accessed 9 July 2020, https://www.environment.nsw.gov.au/eSpade2WebApp#

EMM 2019, *McPhillamys Gold Project – Environmental Impact Statement*, prepared for LFB Resources NL.

EMM 2020, *McPhillamys Gold Project Amendment Report Biodiversity Development Assessment Report,* prepared for LFB Resources NL.

EPA 2014, *Waste Classification Guidelines*, NSW Environment Protection Authority.

EES 2019, *Threatened Species Profile – White Box Yellow Box Blakely's Red Gum Woodland*, viewed 11 December 2019, https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10837

Landskape 2019, *McPhillamys Gold Mine Project Aboriginal and Historic Cultural Heritage Assessment (AHCHA)*. prepared for LFB Resources NL.

OzArk 2019a, *McPhillamys Gold Project, pipeline development - Aboriginal Cultural Heritage and Historic Heritage Assessment Report*, prepared for LFB Resources NL.

RFS 2006, *Planning for Bushfire Protection*, NSW Rural Fire Service.

Sustainable Soils Management 2019, *McPhillamys Gold Project Land and Soil Capability Assessment.*

NSW Government 2020a, *Naturally Occurring Asbestos in NSW*, NSW Department of Planning, Industry & Environment via the ESRI ArcGIS portal, accessed 9 July 2020, https://trade.maps.arcgis.com/apps/PublicInformation/index.html?appid=87434b6ec7dd4aba8cb664d8e646fb06

NSW Government 2020b, *ePlanning Spatial Viewer*, accessed 9 July 2020, https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

SEED 2020, *SEED Miners and Explorer's Map*, The Central Resource for Sharing and Enabling Environmental Data in NSW, accessed 9 July 2020, https://geo.seed.nsw.gov.au/Public_Viewer/index.html?viewer=Public_Viewer&locale=en-AU

EMM
creating opportunities

www.emmconsulting.com.au