Appendix B

Updated project description

REGIS RESOURCES LTD

Appendix B – Updated project description

B.1 Project overview

LFB Resources NL is seeking State significant development consent under Part 4 of the EP&A Act to develop and operate an open cut gold mine, associated mine infrastructure and a water supply pipeline in the project application area shown in Figure B.1 and on the land listed in Appendix A. The proponent, LFB Resources NL, is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis).

The mine development component of the project will produce approximately on average 200,000 ounces and up to 250,000 ounces of gold per annum over approximately 11 years of an overall anticipated project life of 15 years. The mine development project area and indicative mine layout; including the open cut mine, processing area, tailings storage facility (TSF), waste rock emplacement and ancillary mining infrastructure areas, is shown in Figure B.2.

The pipeline development will supply the majority of water required for the mine development, transferring approximately 13 ML per day (up to a maximum of 15.6 ML/day) from Centennial's Angus Place Colliery (Angus Place) and Springvale Coal Services Operations (SCSO); and Energy Australia's Mount Piper Power Station (MPPS) operations near Lithgow to the mine development during the operational phase of the project. The pipeline corridor is shown in Figure B.3a to Figure B.3v. Approval is sought for two options for a section of the pipeline alignment west of Bathurst as a result of land access considerations; the northern option and the southern option, as shown in Figure B.1.

The mine development has been designed to maximise the extraction and processing of the resource in the project area within identified environmental constraints as efficiently and economically as possible, while minimising adverse impacts to the environment and community, and delivering socio-economic benefits to the local community. Similarly, the pipeline corridor has been aligned, as far as practicable, to avoid environmental constraints and minimise impacts.

The major project components are summarised in Table B.1 Detailed descriptions of mine development components, including their construction and operation, are provided in Sections B.4 to B.12 A detailed description of the pipeline development is provided in Sections B.13 to B.15.

Table B.1 Project overview

Aspect	Description
Project application area	Refer to Appendix A (Updated Schedule of Lands).
Mining lease application area	The mining lease application area (MLA574) is shown in Figure B.2 and is approximately 1,800 ha. A number of clean water management facilities will be required as part of the mine's water management system. The inundation area associated with clean water facility (CWF) 1B and CWF3 extends outside the ML application area. The embankment associated with CWF3 and some clean water diversions on the eastern side of the waste rock emplacement also extend outside the ML application area. These facilities meet the definition of a 'designated ancillary mining activity' under the NSW *Mining Act 1992*, and therefore it is anticipated that approval will be sought for a condition to be imposed on the mining lease, once granted, to regulate the clean water inundation area that extends outside of the ML application area. In addition, it has been identified that the native title status of a small area of Belubula River within MLA574 is uncertain. This area is within the TSF footprint, and will therefore be excised from MLA574, and an ancillary mining activity mining lease application (AMA MLA) lodged over the excluded area. It is anticipated that the AMA MLA will be granted following compliance with the mining infrastructure process under s 24MD(6B) of the *Native Title Act 1993* (Cth).
Disturbance footprint	Mine development: approximately 1,115 ha will be disturbed within the mine development project area to accommodate the mine development, including the open cut mine, TSF, waste rock emplacement, Run-of-Mine (ROM) pad, processing plant, administration area, ablutions and workshops, water management areas, soil stockpiles, roads and ancillary areas. Approximately 4.5 ha will also be disturbed to accommodate the construction of the site access on the Mid-Western Highway. An additional 1.64 ha will be disturbed at closure, north of the TSF, to accommodate water management works. Pipeline corridor: approximately 15.6 ha of native vegetation will be disturbed by construction of the pipeline if the northern alignment option is adopted, and around 18.4 ha if the southern option is constructed. Additional disturbance of non-native vegetation or in existing disturbed areas (such as roads and tracks) will also be required.
Project duration	A project life of 15 years comprising: • Construction: around one to two years, including pre-construction activities; • Mine operating life: around 11 years of ore extraction and processing; • Rehabilitation: will progress during operations and will extend around three to four years after the end of mining and processing, after which environmental monitoring will continue until lease relinquishment in accordance with the relevant approval conditions. There will be some overlap of these phases. Figure B.4 shows an indicative project schedule over the project life.
Mine development layout and progression	The anticipated mine layout for years 1, 2 ,4, 6, 8, 11 is illustrated in Figures B.5a to B.5f. These indicative general arrangements show the expected progress of the mine development over time.

Table B.1 Project overview

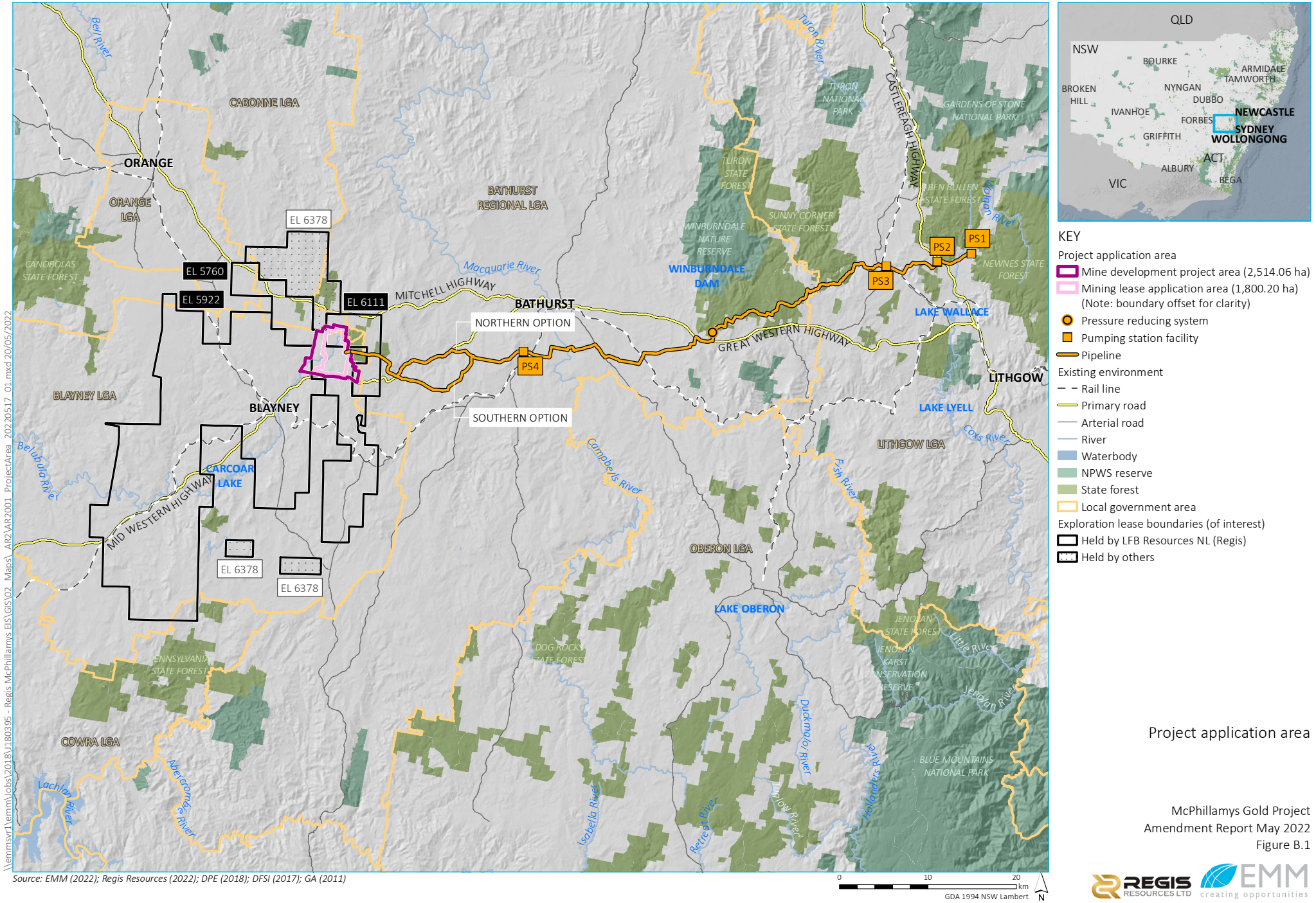
Aspect	Description
Resource	Mineral Resource Estimate (indicated + inferred) – 69.8 Mt@1.02 g/t gold for 2.3 million ounces. Ore Reserve Estimate (probable) - 60.8 Mt@1.04 g/t gold for 2.0 million ounces.
Annual mine extraction rate	Up to 8.5 Million tonnes per annum (Mtpa) of ore per annum will be extracted over the project life.
Annual processing rate	Processing rate up to 7 Mtpa to produce on average 200,000 ounces, and up to 250,000 ounces, per annum of product gold.
Mining method	A single, approximately circular two-stage open cut with a diameter of approximately 1,050 metres (m) and a final depth of approximately 450 metres will be developed by conventional open cut mining encompassing drill, blast, load and haul operations.
Processing method	A carbon-in-leach (CIL) gold processing plant, comprising a ROM pad and crushing, grinding, gravity, leaching, gold recovery, tailings thickening and cyanide destruction, will be developed to the north east of the open cut mine as shown in Figure B.2 and Figure B.9. The process flow diagram is shown in Figure B.8.
Waste rock emplacement	A waste rock emplacement will be developed in the south-eastern portion of the mine development project area up to an approximate height of 1,065 m Australian Height Datum (AHD) (up to around 1,075 m AHD including areas of microrelief) to accommodate overburden material from the open cut mine. The emplacement has also been designed to encapsulate potentially acid forming material (PAF) from the open cut. The indicative progression of the waste rock emplacement is shown in Figures B.5a to B.5f.
Amenity bunds	The pit amenity bund will be constructed in Year 1. The southern amenity bund will be developed more gradually to manage noise impacts and will be completed in approximately Year 6 of the project.
Tailings storage facility	An engineered TSF will be progressively developed in the north-eastern portion of the mine development project area as shown in Figure B.2 and Figures B.5a-e and B.10.
General infrastructure	Construction and operation of ancillary infrastructure including: • administration buildings; • workshops and stores facilities; including associated plant parking, laydown and hardstand areas; • internal road network; • explosives magazine; and • on-site laboratory.
Site access	The mine development project area will be accessed via a new intersection off the Mid Western Highway, near Pounds Lane (as shown in Figure B.2), which will be constructed during the initial construction phase of the project. Dungeon Road, an unsealed public road, will be used for initial access to the mine project area during construction (for approximately the first six months), after which it will be closed to the public at the mine development project boundary to the Cabonne local government area (LGA) boundary once the new site access intersection is constructed off the highway.
Product transport	Product gold will be taken off-site via road transport.

Table B.1 Project overview

Aspect	Description
Construction and operating hours	Construction: The first six months of construction of the mine development will generally be carried out during standard construction hours as per the *Interim Construction Noise Guideline* (ICNG) (DECC 2009): • Monday to Friday - 7:00 am to 6:00 pm • Saturday – 8:00 am to 1:00 pm • No work on Sundays or public holidays. Outside of these hours, some works will be carried out as required (such as limited construction activities, environmental management such as dust control, delivery of oversized equipment, and servicing of equipment). In these circumstances, works will be undertaken in accordance with the noise criteria for outside of recommended standard hours in the ICNG. After six months, construction and mine development activities will be carried out 24 hours per day, 7 days per week. For the pipeline development, construction will be undertaken generally in accordance with the standard construction hours as per the ICNG. Operation: 24 hours per day, 7 days per week.
Workforce	Construction: estimated peak workforce during Year 1 of approximately 710 full time equivalent (FTE) employees and contractors, of which around 120 FTE will construct the pipeline development. Operation: an average workforce of around 260 FTE employees will be required during the 11-year operational mine life, peaking at approximately 320 FTEs in around year six of the project.
Water management	The mine development is proposed to be a nil discharge site. The water management system will divert clean water around the mine site and control the volume of water from disturbed areas by maximising its reuse on site. The water management system will comprise clean water management facilities including piped diversions, water management facilities for operational water and development and construction water management facilities.
Water supply	A pipeline approximately 90 km in length will transfer water from Centennial's Angus Place and SCSO; and Energy Australia's MPPS operations near Lithgow to the mine site. The pipeline will deliver approximately 13 ML per day (up to a maximum of 15.6 ML per day) to the mine. Prior to commissioning of the pipeline, construction water supply will be primarily sourced from groundwater via production bores in or near the mine development project area on Regis-owned land.
Electricity supply	The mine development will have an electricity requirement of 26 megawatts (MW) to 28 MW. Power will be provided to the site from the Transgrid 132 kV system Line 948 which passes between Bathurst and Orange, approximately 14 kilometres (km) to the north of the processing plant. Separate approval under the EP&A Act will be sought to construct the required electricity infrastructure for the mind development. Separate approval will also be sought under the EP&A Act for the electricity supply for the pipeline development.

Table B.1 Project overview

Aspect	Description
Rehabilitation	Rehabilitation will occur progressively throughout the project life. At the end of mining and processing, all infrastructure will be removed from the mine development project area, unless required for the post-mining land use, and all disturbed areas will be rehabilitated to integrate with natural landforms as far as practicable. The conceptual final landform is illustrated in Figure B.14. The pipeline corridor will be rehabilitated progressively as construction proceeds with disturbed areas being reinstated rapidly as work proceeds along the pipeline corridor. At the end of the project life, subject to the necessary approvals, there may be the opportunity for the pipeline infrastructure to continue to supply water to the region for future public benefit. Following the end of water transfer for the mine development, it is expected that the pipeline will remain in the ground. If after a reasonable time period, no additional users for the pipeline are identified, above ground components will be removed.



Project application area

\\emmsvr1\emmJobs\2018\I180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2001 ProjectArea 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); DPE (2018); DFSI (2017); GA (2011)

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Figure B.1

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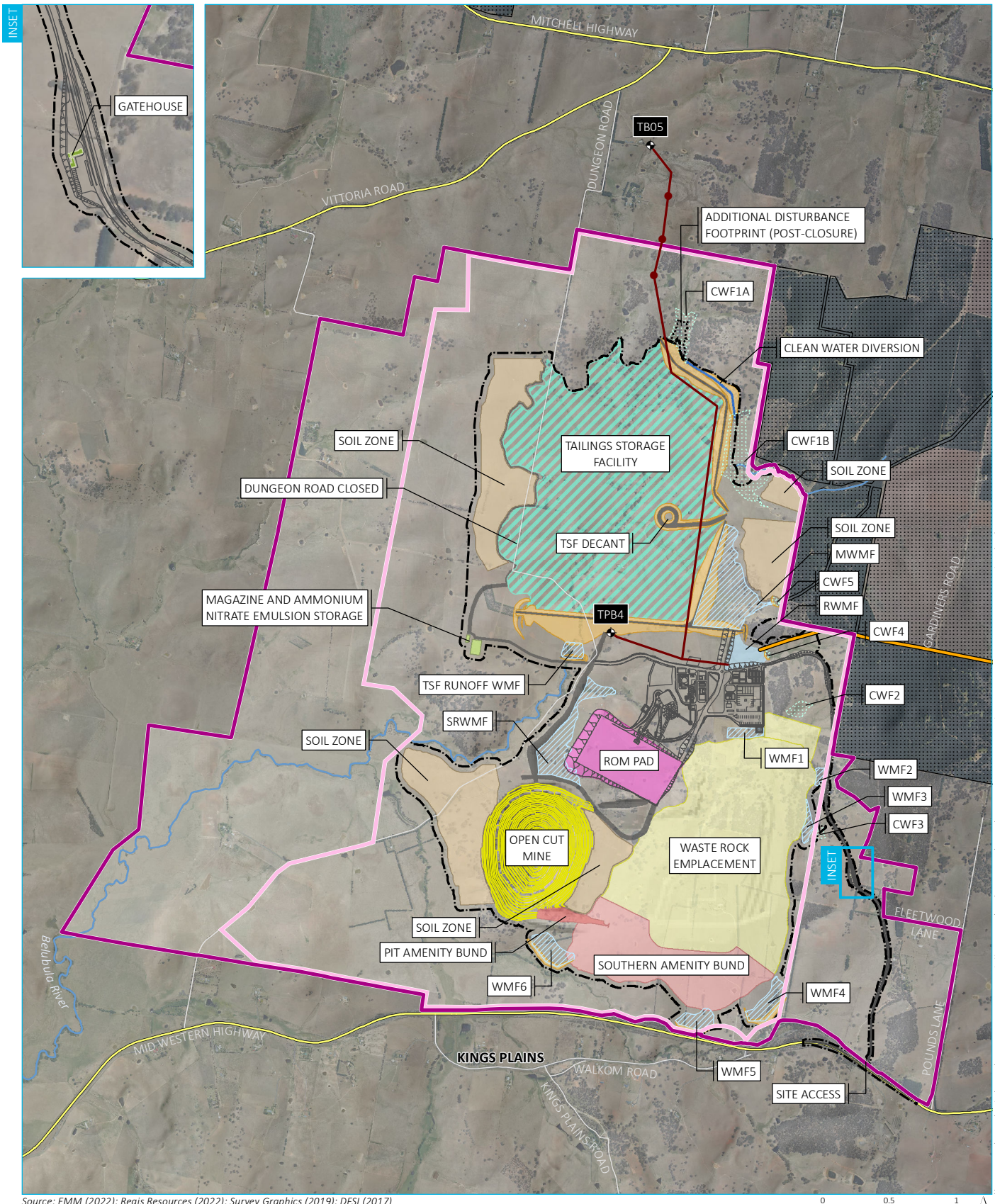
EMM creating opportunities



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 0.5 1 km

GDA 1994 MGA Zone 55

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KEY

Existing environment
- Major road
- Minor road
- Belubula River
- Vittoria State Forest

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Additional (post-closure) disturbance footprint

Project general arrangement
- Construction groundwater bore
- Indicative construction groundwater bore
- Indicative construction groundwater pipeline
- Open cut mine
- Site infrastructure
- Site access roads
- Gatehouse
- Magazine and ammonium nitrate emulsion storage
- Soil zone
- Embankments
- ROM pad
- Southern amenity bund
- Pit amenity bund
- Waste rock emplacement
- Tailings storage facility (TSF)
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Mine development general arrangement

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Figure B.2

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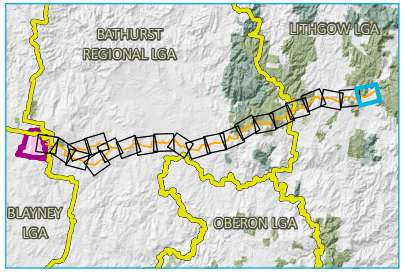
EMM creating opportunities



KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

\\emmsvr1\emm\jobs\2018\180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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Pipeline development overview

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Figure B.3a

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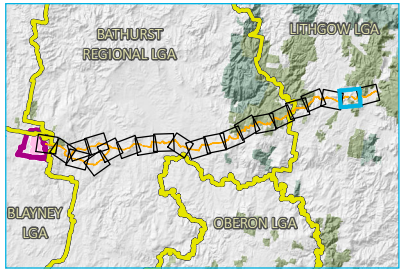
EMM creating opportunities



KEY

- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

Pipeline development overview

McPhillamys Gold Project
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Figure B.3b

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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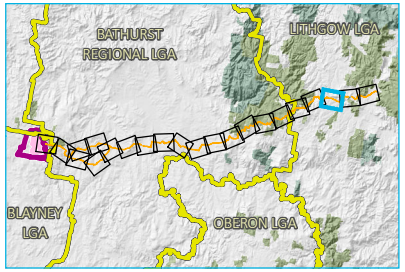

KEY

- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Built up area
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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Pipeline development overview

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Figure B.3c

REGIS RESOURCES LTD

EMM creating opportunities

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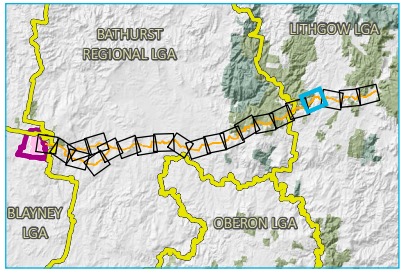

KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Built up area
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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Pipeline development overview

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Figure B.3d

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EMM creating opportunities

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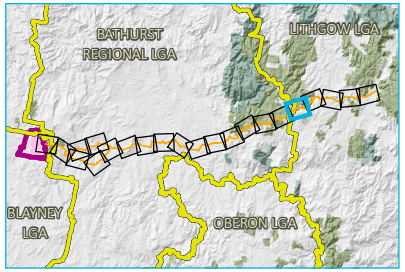

KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Pipeline development overview

McPhillamys Gold Project
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Figure B.3e

\\emmsvr1\emm\Jobs\2018\I180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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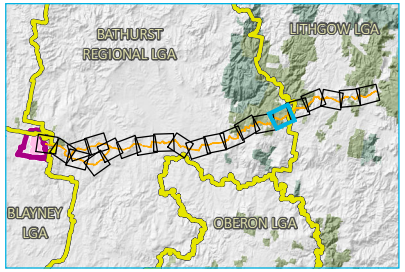
REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

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Figure B.3f

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EMM creating opportunities

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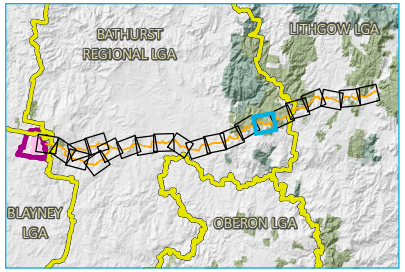

KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

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Figure B.3g

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EMM creating opportunities

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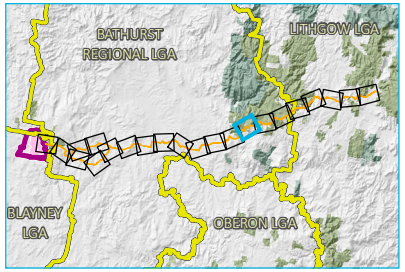

KEY

- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

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Figure B.3h

REGIS RESOURCES LTD

EMM creating opportunities

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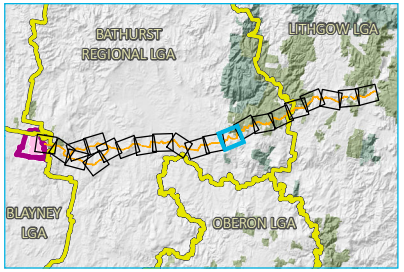

KEY

- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Pressure reducing valve

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

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Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

McPhillamys Gold Project
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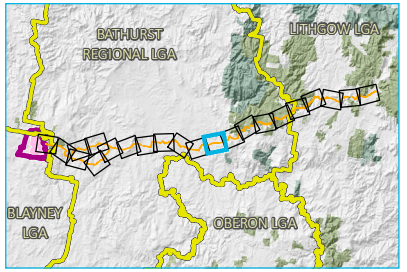
Figure B.3i

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

McPhillamys Gold Project
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Figure B.3j

REGIS RESOURCES LTD

EMM creating opportunities

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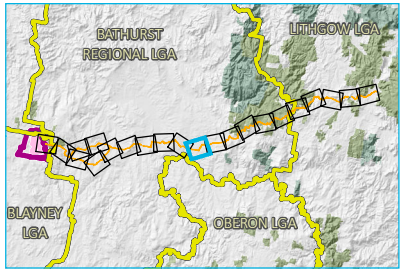

KEY

- Rail line
- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

\\emmsvr1\emm\jobs\2018\180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

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Pipeline development overview

McPhillamys Gold Project
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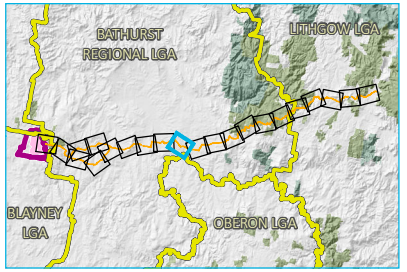
Figure B.3k

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3l

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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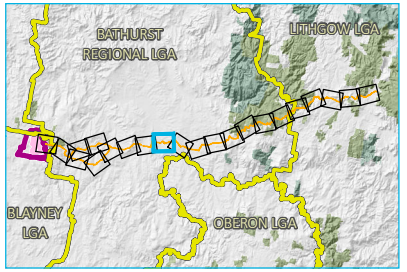

KEY

- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

\\emmsvr1\emm\jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2003_PipelineDevelopmentDDP_20220517_01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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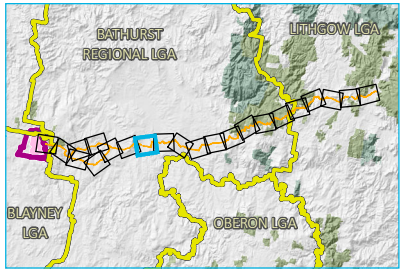
Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3m

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Rail line
- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Pipeline underbore section

Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3n

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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REGIS RESOURCES LTD

EMM creating opportunities

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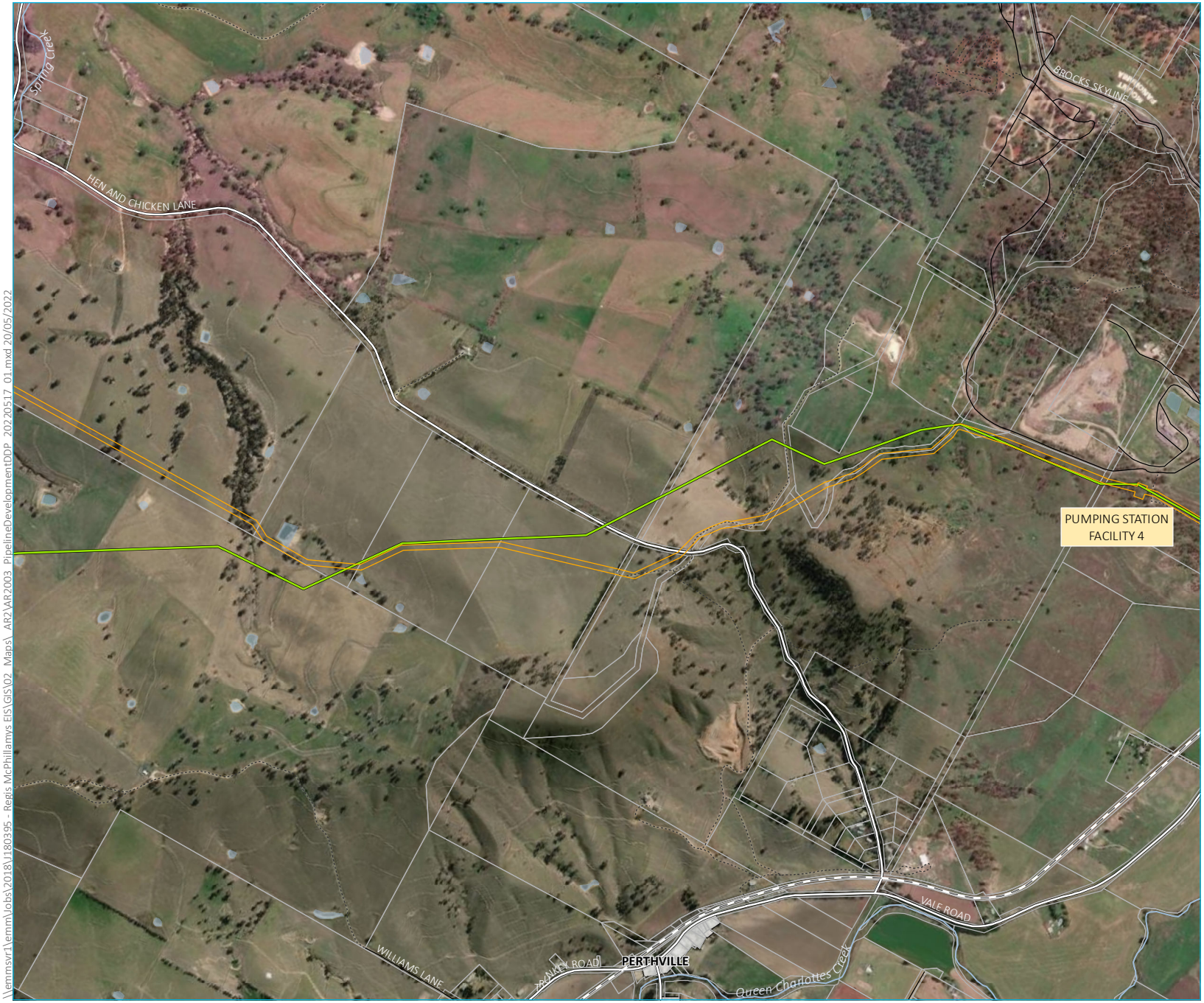

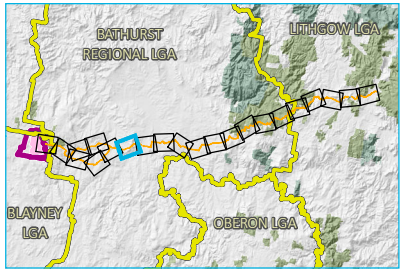

KEY

- Rail line
- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Built up area
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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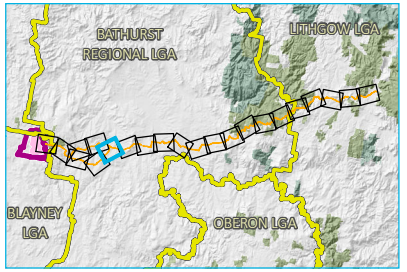
Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3o

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Major road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Northern option only
- Southern option only

\\emmsvr1\emm\jobs\2018\\180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

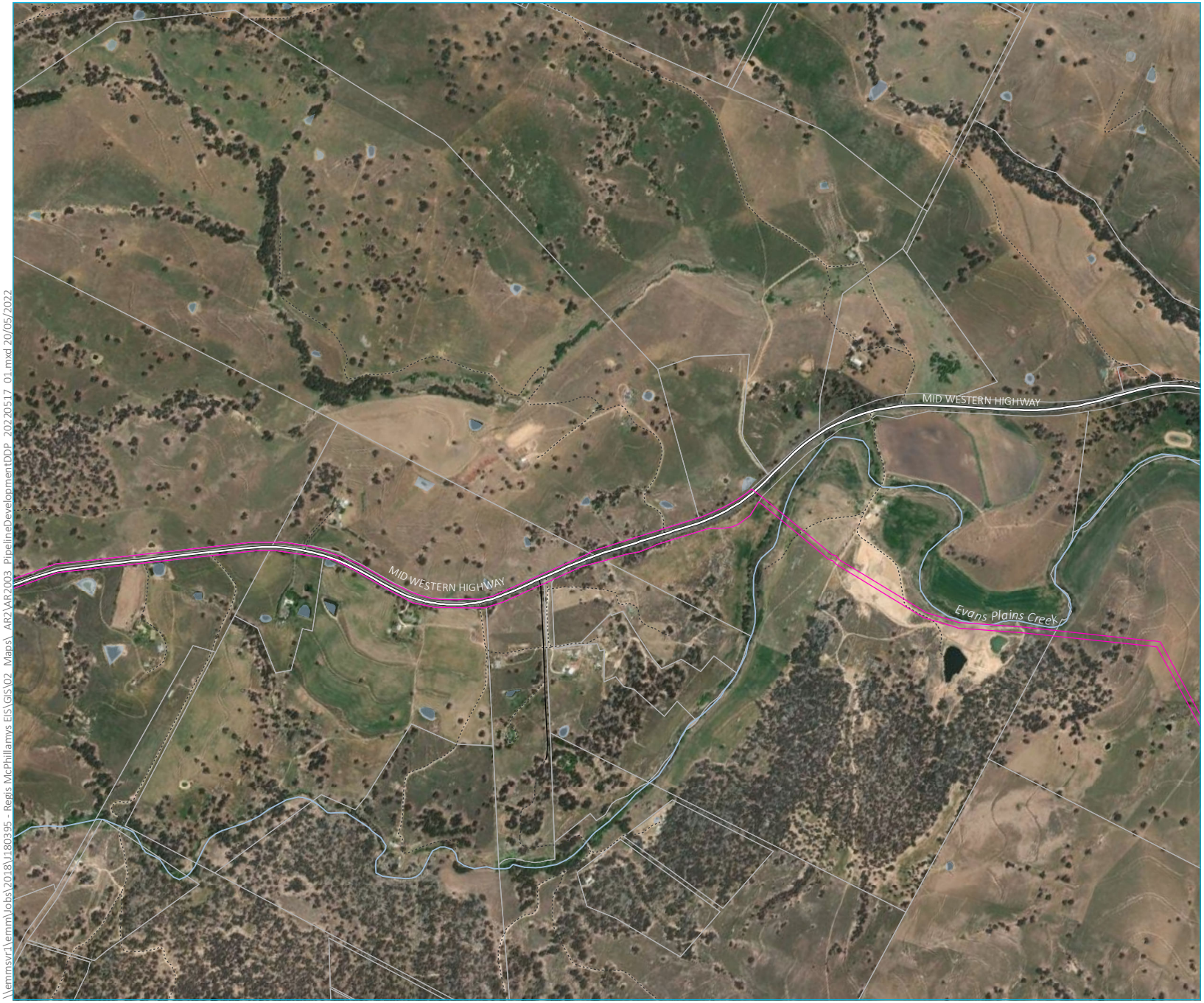
GDA 1994 NSW Lambert

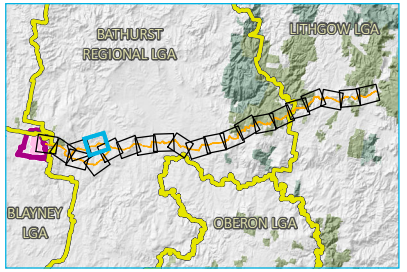
Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3p

REGIS RESOURCES LTD

EMM creating opportunities





KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Northern option only

Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3q

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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REGIS RESOURCES LTD

EMM creating opportunities

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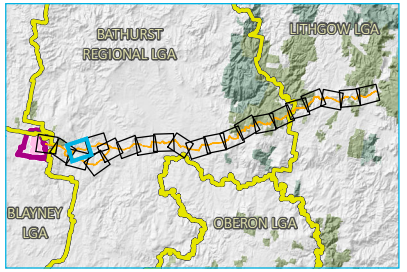

KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Northern option only
- Southern option only

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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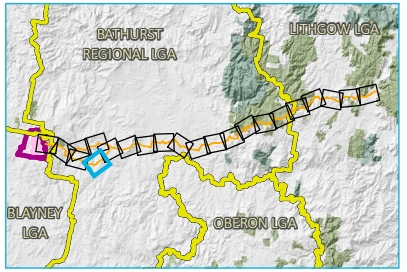
Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3r

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Rail line
- Major road
- Vehicular track
- Gas pipeline
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Southern option only

Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3s

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

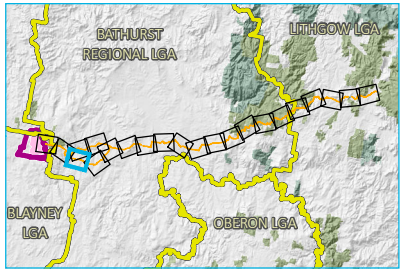
0 0.5 1 km

GDA 1994 NSW Lambert

REGIS RESOURCES LTD

EMM creating opportunities

\\emmsvr1\emm\jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2003_PipelineDevelopmentDDP_20220517_01.mxd 20/05/2022



KEY

- Major road
- Minor road
- Vehicular track
- Gas pipeline
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Northern option only
- Southern option only
- Pipeline underbore section

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

N

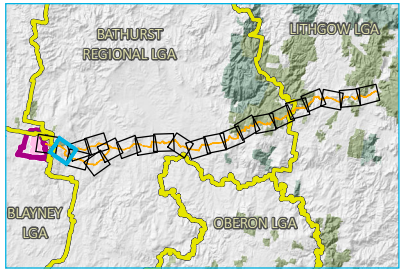
\\emmsvr1\emm\jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3t

REGIS RESOURCES LTD

EMM creating opportunities



KEY

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option
- Northern option only
- Southern option only
- Pipeline underbore section

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

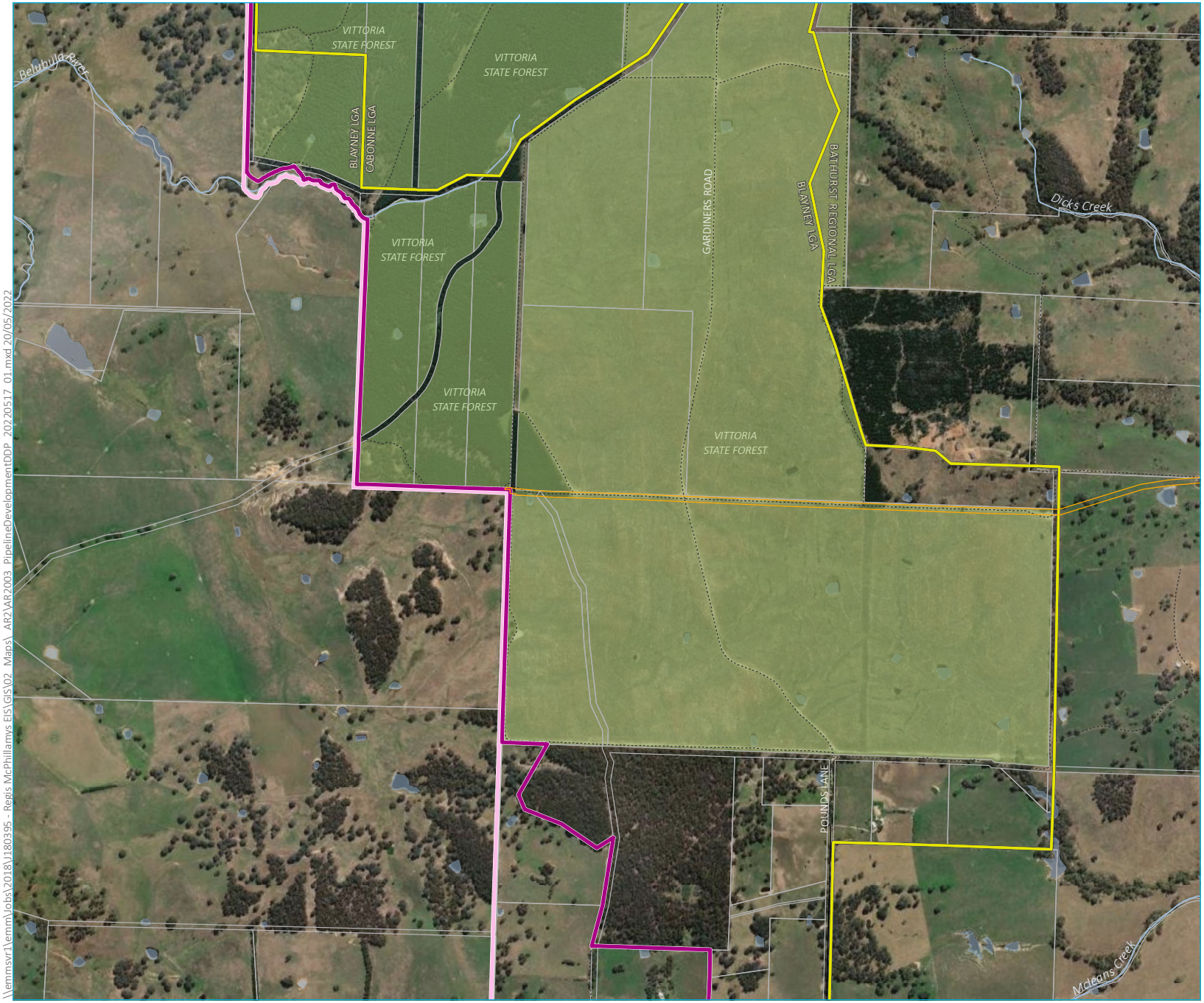
\\emmsvr1\emm\jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

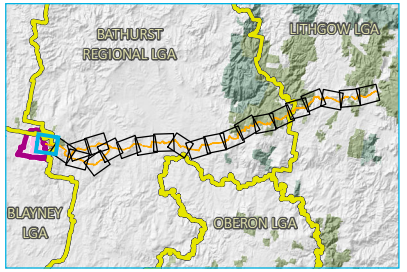
Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3u

REGIS RESOURCES LTD

EMM creating opportunities





KEY

- Minor road
- Vehicular track
- Named watercourse
- Waterbody
- Cadastral boundary
- NPWS reserve
- State forest
- Local government area

Project application area

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

Pipeline corridor

- Shared northern and southern option

\\emmsvr1\emm\jobs\2018\I180395 - Regis McPhillamys EIS\GIS\02 Maps\ AR2\AR2003 PipelineDevelopmentDDP 20220517 01.mxd 20/05/2022

Source: EMM (2022); Regis Resources (2022); ESRI (2022); DFSI (2017); ASGC (2006); GA (2011)

0 0.5 1 km

GDA 1994 NSW Lambert

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Pipeline development overview

McPhillamys Gold Project
Amendment Report May 2022
Figure B.3v

REGIS RESOURCES LTD

EMM creating opportunities

B.2 Indicative project schedule

The project will have a total life of 15 years, including construction, mining and processing activities and rehabilitation and decommissioning. An indicative schedule for the project is presented in Figure B.4. This project description refers to project years rather than calendar years, with Year 1 being the first year of construction and mine development activities. As illustrated, there will be an overlap between the construction and operational phases. There will also be an overlap between processing and the decommissioning phase.

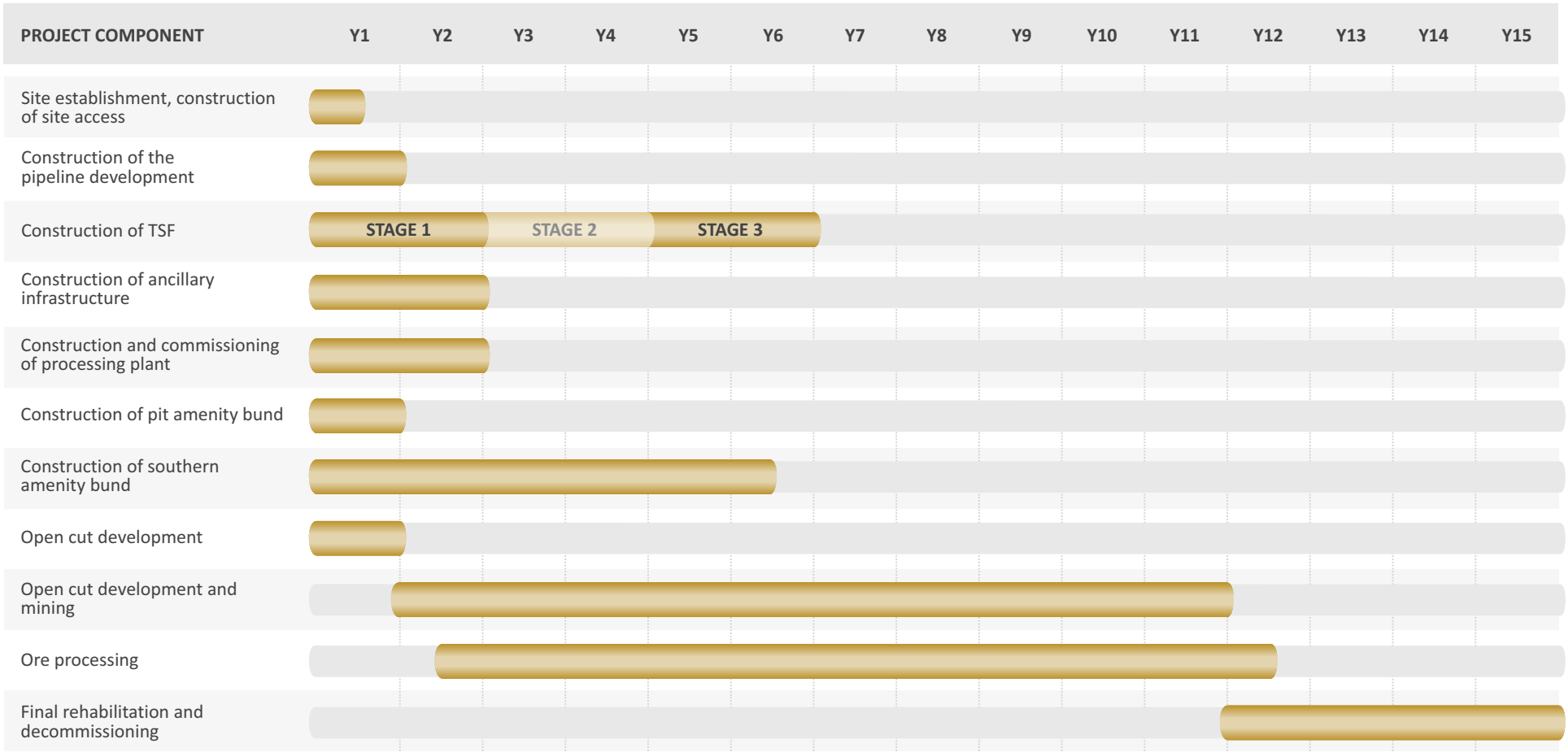
Over the life of the mine development, the indicative schedule may vary from that shown in Figure B.4 to account for detailed mine design, mine economics, geological conditions, market conditions or relevant approval conditions.

B.3 Mine development - general layout and progression

Indicative general layouts of the mine development over the project life are illustrated for Years 1, 2, 4, 6, 8 and 11 in Figures B.5a to B.5f. As per the project schedule, this indicative mine development sequencing may also vary to account for detailed mine design, mine economics, geological conditions, market conditions or relevant approval conditions.

The direct disturbance footprint of the mine development is shown in Figure B.2. In addition to this nominated footprint, other minor disturbance associated with ancillary works for the mine development may be required to occur within the project area boundary. For example, minor disturbances associated with pipelines and associated access tracks, power and telecommunication supply infrastructure, fences, sediment control structures and installation of monitoring equipment and associated access may be required. Any ancillary disturbance outside the nominated disturbance footprint shown in Figure B.2 will be appropriately managed through a permit to disturbance process.

Notwithstanding, environmental features identified in technical assessments outside of the disturbance footprint will be clearly marked as avoidance zones to avoid environmental impacts on these features.

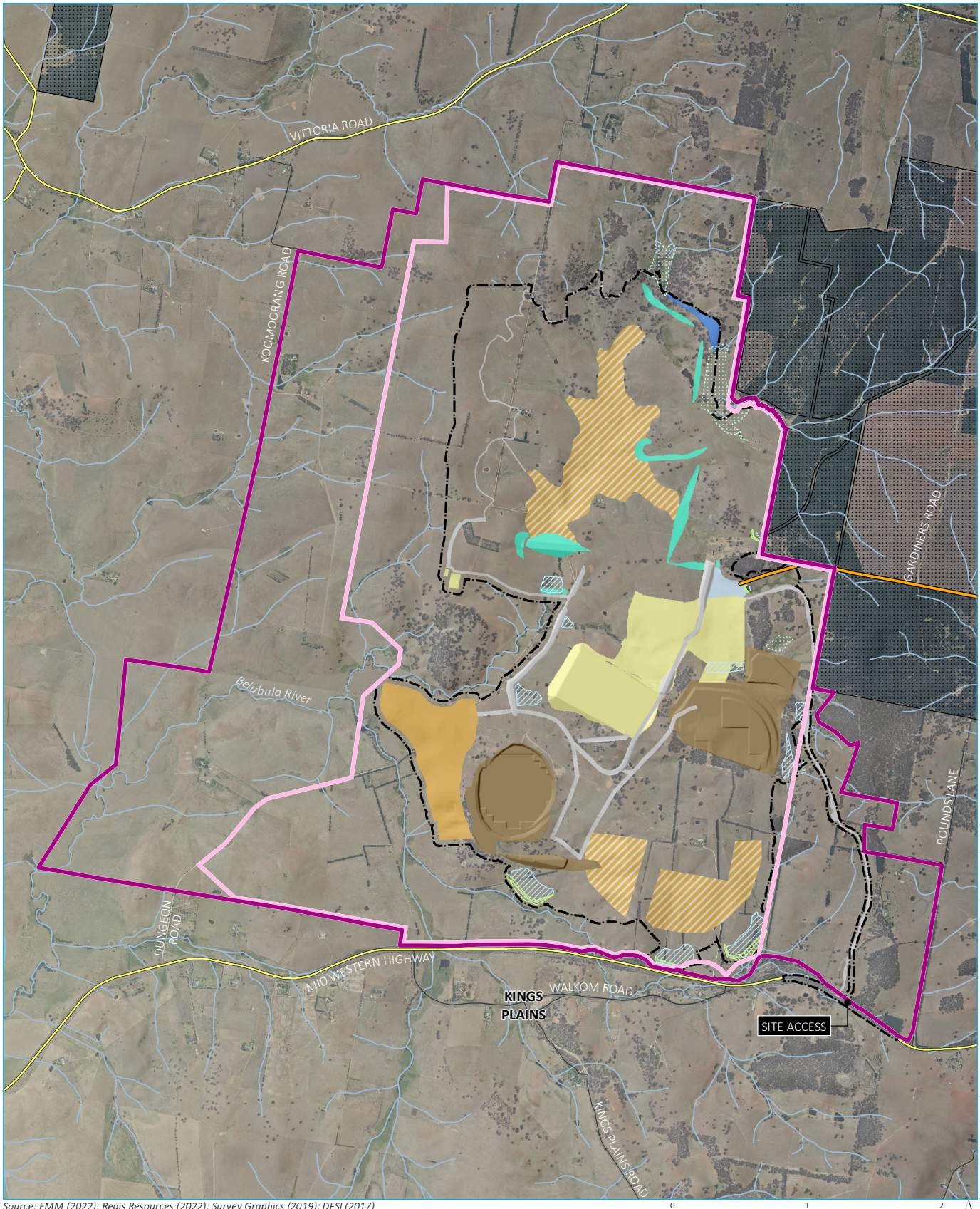


Indicative project schedule

McPhillamys Gold Project

Amendment Report May 2020

Figure B.4



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2005_MineStagePlanYr1_20220518_01.mxd 18/05/2022

KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

Completed works
- Mine infrastructure area (under construction)
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility construction
- Soil zone
- Soil stripping
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

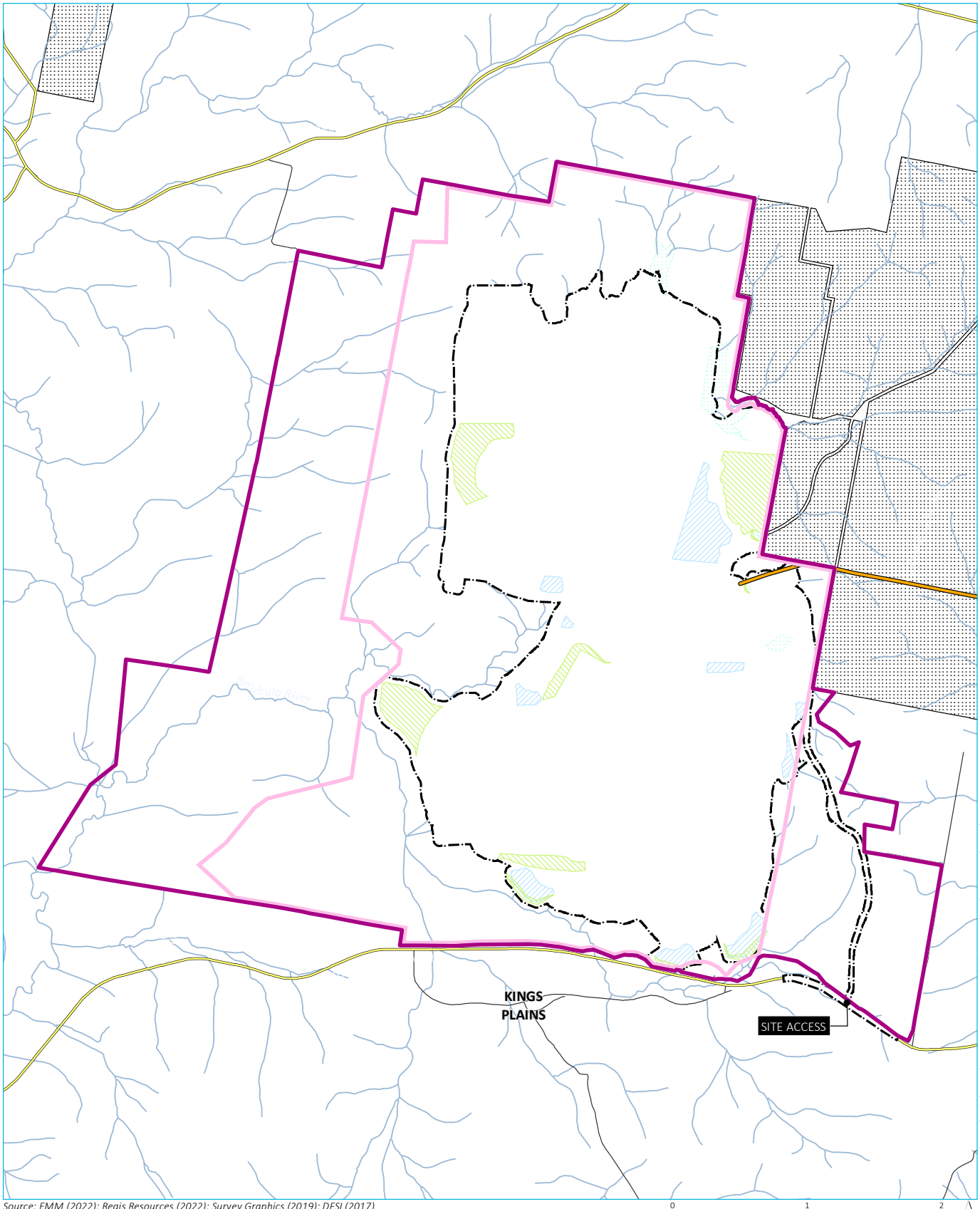
Mine rehabilitation
- hydromulched/grass

Mine development general arrangement – Year 1

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5a

REGIS RESOURCES LTD

EMM creating opportunities



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2006_MineStagePlanYr2_20220518_01.mxd 18/05/2022

KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

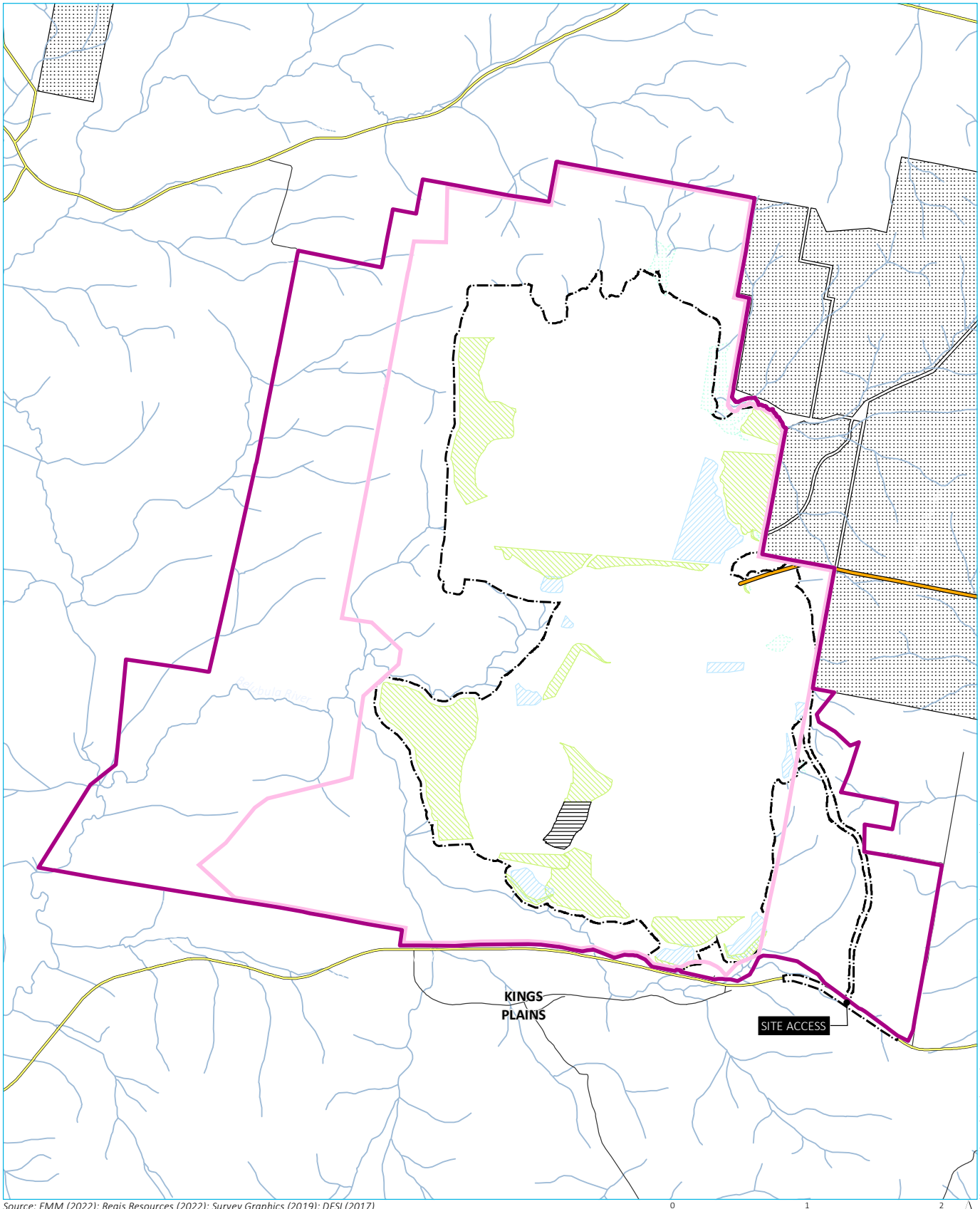
Completed works
- Mine infrastructure area
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility construction
- Soil zone
- Soil stripping
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Mine rehabilitation
- hydromulched/grass

Mine development general arrangement – Year 2

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5b

[redacted]



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

\\emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2007_MineStagePlanYr4_20220518_01.mxd 18/05/2022

KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

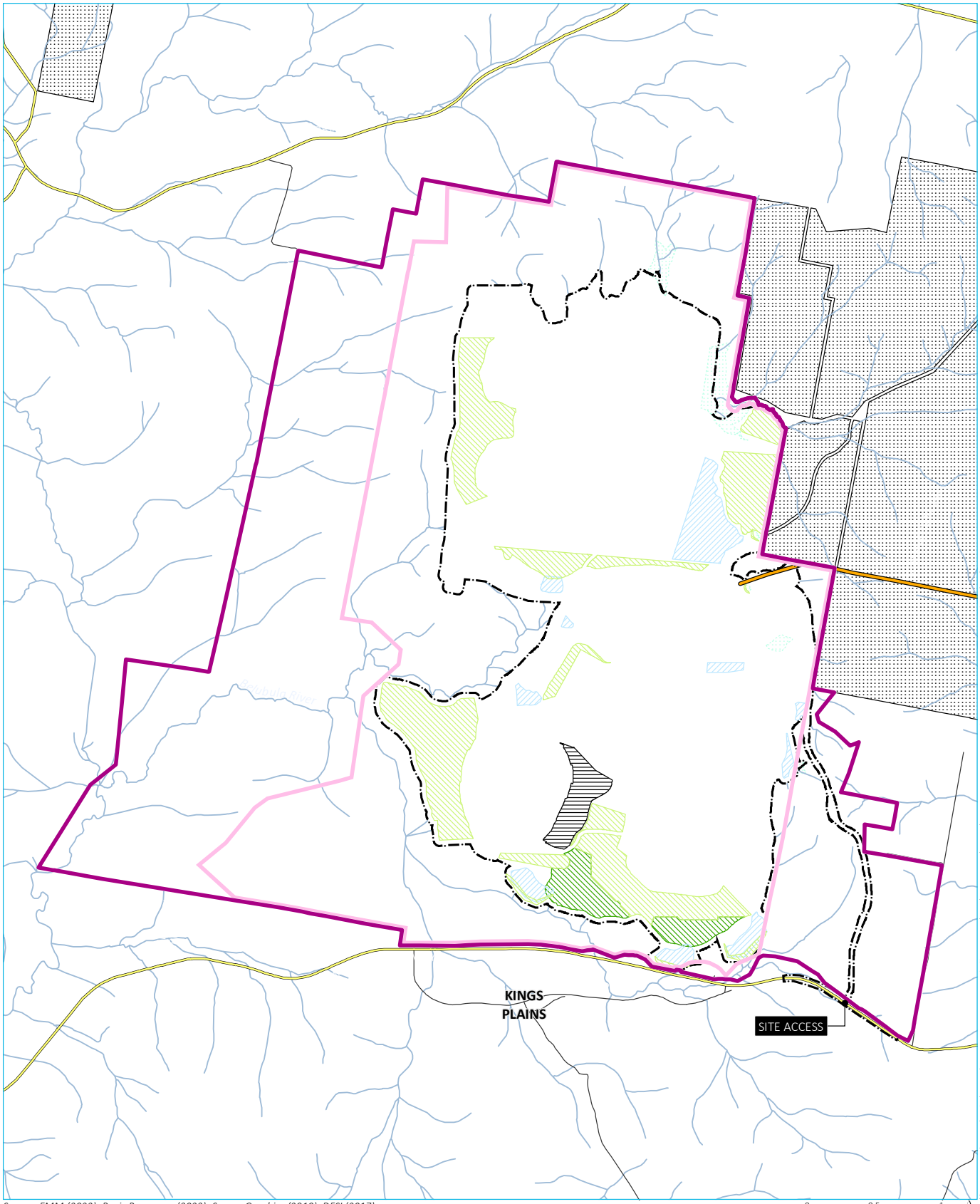
Completed works
- Mine infrastructure area
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility construction
- Soil zone
- Soil stripping
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Mine rehabilitation
- Hydromulched/grass
- Decommissioned topsoil zone

Mine development general arrangement – Year 4

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5c

[redacted]



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 0.5 1 km

GDA 1994 MGA Zone 55

N

\\emmsvr1\emm\Jobs\2018\J180395 - Regis McPhillamys EIS\GIS\02_Maps_AR2\AR2008_MineStagePlanYr6_20220518_01.mxd 18/05/2022

KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

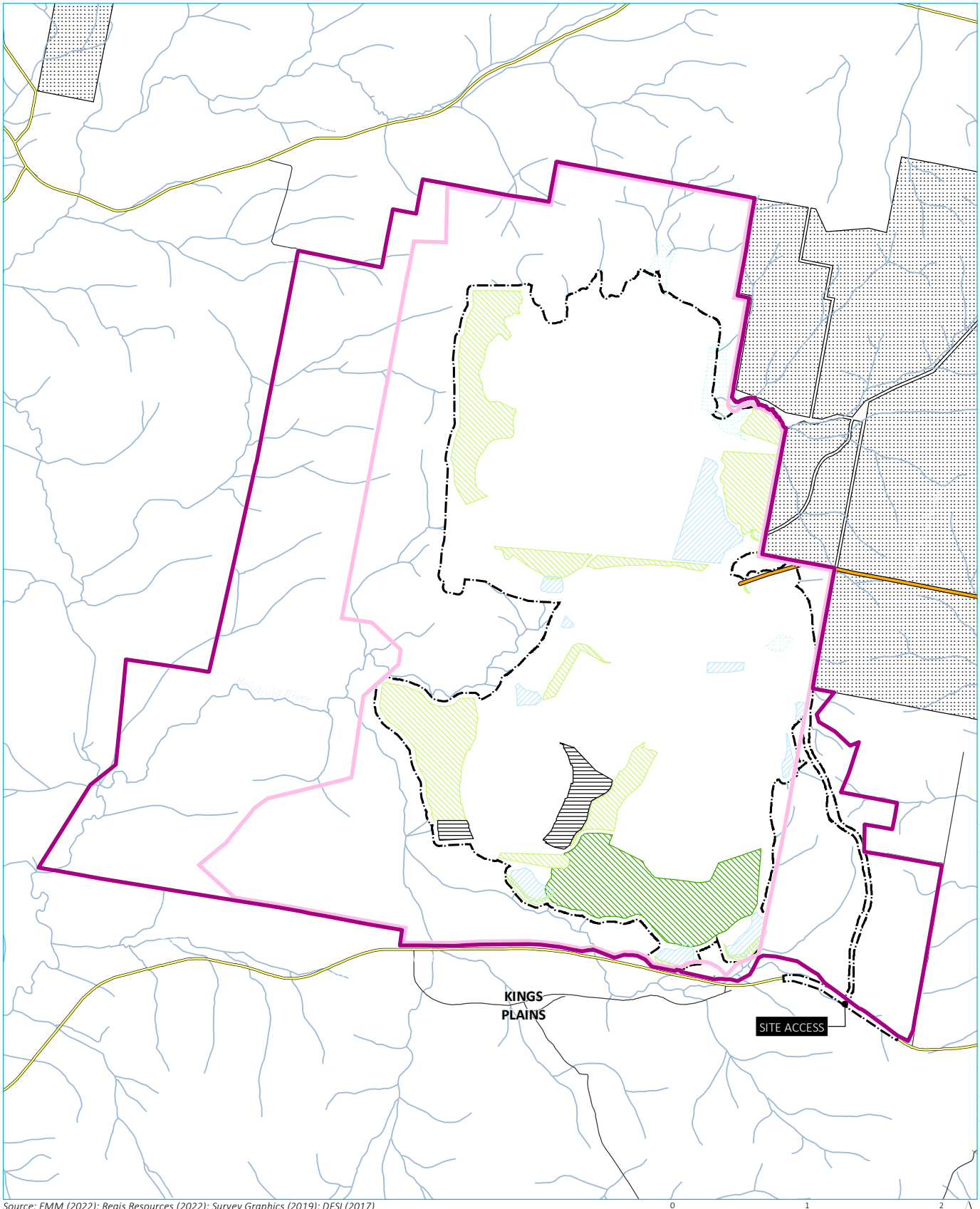
Completed works
- Mine infrastructure area
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility
- Soil zone
- Soil stripping
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Mine rehabilitation
- Hydromulched/grass
- Decommissioned topsoil zone
- Early stages of open woodland establishment

Mine development general arrangement – Year 6

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5d

[redacted]



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

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KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

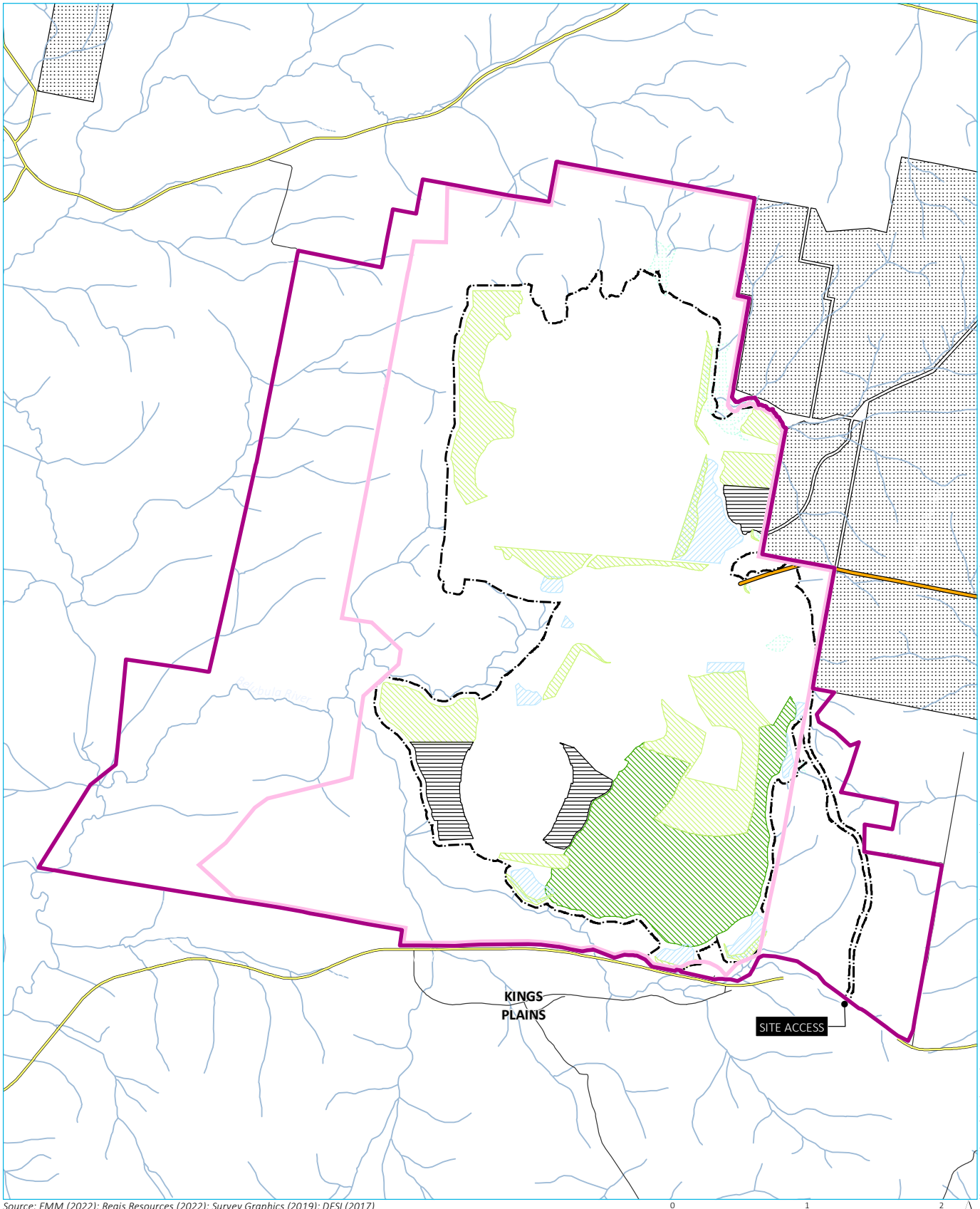
Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

Completed works
- Mine infrastructure area
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility construction
- Soil zone
- Soil stripping
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)
- Hydromulched/grass
- Decommissioned topsoil zone
- Early stages of open woodland establishment

Mine development general arrangement – Year 8

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5e

[redacted]



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

0 1 2 km

GDA 1994 MGA Zone 55

N

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KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

Completed works
- Mine infrastructure area
- Mining operations (open cut & waste rock emplacement)
- Road
- Tailings storage facility construction
- Soil zone
- Clean water diversion
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Mine rehabilitation
- Hydromulched/grass
- Decommissioned topsoil zone
- Early stages of open woodland establishment

Mine development general arrangement – Year 11

McPhillamys Gold Project
Amendment Report May 2022
Figure B.5f

[redacted]

B.4 Mine development - construction phase

The construction phase associated with the establishment of the mine development is detailed below.

B.4.1 Overview

The construction phase of the mine development is likely to include:

- site establishment, including installation of erosion and sediment controls, vegetation clearing, topsoil/subsoil stripping and stockpiling activities;
- early development of the open cut to provide material for haul roads, amenity bunds, ROM pad, TSF and water management facility embankments and the site access road;
- construction of the pit amenity bund;
- construction of the mine access road and intersection from the Mid Western Highway and internal access roads;
- development of borrow pits;
- construction of the TSF and water management facilities, including bulk earthworks to construct the embankments of the TSF and water management facilities and necessary lining works;
- construction of the administration buildings, car parking, workshop facilities, equipment stores, explosives magazine and ammonium nitrate emulsion storage;
- construction and commissioning of the processing plant; and
- installation of site services including power, communication and potable water and wastewater services.

Further detail on key elements of the construction phase is provided in the sub-sections below.

B.4.2 Site establishment

Site establishment activities will include installing erosion and sediment control measures, clearing of vegetation, soil stripping and stockpiling as well as establishment of construction compounds and laydown areas.

Before any works commence, areas to be cleared will be marked to prevent any damage to vegetation beyond clearing limits. Erosion and sediment controls will then be formed in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition* (Landcom 2004) (the Blue Book) and *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries* (DECC 2008).

Once vegetation is cleared, soil will be stripped following the recommendations of the Land Capability and Soil Assessment (SSM 2019) contained in Appendix H of the EIS and the Land Capability and Soil Assessment Addendum (SSM 2020) contained in Appendix E of the 2020 Amendment Report. Soil will be stored in stockpiles at the indicative soil zones shown in Figure B.2 until required for rehabilitation activities.

Soil will generally be stripped from the direct disturbance footprint to a depth of approximately 60 cm, depending on the suitability of the soil. Soil will generally be stripped in two layers. The top 10 cm to 15 cm layer (ie the topsoil), which has a higher organic matter and nutrient content than the underlying soil, will be stripped and stockpiled separately. A further 45-50 cm of subsoil will then be stripped and stockpiled for use in rehabilitation.

Soil storage locations will vary over the life of the mine development, depending on the area available and planned final deposition location. Detailed topsoil and subsoil stripping and scheduling will be completed during the detailed design phase.

During the early stages of construction, some existing farm buildings/houses will be demolished within the mine development project area in accordance with the applicable Australian Standard to allow establishment of mine infrastructure.

B.4.3 Development of the open cut

Mining of waste rock will commence following initial site establishment activities. Suitable waste rock material (ie non-acid forming (NAF)) will be used for the construction of infrastructure required for the mine development, including haul roads, ROM pad, site access and internal roads, TSF and water management facility (WMF) embankments, pit amenity bund, hardstand areas and other water management infrastructure.

Early in the mine life suitable waste rock will be in high demand as a construction material for site earthworks. Indicative mine scheduling has been informed by the anticipated availability of suitable waste rock for construction activities.

B.4.4 Pit amenity bund and southern amenity bund

The pit amenity bund and southern amenity bund are shown in Figure B.2. The pit amenity bund runs alongside the ramp exit keyway from the south of the open cut, connecting to the southern amenity bund to the east. The southern amenity bund forms the southern extent of the waste rock emplacement. Both amenity bunds have been designed to mitigate noise and visual impacts on receivers residing in Kings Plains to the south and south west of the mine development project area. The pit amenity bund will shield haul trucks exiting the open cut pit, thus reducing associated noise and visual impacts. Even while under construction, the southern amenity bund will provide a barrier for noise and visual impacts, particularly during night time activities, with placement of waste rock on the front face of the bund only occurring during daytime hours.

The pit amenity bund is expected to be constructed in Year 1, with its construction prioritised in the first six months of the project. The final height of the pit amenity bund will be approximately 950 m AHD, subject to final detailed design. Construction of the southern amenity bund is expected to commence in around Year 2 and continue into approximately Year 6 when it will reach its final landform height of around 1,065 m AHD (1,075 m AHD with microrelief features included). This indicative schedule balances the requirement to manage early development of the open cut in relation to the demand for waste rock material to construct other site infrastructure such as the TSF embankments, the management of potentially acid forming (PAF) waste rock (refer to Section B.6), as well as the requirement to manage noise levels at Kings Plains to the south of the mine development project area.

In the early stages of the open cut development the haulage fleet will exit the pit from ramps on both the northern side and eastern side of the open cut, primarily heading north to dump waste rock in the northern footprint of the waste rock emplacement. This is to minimise noise in Kings Plains in the early stages of the project.

The larger mining fleet will be used in the first six months of the project during the construction phase (daytime activity only) to enable the pit amenity bund to be established as soon as possible. From around month 7 onwards, equipment with reduced noise output will be used to complete construction of the bund, as the work on the bund moves to a higher elevation and to satisfy the relevant operational noise criteria which will then apply as the mine moves into 24 hour operations. Equipment with reduced noise output will also be used to construct the WMFs associated with the pit and southern amenity bunds in the first six months of the project.

Detailed mine design will aim to optimise the mine scheduling and in particular the waste dumping schedule to construct the amenity bunds as soon as practicable within approved noise limits to provide noise and visual bunds for the remainder of the project life.

B.4.5 Site access and internal roads

Primary access to the mine will be via a new access from the Mid Western Highway, approximately 650 m west of the eastern boundary of the mine development project area. The new access intersection will consist of an auxiliary left turn land and a channelised right turn lane. The proposed intersection has been designed to cater for the worst-case scenario of peak background traffic and project related traffic. A concept design for the new site access is contained in the Traffic and Transport Assessment Addendum (Constructive Solutions 2020) for the mine development contained in Appendix Q and described in Section 6.12 of the 2020 Amendment Report. It is noted that discussions with Transport for NSW (TfNSW) regarding the final layout of the revised site access concept design are ongoing and minor amendments to the intersection design and location may be made prior to finalising the detailed design of the intersection (for example, the intersection may be shifted further east to provide greater separation from the existing curve on the Mid Western Highway to the west). The internal access road will be sealed for approximately 1 km from the new intersection.

Construction traffic will access the mine development project area via Dungeon Road for approximately the first six months. Once the new site access is complete the Dungeon Road access will be closed; however, access to Dungeon Road will be maintained via locked gates for emergency vehicles, environmental monitoring, mine inspections or in the event of an unplanned blockage of the new site access. Dungeon Road will be closed to the public at the start of construction activities.

Internal all-weather graded access roads will be established where required to provide access to mine infrastructure areas including to the TSF, processing plant, open cut pit and ancillary areas. Approximate locations of the internal access roads are shown in Figure B.2.

Further detail regarding the proposed new intersection and site access is provided in the Traffic and Transport Assessment Addendum (Constructive Solutions 2020) for the mine development contained in Appendix Q and in Section 6.12 of the 2020 Amendment Report.

B.4.6 Borrow pits

Borrow pits located within the disturbance footprint may also be required to obtain suitable gravel for construction of the access road and other internal access roads if suitable material cannot be sourced from the open cut. The development of borrow pits will generally involve:

- removal and stockpile of topsoil and subsoil;
- extraction of gravel;
- stockpiling of gravel adjacent to borrow pit;
- processing in a mobile crushing/screening plant (if required); and
- transporting gravel by truck to locations within the disturbance footprint.

In the event suitable gravel for the main access road or other earthworks cannot be obtained from within the disturbance footprint, Regis will source the required material from a local quarry.

Borrow pits will also be developed to obtain sufficient clay to line the TSF.

B.4.7 TSF construction

The TSF will be developed in stages to minimise the extent of disturbance and to synchronise with the progressive development of the open cut and availability of waste rock which will be used for the construction of TSF embankments. The design, staging and operation of the TSF is described in detail in Section B.8 The indicative construction methodology of the TSF is described below.

i Preparation works

All investigation and monitoring bores currently within the footprint of the TSF will be grouted prior to the start of construction works. Erosion and sediment control measures will be implemented to minimise sediment transport from embankment construction, storage liner and clay borrow pits. The TSF run off interception WMF, directly downstream of the main embankment, will be constructed prior to the start of embankment works. This WMF will function as the initial sedimentation basin for the TSF construction works.

Clearing and soil stripping would be carried out within the embankment footprint area, emergency spillway and storage area.

ii Embankment construction

The main embankment will be constructed in a number of stages in a series of downstream lifts. During initial construction, general sub-excavation will be carried out beneath the entire width of the embankment foundations to remove weak, compressible or over-saturated soils. A cut-off key will be excavated generally to a competent basement of low permeability, then back filled with clay fill. Localised grouting of seepage areas and irregular surfaces may also be required to allow placement of the clay fill.

Embankment development will involve construction of an upstream clay lined zone (above the clay filled cut-off key), internal rock fill transition zone and downstream rock fill buttress. Clay will be selectively sourced from borrow pits located within the storage area and the general surrounds of the TSF, and rock fill will be sourced predominantly from the open cut.

Controls for seepage management will also be installed during embankment construction (refer Section B.8.7 for further detail regarding seepage management).

iii Lining

Lining of the TSF floor is proposed to consist of a suitable low permeability lining comprising:

- in drainage features such as the former Belubula River and other areas with weathered geology, a full depth storage blanket liner of clay fill with a minimum depth of 1,000 mm and a permeability of 1 x 10^{-9}m/s;
- in other areas and where suitable clay fill is available, the area will be conditioned by scarifying/ripping, moisture conditioning and compacting to provide a clay fill liner with a minimum depth of 300 mm and a permeability of 3.3 x 10^{-10}m/s (less than or equivalent to 1,000 mm @ 1 x 10^{-9}m/s); and
- in remaining areas where insufficient suitable clay fill is available, the area will be lined with an engineered liner with a permeability less than or equivalent to 1,000 mm @ 1 x 10^{-9}m/s.

Further detail on the TSF design is provided in Section B.8.

B.4.8 Site infrastructure construction

Hardstand areas will be constructed in and around the processing facility. Hardstand areas will also be established to accommodate the workshop, magazine and administration buildings as well as the mining go line area. A concrete batching plant may be accommodated onsite to facilitate these works.

The components of the processing plant such as structural elements, mechanical equipment (conveyors), electrical equipment, tanks, mills and pipework will be installed by dedicated installation teams.

Most buildings will be portable demountable structures that will be transported to the site. Where possible, modular construction will be used to minimise site work and reduce construction timeframes. A full description of the mine administration area is provided in Section B.10.

B.4.9 Site services

During the early phases of construction existing site utilities will be used for the provision of power and communications. Generators will also be used as required. A description of the proposed power supply for the operations is provided in Section B.10.4.

During early construction and open cut development activities water will be used predominantly for dust suppression, TSF liner conditioning works and machinery washdown. Prior to commissioning of the pipeline, water will be derived predominately from production bores (refer to Figure B.2) and incidental take from impacted areas in accordance with Regis' harvestable rights entitlement.

B.4.10 Construction equipment

Equipment required for construction activities will vary throughout the construction phase, and is likely to include scrapers, backhoes, graders, hydraulic excavators, articulated trucks, rigid dump trucks, mobile cranes, vibrating rollers, water carts, track dozers for topsoil stripping, front end loaders, generators, screening/batching plant, water pumps, lighting plants and light vehicles.

From approximately month 7, when activities begin to also be conducted at night, in areas proximate to Kings Plains the mining fleet will be replaced with equipment with a reduced noise output to meet noise criteria requirements in the Kings Plains area.

The larger mining fleet will be used on the pit amenity bund construction in the first six months of the project to enable the bund to be established as soon as possible. From around month 7 onwards, mining equipment with reduced noise outputs will be used to complete construction of the bund, as the work on the bund moves to a higher elevation and to enable compliance with the operational noise criteria which will then apply as the mine moves into 24 hour operations. This reduced noise output fleet will also be used to construct the WMFs associated with the pit and southern amenity bunds in the first six months of the project.

B.4.11 Construction schedule

The first six months of construction will be carried out generally during standard construction hours as per the ICNG (DECC 2009):

- Monday to Friday - 7:00 am to 6:00 pm.
- Saturday – 8:00 am to 1:00 pm.
- No work on Sundays or public holidays.

Outside of these hours, some works will be carried as required, such as limited construction activities, environmental management such as dust control, delivery of oversized equipment, and servicing of equipment. In these circumstances, works will be undertaken in accordance with the noise criteria for outside of recommended standard hours in the ICNG.

After six months, construction and mine development activities will be carried out 24 hours per day, 7 days per week.

As shown in Figure B.4 operations will phase in progressively in the later stages of construction. Therefore, there will be some overlap between construction and operation phases.

An iterative process of noise modelling and mine and waste rock scheduling has been undertaken to define the sequence of activities in the initial site establishment phase (ie the first six months) of the project, in particular consideration of noise predictions in Kings Plains. The key outcomes of this are as follows:

- Construction of WMF6, WMF4 and WMF5 will generally be undertaken sequentially, in that order to minimise noise in Kings Plains. Construction of these WMFs will be completed within the first six months. Construction of the pit amenity bund will start once WMF6 is constructed. The purpose of these WMFs is to effectively control runoff from disturbed areas associated with the establishment of the pit amenity bund and the southern amenity bund.

- Construction of the pit amenity bund will be prioritised in the first six months. Construction will continue beyond six months; however, after this time, a mining fleet with a reduced noise output will be used on this bund.

- Construction of the waste rock emplacement will commence in the north. Establishment of the southern amenity bund will commence around the start of Year 2.

B.5 Open cut mining operations

B.5.1 Mineral resource

The McPhillamys gold mineralisation is located within a sequence of sheared Silurian metavolcanics and volcanoclastic rocks forming part of the Eastern Lachlan Fold Belt of NSW. The shear zone has been defined over 800 m along strike with a width of 200 m and 700 m down dip. The mineralisation is bound to the west by the Sherlock Fault and is somewhat structurally constrained between a set of normal faults trending northeast-southwest produced by dextral movement along the Sherlock Fault. The mineralisation is cylinder shaped, approximately 200 m in diameter beginning near the surface and extending near vertically to depth (refer Figure B.6). The grade increases with depth, with the highest grades near the base of the proposed open cut.

Regis completed a Joint Ore Reserve Committee (JORC) compliant Mineral Resource Estimate and Ore Reserve Estimate in April 2019 (Regis Resources 2019). The results of this estimation are summarised in Table B.2. A mineral resource is defined as a geological concentration of material which has a reasonable prospect of eventual economic extraction and is not constrained by likely mining limitations. An ore reserve on the other hand, refers to the component of the mineral resource that may be economically and realistically mined.

Table B.2 McPhillamys Mineral Resource and Ore Reserve Estimate

	Tonnes (Mt)	Gold grade (g/t)	Contained gold (kOz)
Mineral Resource	69.8	1.02	2,293
Ore Reserve (Probable)	60.8	1.04	2,023

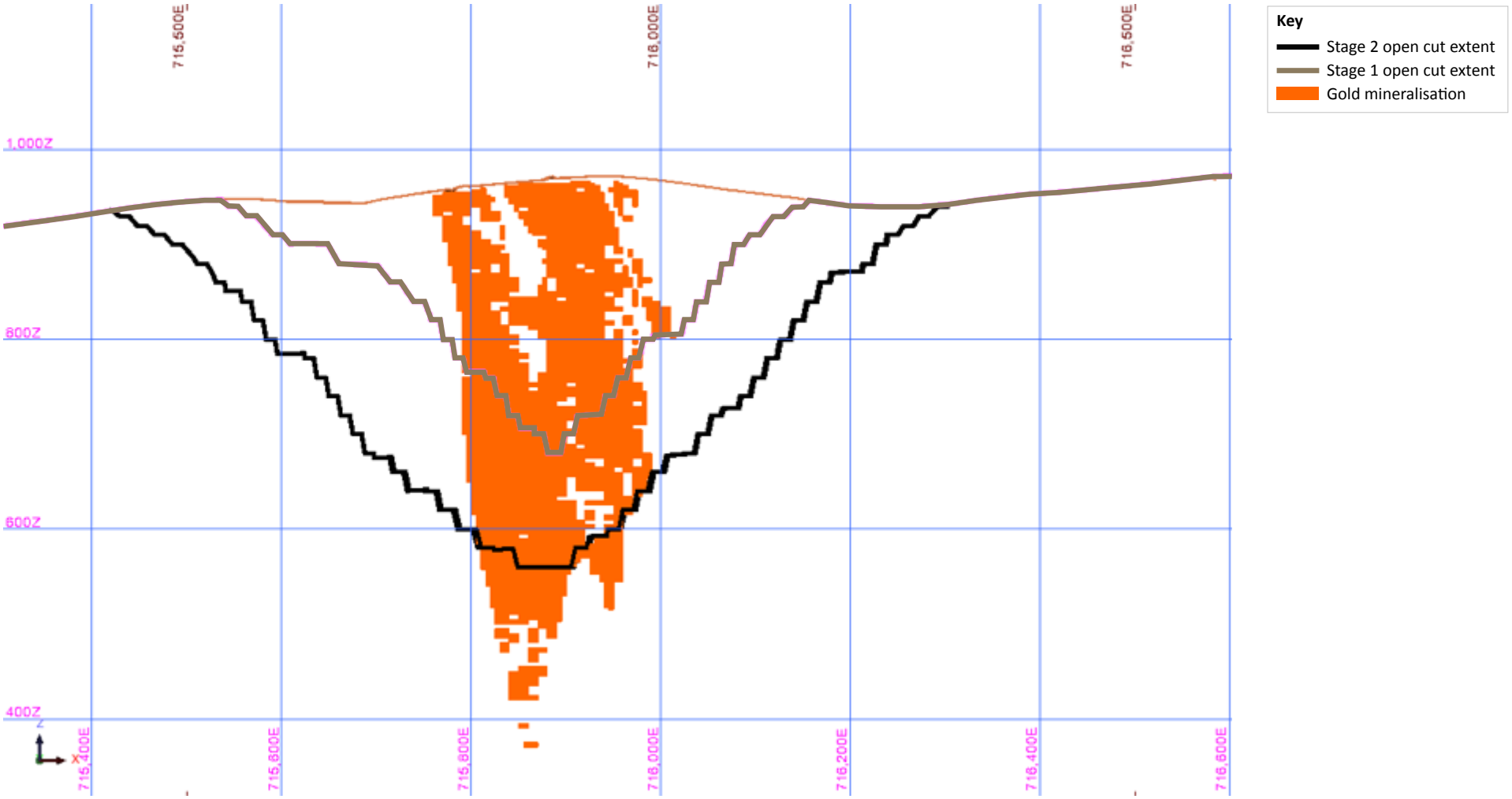
B.5.2 Ore and waste rock extraction

Regis proposes to extract approximately 60 Mt of ore from a single open cut pit over the life of the project. Ore will be extracted at rate of up to 8.5 Mtpa. Mining operations will occur 24 hours a day, 7 days per week, and are expected to last approximately 11 years of the total 15-year project life.

Due to the generally cylindrical shape of the mineralisation, a cone shaped open cut is proposed, with the widest point at the surface, and decreasing in diameter with depth (refer Figure B.6). The open cut has been designed to minimise the surface area disturbance for the quantity of material extracted, so the area of impact is relatively small compared to excavation quantities.

Conventional open cut mining methods are proposed for the mine development. As much of the material to be mined in the open cut is fresh rock, nearly 100% of the rock will require drilling and blasting to facilitate efficient loading and hauling of ore and waste.

Once the material is fragmented, excavators will be used to load material into a fleet of haul trucks. Ore will be transported to the ROM pad, and waste rock will either be used for earthworks within the mine development project area or hauled to the waste rock emplacement.



Gold mineralisation cross section (6292300 mN)

McPhillamys Gold Project
Amendment Report May 2020

Figure B.6

i Open cut design and development strategy

The open cut forms an inverted cone, with a diameter at the surface of approximately 1,050 m, and deeper pit shells generally expanding concentrically to a final depth of approximately 450 m.

The indicative material movement schedule is shown in Figure B.7. Total material extracted over the life of the mine is expected to be approximately 107.5 million bank cubic metres (Mbcm). Extraction will be relatively consistent between Years 2 to 8, with peak extraction occurring in around Year 6.

Due to the cone shaped design, as the open cut progressively deepens extraction of material will progressively decline. Extraction rates are anticipated to decrease from around Year 7 to Year 11.

As for the overall project schedule, this may vary from that shown in Figure B.7 to account for detailed mine design, mine economics, geological conditions, market conditions or relevant approval conditions.

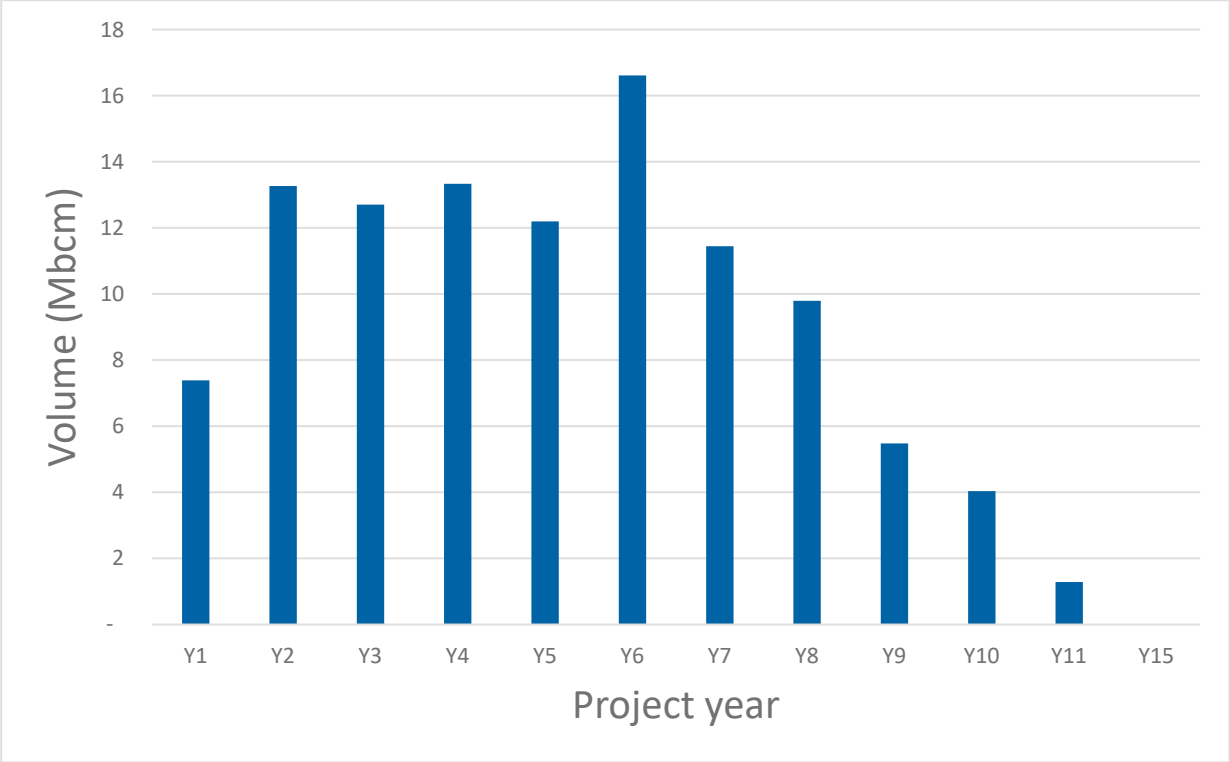


Figure B.7 Indicative material movement schedule

ii Mining fleet

The mining fleet will vary throughout the life of the project depending on the size and depth of the open cut, the volume of material to be moved and waste rock emplacement haul distances. An indicative mining fleet (subject to supply by a mining contractor to be engaged post approval) is shown in Table B.3. A reduced mining fleet will be used in the initial years of the project, with associated less haul trucks, until the open cut pit benches are in place to shield earthworks in the pit.

The peak mining fleet will be required in around Year 6 of the project; after which point requirements are likely to reduce over time. Key mobile equipment (haul trucks, drill and excavators) will have noise suppression packages fitted as required to reduce noise emissions.

Table B.3 Indicative mining fleet

Equipment	Number
Primary excavators	2-3
Secondary excavator	1
Primary haul trucks	16-21
Haul trucks (rehabilitation/pre-strip fleet)	1
Production drill	3
Large tracked dozer	2-3
Small-medium tracked dozer	1
Wheel dozer	1
Grader	1-2
Water cart	1-2
Front end loader (ROM Pad)	2

Ancillary mining equipment will also include:

- pumps;
- lighting plants; and
- light vehicles.

The anticipated daytime and night time mining fleets over the mine life have been incorporated into the noise and air quality modelling carried out for the mine development (refer to Appendix J Amended Noise and Vibration Impact Assessment (Muller Acoustic Consulting 2020a) and Appendix L Revised Air Quality Impact Assessment (EMM 2020g) of the 2020 Amendment Report).

B.5.3 Blasting

Rock within the open cut pit will require blasting via the controlled use of explosives to enable efficient and safe removal of ore and waste rock from the open cut by excavators and haul trucks. Blasting is generally proposed during the middle of the day and is likely to be conducted on a one blast per day basis, unless required for safety reasons or other environmental considerations. Blasting will generally be carried out between the hours of 8:00 am to 4:00 pm Monday to Saturday, as recommended by the air quality assessment (Appendix L of the 2020 Amendment Report). Blasting will generally not be carried out on Sundays and public holidays.

Blasting activities will be designed and carried out to meet NSW Environment Protection Authority (EPA) blasting criteria and to manage potential impacts upon adjacent land uses. A notification procedure will be developed to notify nearby receivers prior to blasting events and real time monitoring of overpressure and vibration will be carried out.

Blasting material, including explosives and ammonium nitrate emulsion will be stored approximately 1 km to the north north-west of the open cut, as shown in Figure B.2, in a facility designed to meet the separation and design requirements in *AS2187.2 2006 Explosives – Storage, Transport and Use.*

The noise and vibration impact assessment prepared for the mine development includes an assessment of blasting overpressure and vibration impacts (refer Appendix J of the 2020 Amendment Report). This assessment concluded that a maximum instantaneous charge (MIC) of 300 kg will ensure that the relevant overpressure and vibration limits are met at nearby residences.

B.5.4 Open pit dewatering

Hydrogeological investigations indicate that the water table in the area subject to mining is approximately 15 m to 35 m below existing ground level. As material below the water table is removed, groundwater will seep into the open cut from the intersected saturated strata. Collection of this water to facilitate dry and safe mining conditions will be carried out via in-pit sumps.

Appendix H of the 2020 Amendment Report contains the groundwater assessment addendum for the mine development (EMM 2020e), including estimates of groundwater inflows into the open cut. The inflow rate is predicted to peak in mining Year 2 at 580 ML/year (1,600 kL/day), with a second slightly smaller peak in Year 5 at 557 ML/year. The inflow rate is predicted to decline to 160 ML/year (438 kL/day) in mining Year 11.

B.6 Waste rock management

During mining operations, overburden and material that has insufficient gold mineralisation to justify processing, will be removed from the open cut and either be used for earthworks within the mine project area or hauled to the waste rock emplacement area. It will not be possible to progressively refill the open cut as mining progresses due to the vertical nature of the deposit and the single circular open cut mine. Refilling the open cut at the end of the mine life would be prohibitively expensive and result in prolonged amenity impacts.

The indicative waste rock storage volumes for the mine development in million loose cubic metres (Mlcm) are shown in Table B.4. The total storage volume available is considered sufficient using standard swell factors with a contingency of approximately 10% included in the waste emplacement volume capacity. This contingency accounts for uncertainty over the swell factor pending validation during actual mine operations.

Table B.4 Indicative waste rock storage volumes

Location	Approximate storage quantity (Mlcm)
ROM Pad	5
TSF embankments	6
Haul roads and administration area	2
Waste emplacement area including southern amenity bund	102
Pit amenity bund	0.5
Water management facility (WMF) embankments	0.4
ROM capping (during decommissioning phase)	4
TSF capping stockpile	3
Total	**123**

B.6.1 Waste rock geochemistry

Substantial waste rock geochemistry test work and analysis has been carried out on all waste rock types at McPhillamys by SRK (2019). The test work has indicated that some of the mineralisation associated with sub-

economic ore contains sulphide minerals that if left exposed to air and water for long periods may be PAF. Over the life of the operation approximately 42% of the waste rock is estimated to be PAF. It should be noted that the calculation of the estimated quantity of PAF material is conservative (refer to Section 2.6.2 of the 2020 Amendment Report for discussion on this aspect).

The Geochemical Characterisation (SRK 2019) (refer to Appendix G of the EIS) found much of the NAF material to be extracted from the open cut is highly neutralising and can be used to neutralise any potential generation of acidic material in the PAF material. There is sufficient NAF waste rock material available within the open cut over the life of the mine to encapsulate all PAF material and prevent any potential longer-term issues with acid mine drainage.

PAF waste rock encountered early in the development of the open cut will initially be encapsulated within the ROM pad. During mining operations PAF will be encapsulated in the waste rock emplacement. To encapsulate the PAF, a minimum 5 m thick NAF waste rock base layer will be constructed, on top of which PAF can be placed. Once the PAF cells within the waste rock emplacement have been established, it will be progressively encapsulated by a minimum of 5 m of NAF material. The top of the encapsulated PAF cell will then be compacted to form a relatively impervious layer, thus reducing the ingress of air and water into the PAF cell.

As a proportion of waste rock mined, PAF content increases with mine life; ie lower amounts of PAF material are generated early in the mine life compared to later in the mine life. Some NAF material will therefore be stockpiled in the latter stages of the mine life to cap the final PAF cell in the waste rock emplacement, as the final benches at the base of the open cut are not expected to yield sufficient NAF for this purpose.

Regis will implement a field-testing program to distinguish PAF material from NAF material during operations, and operational management measures will be implemented to separate the identified PAF material. This procedure will reduce the volume of PAF material that requires encapsulation and increase the volume of NAF material available to construct the PAF encapsulation cells. Testing of waste rock material will continue progressively throughout the mine life to ensure that all PAF is appropriately managed.

B.6.2 Scheduling of waste rock emplacement

Emplacement of waste rock material will commence in the northern part of the emplacement footprint. By around Year 2, emplacement will occur in both the northern and southern ends. Indicative scheduling of the waste rock emplacement is shown in Figures B.5a to B.5f.

B.7 Ore processing

Ore will be processed within a conventional carbon-in-leach (CIL) processing plant. CIL processing is a gold recovery method used in NSW and more broadly in Australia and around the world for the recovery of gold and other metals, including by Regis at its Duketon Gold Project operations in Western Australia. The proposed processing plant will have a nominal throughput of up to 7 Mtpa. Figure B.8 presents an indicative process flow sheet for the proposed processing operations, while Figures B.9 show the general arrangement of the processing plant.

The processing operations will include the following main activities:

- stockpiling and blending of ore at the ROM pad;
- primary, secondary and tertiary crushing circuits;
- crushed ore stockpile and reclaim;
- grinding and gravity recovery and ultra-fine grinding;
- leaching and adsorption;

- elution, electrowinning and smelting;
- tailings thickening; and
- cyanide detoxification treatment.

The following sections provide a description of each of the above components, as well as descriptions of commissioning activities and the reagents required for ore processing.

B.7.1 ROM pad operations

The ROM pad will be adjacent to the primary crushing building and will have a maximum ore stockpile capacity of around 1.0 Mt to 1.2 Mt. The ROM pad will have the capacity to accommodate a number of low-grade ore stockpiles which will be built up and reclaimed over the life of the mine so that the processing plant can be fed at a nominal rate of 7 Mtpa of ore. The low-grade stockpiles will ensure that adequate ore is available to manage the detailed mine planning requirements and sequencing that may change over the life of the mine, while maximising the delivery of high grade material to the processing plant early in the mine life.

Ore will be transported by haul trucks from the open cut and will be dumped either directly into the ROM bin, which will supply the primary crusher, or onto the ROM pad onto variously graded stockpile fingers. A front end loader will load the ROM ore from the graded stockpile fingers to the blend determined by the processing department and deposit the ore directly into the ROM ore bin.

The ROM pad has been sufficiently sized to allow a safe operating traffic management system for dump trucks and front end loaders. The design of the ROM bin will allow direct tipping of ore from haul trucks at two locations, which will reduce “ramping” of the haul fleet.

Low grade ore, which has a gold content that is not considered economic at the time it is mined, but which may be considered appropriate for processing at a later date, may also be stockpiled adjacent to the waste rock emplacement area in a manner which would enable it to be extracted and processed in the future.

B.7.2 Crushing circuit

The crushing plant is designed for 365 crushing days a year, 24 hours per day, with plant utilisation of 70% and a nominal throughput of 1,142 dry tonnes per hour (dt/h) of ore.

The primary crusher will be fed by gravity from the dual-dump ROM bin. The primary crusher will be a gyratory crusher which will reduce the size of the ROM ore from nominally up to 800 mm in diameter to less than 250 mm. The crushed ore will be withdrawn from the primary crusher discharge chamber by an apron feeder, which will deliver it onto the primary crusher conveyor.

The crushed ore will subsequently be sized at a screening station where oversize ore will be directed for secondary crushing and undersized ore directed to the tertiary high-pressure grinding rolls (HPGR) circuit. The secondary crusher will be operated in closed circuit with the screen to achieve a crushed ore size of less than 40 mm before directing ore to the tertiary HPGR circuit which will crush the ore further to less than 7 mm.

A primary and secondary crushing dust suppression system will be installed to collect dust from around the primary and secondary crusher circuits, specifically from transfer points. Collected dust will be slurried before being pumped to the grinding circuit.

B.7.3 Crushed ore stockpile and reclaim

The crushed ore will then be transported via conveyors to a covered conical stockpile. This stockpile will have a capacity of approximately 11,000 t. The crushed ore will be reclaimed via two apron feeders installed in concrete vaults within a concrete tunnel below the stockpile. The feeders will deliver the fine ore at a controlled rate onto the mill feed conveyor.

B.7.4 Grinding and gravity recovery circuit

The crushed ore will then be combined with water in the grinding mill and the rotating action of the mill combined with mill ball charge using grinding balls will further reduce the ore particle size.

The ground ore slurry will then be passed through a hydrocyclone classification circuit where coarser particles will be separated and reintroduced to the grinding mill, whilst finer particles, approximately 150 µm (0.15 mm) or less, are directed to the gravity recovery circuit.

The gravity recovery circuit will separate higher density particles from the slurry for regrinding to a finer size prior to being directed to the CIL circuit, whilst the lower density particles from the slurry will be directed to the CIL circuit without any additional grinding. Lime will be slaked with water to form a milk of lime slurry stream, which will be added to the ground ore after hydrocyclone classification so as to elevate the pH within the CIL circuit.

B.7.5 Carbon-in-leach circuit

The proposed CIL circuit will consist of eight agitated leach tanks, each approximately 2,500 m^3 in size. The ground and ultra fine ground slurry streams are combined in the first leach tank where they then flow through to the final leach tank. Oxygen and cyanide solution will be added to the leach tanks to leach (or dissolve) the gold particles into solution. Each tank will be fitted with a dual impeller mechanical agitator to ensure uniform mixing. All tanks will be fitted with bypass facilities to allow any tank to be removed from service for agitator or intertank screen maintenance.

The addition of milk of lime after the hydrocyclone classification circuit ensures that sufficient cyanide (diluted to approximately 300 pm concentration) is maintained over the approximate time frame of 16 hours that it takes for the slurry to flow through the eight leach tanks.

Activated carbon granules (nominally 2 mm to 4 mm in size) will be added to each of the eight leach tanks. Screens with an aperture of approximately 1 mm are located at the outflow point of each of the leach tanks and act to contain the larger activated carbon particles within each of the leach tanks, whilst at the same time allowing the finer slurry particles (less than 0.15 mm) to pass through the screens to each successive leach tank.

The activated carbon particles in each leach tank adsorb the soluble gold cyanide from the solution onto their large porous surface. The activated carbon particles are then pumped in the opposite direction to the ore slurry each day, from the final leach tank ultimately to the first leach tank over a one to two week period. From there, a proportion of the activated carbon particles can be removed and directed to the desorption circuit on a daily basis.

The tanks will be constructed on concrete ring beams in a bunded area with a sloping concrete floor with the bunds being designed to hold 110% of the volume of a single leach tank. Any spillage from the circuit will report to one of two sumps located on the periphery of the bunded area and will be pumped back to the circuit. In the highly unlikely event of a catastrophic tank failure (ie failure of more than one leach tank), runoff will be directed through the plant site drainage system, to an appropriately sized environmental containment pond (event pond) adjacent to the processing plant.

B.7.6 Gold desorption, electroplating and smelting

Activated carbon particles that have adsorbed soluble gold and which have been removed from the first leach tank (loaded carbon) are then washed clean of slurry and added to the desorption column. The soluble gold which is readily adsorbed to the porous activated carbon particle surface at lower temperature (less than 50°C) can then be desorbed (removed) from the porous activated carbon surface at higher temperature (greater than 100°C).

The higher temperature solution is passed through the desorption column containing the activated carbon particles and the soluble gold is released back into solution from the porous surface of the activated carbon particle and this solution is then stored in several tanks (eluate tanks). The activated carbon particles, with the soluble gold removed, are then returned to the final leach tank and the soluble gold adsorption process repeated.

This solution containing the dissolved gold is then passed through electroplating (electrowinning) cells where the gold plates to either steel or stainless steel wool. The gold on the steel or stainless steel wool is then removed using high pressure water or heat and the gold powder (or sludge) is dried.

The dried gold sludge material has fluxes (purifying agent) added and is heated in a small furnace to produce a doré (unrefined gold) bar, which is securely stored prior to transport from the mine site.

B.7.7 Tailings thickening

Once the ore slurry streams have passed through the leach tanks and have had the majority of gold removed, they are described as tailings. The tailings slurry then flows to a thickener, where the slurry is mixed with a flocculant solution. The flocculant solution assists the finer particles to coagulate and settle in the thickener.

The action of the flocculant solution and a slow moving rake within the thickener causes the solid particles to settle to the base of the thickener where they can be pumped to the next stage. At the same time, the upper section of the thickener contains clear process water, which has not settled with the solid particles. This clear process water is decanted from the surface of the thickener for reuse in the process. Approximately 60% of the process water still containing lime, oxygen and dilute cyanide is able to be recycled for use in processing.

B.7.8 Cyanide detoxification circuit

The thickened slurry removed from the base of the thickener is then pumped to the cyanide detoxification circuit where oxygen and other reagents (lime, copper sulphate and sodium meta-bisulphite) are added. The reagents react with the free and weak acid dissociable (WAD) cyanide in the thickened slurry, so that the free cyanide is destroyed and the level of WAD cyanide remaining is reduced to less than 30 parts per million (ppm) (30 mg/L).

Cyanide levels of 50 mg/L WAD in storages accessible to terrestrial wildlife is accepted as the water quality benchmark for the protection of wildlife (International Cyanide Management Institute 2018 and Donato et al. 2007).

Each of the cyanide detoxification tanks will be sized with a residence time of 1 hour, which allows for a cyanide detoxification tank to be taken offline for maintenance, and still ensure that WAD cyanide levels of less than 30 mg/L will be achieved.

The resultant detoxified slurry will then be pumped to the TSF. This pipeline will be installed above ground, with the exception of road crossings, within an earthen containment bund. Leak detection on the tailings pipeline will be provided by pressure transmitters and flow measurement at both the start and end of the tailings pipeline which will automatically shut down the tailings pumps if a leak is detected.

B.7.9 Commissioning

The processing plant will be commissioned progressively in the following phases:

- dry commissioning;

- wet commissioning; and
- performance testing.

Dry commissioning will comprise energising of all electrical equipment and circuits, no-load running of drives, (coupled and uncoupled), conveyor alignment, checking of control systems, safety devices, interlocks, instrumentation, control loops and valve actuation of all equipment. It will include, where possible, the circulation of water through systems and testing of control sequences, and operating the equipment without ore, reagents or other process materials.

Wet commissioning will start when ore, reagents, grinding media and other process requirements are introduced to the processing plant and it is operated as a whole.

The operation of the facilities will be performed by Regis operations personnel with the assistance of specialised personnel as required, who will sign-off on the performance of equipment. Following the introduction of ore, the plant will be progressively ramped up to full production. During this time the operations personnel will receive extensive training in all aspects of the plant's operation.

Commencement of testing and commissioning activities will be subject to the connection of power to the site and the commissioning of the pipeline water supply.

B.7.10 Process consumables

The CIL processing method using cyanide and oxygen to recover the gold from the ore is the only feasible method for extracting gold for the project. Cyanide is currently the major lixiviant (reagent or chemical) used for the economic recovery of gold. Cyanide, under typical leaching conditions, is reactive and has an affinity for gold, meaning gold is preferentially leached first before it complexes with other metals such as copper, silver, zinc and iron. Possible alternative processing technologies have been investigated and were found to be either ineffective or not financially viable.

The estimated annual consumption of typical process consumables, as well as indicative quantities to be stored on site, including reagents and LPG, are listed in Table B.5.

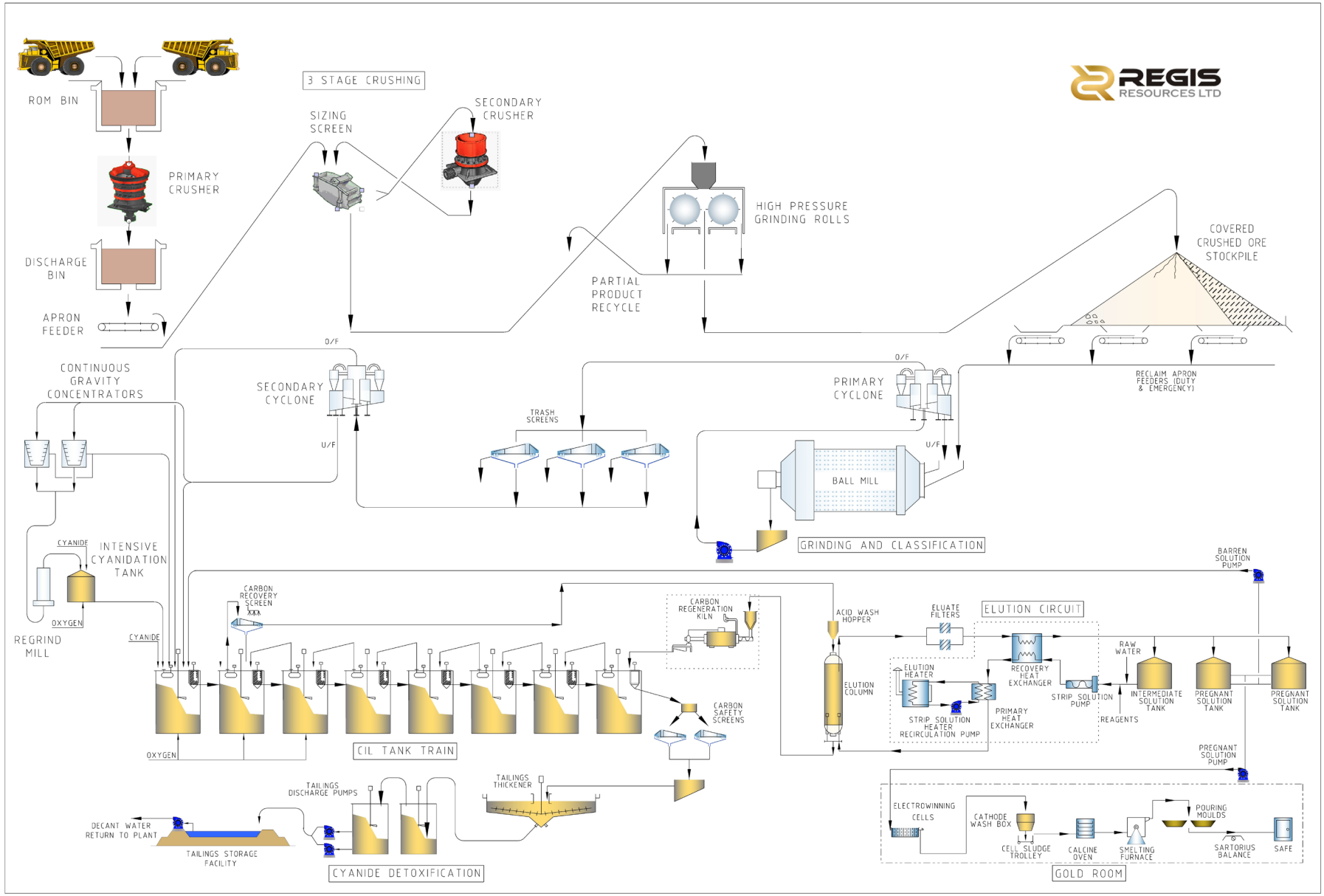
Table B.5 Process consumables estimated annual consumption and onsite storage

Reagent	Annual consumption	Storage	Description of use
Quicklime	5,000 t/y	~225 m^3 silo	Grinding and detoxification circuits
Sodium cyanide	5,700 t/y	~33 tonnes bulk storage, ~145 m^3 storage tank and ~145 m^3 dissolution tank	Carbon in leach circuit
Sodium Meta Bi Sulphite (SMBS)	3,800 t/y.	140 m^3 storage tank	Detoxification circuit
Sodium hydroxide (NaOH)	140 t/y	60 m^3 storage tank	Raising pH of processing stream
Hydrochloric acid	400 t/y	30m^3 storage tank	Gold desorption circuit
Flocculant	280 t/y	3 m^3 silo and 350 m^3 storage tank	Tailing thickening circuit
Copper sulphate	550 t/y.	45 m^3 storage tank and ~27 tonnes stored on site	Detoxification circuit
Activate carbon	140 t/y	500 kg bulk bag	Carbon in leach circuit

Table B.5 Process consumables estimated annual consumption and onsite storage

Reagent	Annual consumption	Storage	Description of use
Gold fluxes including, borax, silica, soda ash and potassium nitrate	2 t/y	Stored in 25 kg bags	Smelting process
LPG	1,050 t/y	6 x 3 kL tanks.	Elution circuit and smelting process

In addition to the above process consumables, oxygen will also be required for the CIL circuit. Oxygen gas will be generated at an onsite oxygen plant. The oxygen plant will have a nominal production capacity of 10 tonnes per day.



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Processing plant schematic

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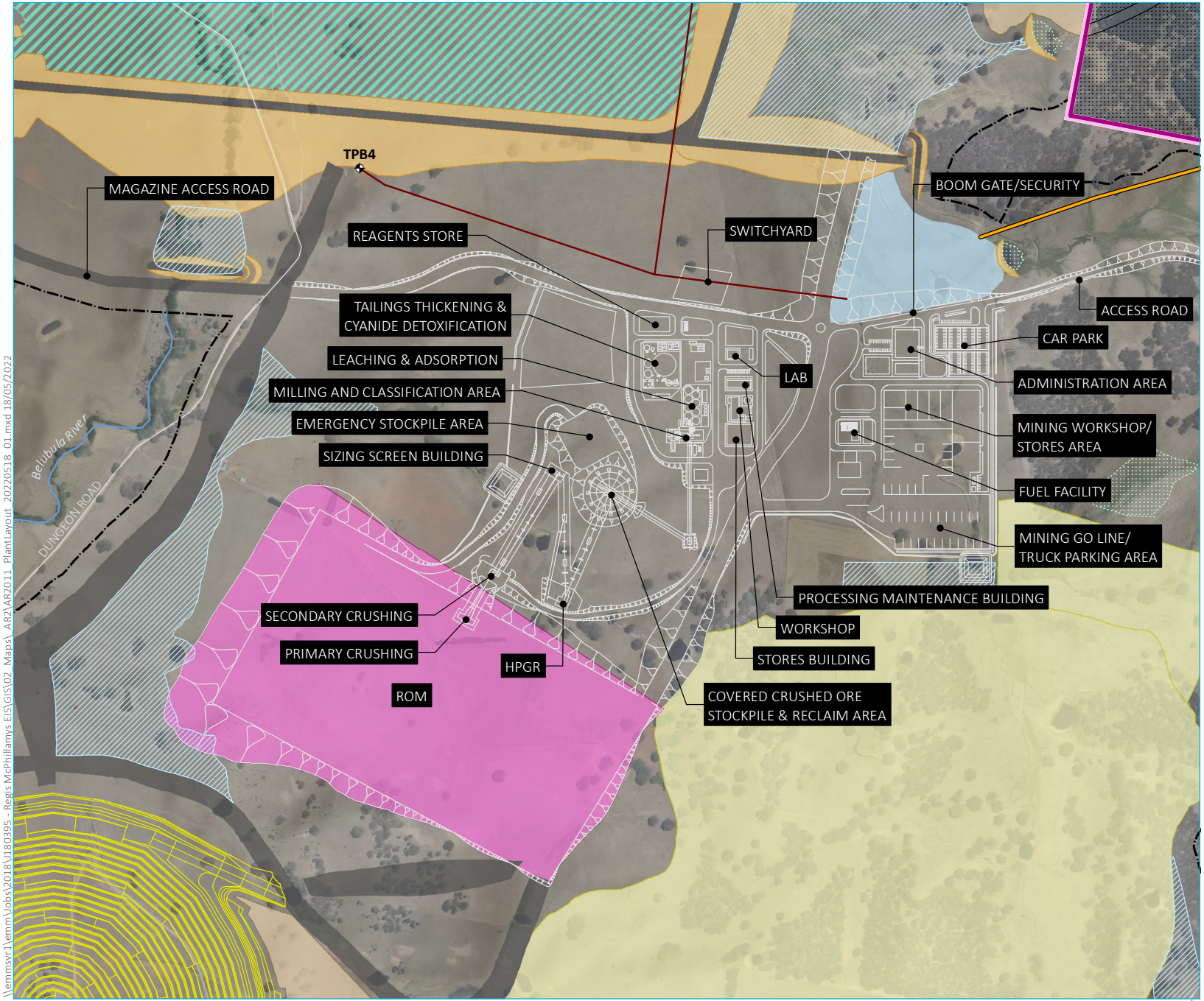
Figure B.8



KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Pipeline

Project general arrangement
- Construction groundwater bore
- Indicative construction groundwater pipeline
- Open cut mine
- Site infrastructure
- Site access roads
- Soil zone
- Embankments
- ROM pad
- Waste rock emplacement
- Tailings storage facility (TSF)
- Water management facility (WMF) - continuous storage
- Water management facility (WMF) - infrequent storage
- Clean water facility (CWF)

Existing environment
- Minor road
- Belubula River
- Vittoria State Forest

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Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

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Processing plant and administration area layout

McPhillamys Gold Project
Amendment Report May 2022
Figure B.9

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B.8 Tailings storage facility

The TSF has been designed to achieve the following objectives:

- to provide for the efficient storage of tailings, while forming an operational and post-closure landform that is geotechnically competent/stable and not subject to excessive or uncontrolled emissions to the environment; and

- to provide an integral component of the total site water management system, such that releases from the system to the environment are eliminated for all modelled climate scenarios.

The TSF will be located on the upper tributaries of Belubula River valley in the north of the mine development project area. This location has been determined as the most suitable location for the TSF due to the optimal geology with respect to low to very low groundwater permeability to protect the downstream Belubula catchment and the prevailing topography which will also shield the TSF from the majority of offsite viewpoints. The valley topography also provides a relatively efficient storage in terms of embankment construction, tailings rate of raise and benefits in controlling TSF seepage. Further, the placement of a TSF in the headwaters of a catchment is typically recommended to minimise clean water catchment and diversion, as well as avoiding likely greater groundwater (stream baseflows) in lower catchment areas.

This section provides an overview of the geochemical characteristics and storage requirement of the tailings as well as the proposed design and operation of the TSF. A comprehensive TSF definitive feasibility study for the project is contained in Appendix D of the EIS while a TSF Design Review report is contained in Appendix D of the 2020 Amendment Report. The proposed conceptual design is illustrated in Figure B.10.

The revised design of the TSF has also been reviewed by dam safety engineer Chris Hogg of CMW Geosciences. In addition to this, in recognition of the significance of the TSF and the issues raised in this regard in submissions received following the public exhibition of the EIS, the revised TSF design was also reviewed by Dr David Williams, Professor of Geotechnical Engineering and Director of the Geotechnical Engineering Centre at the University of Queensland. Summaries of both expert reviews are included in Appendix C of ATCW 2000 (Appendix D of the 2020 Amendment Report). Both expert reviews concluded that the TSF design is appropriate for the site. Dr Williams confirmed that the design is consistent with leading practice and the required Australian and International Standards.

B.8.1 TSF Risk Assessment

A TSF Risk Assessment (Risk Mentor 2019b) was carried out in accordance with AS/NZ ISO 31000:2018 *Risk Management Guidelines* to identify and evaluate potential risks relating to the TSF, in particular the potential risks and possible impacts to downstream surface and groundwater users arising from the geochemical composition of the tailings. This assessment concluded the risks associated with the TSF were “tolerable” in accordance with AS/NZ ISO 31000:2018 which classes “tolerable” as the lowest risk category (ie acceptable). The TSF Risk Assessment also identified and evaluated risks associated with different disposal options, alternative TSF designs and alternative TSF locations. The TSF Risk Assessment is contained in Appendix F of the EIS.

B.8.2 Tailing geochemical characteristics

Geochemical test work carried out as a component of the geochemical characterisation (SRK 2019) (contained in Appendix G of the EIS) indicates that detoxified tailings are anticipated to be elevated in sulphate (SO_4), selenium (Se) and fluorine (F) compared to ANZECC (2000) livestock drinking water guidelines.

The tailings are expected to be classified as PAF mainly due to elevated SO_4 concentrations, and therefore localised generation of acid mine drainage may be anticipated within the TSF where unsaturated conditions occur in beach areas. This will generate acidic water which will either collect in the decant area, where it will be collected and

recycled, or seep into the tailings mass. As the tailings will contain an acid-neutralising capacity (ANC), there is expected to be a degree of neutralisation of any acidic water as it slowly moves through the tailings mass. It is possible that the contained ANC will be enough to neutralise acidity released from oxidation on beach areas during the operational life of the TSF.

The concentration of weak acid dissociable (WAD) cyanide in the tailings as it is pumped from the spigots into the TSF will be less than 30 mg/L. This level is well below the internationally accepted WAD cyanide concentration level of 50 mg/L at which bird life are considered safe (International Cyanide Management Institute 2018 and Donato et al. 2007). As cyanide is readily and rapidly broken down in sunlight and through natural degradation, the concentration of WAD cyanide in the decant pond is expected to be substantially less than the concentration in tailings as it enters the TSF.

An overview of the predicted geochemical characterisation of TSF seepage and seepage management is provided in Section B.8.7 and discussed in detail in Section 6.4 (water resources) and Appendix H of the 2020 Amendment Report.

B.8.3 Tailings quantities and storage requirements

The processing plant will process approximately 60 Mt of ore over the project life. To ensure a conservative design of the TSF, an upper estimate of 70 Mt has been adopted. Assuming a tailings settled density (dry density) of approximately 1.5 t/m^3, a tailings production of up to 70 Mt requires 46,700 ML or 46.7 million m^3 of storage.

B.8.4 Design criteria

i NSW Dam Safety Committee requirements

It is likely the TSF will be a declared dam under the NSW *Dams Safety Act 2015*, and accordingly has been designed in accordance with Dams Safety NSW requirements. Dams Safety NSW is the primary statutory body with the authority and expertise to ensure the safety of prescribed dams in NSW. The focus on safety is to ensure all declared dams meet Dams Safety NSW safety requirements so that:

- risks to community interests are identified, assessed and properly managed, are reduced when necessary, and are kept under review throughout the life of a dam;
- risks to public safety meet the Dams Safety NSW's public safety risk guidelines; and
- other risks with a potential for an adverse effect on community interests meet criteria set by the owner and agreed with the Dams Safety NSW.

a Consequence category

A conservative 'extreme consequence' category rating has been adopted for the TSF design in accordance with DSC (2012). Adoption of this rating ensures adherence to the most stringent design criteria, construction management and operational supervision requirements. It should be noted that a comprehensive consequence category assessment will be carried out as part of the detailed design phase of the project and will include a dam break study. This assessment may result in the downgrading to a lesser consequence category. Notwithstanding, Regis will adhere to the design criteria of an extreme consequence category.

Key design criteria for extreme consequence rated facilities are as follows:

- environmental containment freeboard - the TSF has been designed with sufficient freeboard so that it could only overflow in a 1 in 10,000 year 72 hour duration rainfall event;

- emergency spillway - the emergency spillway has been designed to accommodate up to a 1 in 10,000,000 year rainfall event; and

- earthquake rating - able to withstand earthquake shaking without an uncontrolled loss of storage due to partial or complete failure of the dam for the maximum design earthquake of <1 in 10,000 years.

As noted in Section B.8.5 below, the mine development project area has a low level of historical seismicity with no active faults identified in the region surrounding the site. Dams Safety NSW notes there is a low probability of failure due to seismicity for well designed and constructed dams on solid foundations (DSC 2010). Notwithstanding the low level and historical seismicity and low probability of failure due to seismicity, the Dams Safety NSW requires that all proposed significant, high and extreme consequence dams are assessed for safety under seismic loadings.

Accordingly, embankment stability analyses carried out during the TSF definitive feasibility study considers seismic effects on stability (refer Section B.8.5). An appropriate safety under earthquake study will be prepared during the detailed design phase of the project in accordance with Dams Safety NSW.

ii Ongoing monitoring and compliance with Dams Safety NSW requirements

Following approval and construction of the TSF, Dams Safety NSW will continue to monitor the safety of the TSF in accordance with Dams Safety NSW requirements by requiring:

- proper operation and maintenance in accordance with Dams Safety NSW requirements;

- regular dam surveillance using trained personnel;

- appropriate dam safety emergency plans; and

- review of all ongoing TSF information and assessments and action as required to ensure the TSF is maintained in a safe condition.

iii NSW Environment Protection Authority TSF Liner Policy and Environmental Guidelines: Solid Waste Landfills

The EPA's environmental assessment requirements relating to tailings management requested that the TSF liner system proposed for the project satisfies the EPA's tailings dam policy. Based on correspondence from the EPA to the Department of Planning and Environment (DPE) (formerly DPIE) (EPA 2016) that was appended to the EPA assessment requirements for the project, it is understood that this policy is still under development. However, it is noted there is no formal policy in place to date. Notwithstanding, the correspondence outlines that the tailings dam policy will adopt a benchmark requirement for TSF liners to a achieve a maximum permeability of 1×10^{-9}m/s with a constructed clay liner of at least 1,000 mm (or a geosynthetic liner) providing equivalent or better protection.

Where an alternative liner system to the above is proposed and/or where the natural geology of the site is proposed, to be used as part of the liner system, the EPA correspondence (EPA 2016) notes that the tailings dam policy will require a hydrogeological investigation and impact assessment be carried out to prove the efficacy of the liner system. Both the benchmark of a maximum permeability of 1×10^{-9} m/s and the provision to enable proponents to propose an alternative liner system of equivalent hydraulic performance is consistent with the criteria set out in the *Environmental Guidelines: Solid Waste Landfills* (EPA 2015).

Regis has accordingly carried out extensive hydrogeological investigations (EMM 2019a) and TSF soil classification, permeability and strength testing investigations (ATCW 2019) and ATCW (2020) throughout the footprint of the TSF to determine whether an alternative TSF liner system could achieve the required hydraulic performance. These

investigations found that subject to treatment (involving ripping, moisture conditioning and compaction) in-situ materials are considered of low permeability (typically less than 1 x 10^{-9} m/s).

Given the preferred liner and overall multi-barrier seepage barrier approach varies from EPA's benchmark of 1 x 10^{-9}m/s, ATCW (2020) also carried out a seepage control assessment to assess the value of the inclusion of various seepage management controls (including an embankment with upstream clay core, different floor lining systems, and seepage interception trench system) (refer to Appendix D of the 2020 Amendment Report). This assessment found that the preferred multibarrier option for seepage management (as detailed in Section B.8.7) of an alternative clay liner consisting of a thickness of 300 mm and a permeability of less than 3.3 x 10^{-10} m/s, with an equivalent hydraulic performance of a 1,000 mm thick clay liner with a permeability of 1 x 10^{-9} m/s, combined with the installation of a seepage recovery system will exceed the seepage performance (measured at the downstream toe of the TSF) of the EPA benchmark.

B.8.5 TSF design

i TSF definitive feasibility study concept design

The final configuration of the TSF will be confirmed during detailed design; however indicatively will comprise:

- an embankment crest level of RL 962.0 m;
- a total embankment length of 3,600 m;
- a maximum embankment height of 49 m;
- a storage area (at full supply level) of 273 ha;
- an available tailings storage capacity of 46,700 ML; and
- a total storage capacity (including freeboard) of 50,030 ML.

Additional design features of the TSF include:

- sufficient storage to maintain an average rate of rise which, based on site climatic conditions will provide sufficient time for consolidation and associated high achieved densities and low permeability of the tailings mass. These are important considerations in minimising the potential of liquefaction and maximising the stability of the TSF both during operations and post closure;
- a decant structure located at the central extent of the eastern section of the TSF to recover process water for return to the processing plant. The decant structure is located away from the main embankment to drain water from the main TSF embankment. This allows for consolidation of the tailings and avoids the pooling of water against the main embankment thereby minimising liquefaction and potential seepage and ensuring the stability of the main embankment;
- a seepage recovery system constructed downstream of the cut-off key under the main embankment (refer to Section B.4.7 on construction of the TSF), with seepage reporting to the trench drained to a recovery sump for return to the TSF or transferred to the processing plant;
- an emergency spillway to discharge flood inflows in the event of extreme rainfall sequences in accordance with dam safety requirements;
- full lining of the TSF storage to achieve a low permeability equivalent of less than 1,000 mm @ 1 x 10^{-9} m/s;

- clean water diversion system to divert upstream clean water catchment around the TSF and back into the Belubula River;

- a TSF runoff interception water management facility (WMF) located down gradient of the TSF across the primary drainage feature for the purpose of providing containment of runoff from the TSF embankment disturbance area as well as providing secondary seepage interception; and

- monitoring bore network to detect seepage issues should they arise.

ii TSF embankment design and embankment stability analyses

ATCW (2020) carried out geotechnical analysis, including stability analysis to confirm the general suitability and stability of the proposed TSF embankment as well as to optimise seepage control measures. Based on the analyses carried out, the embankment configurations are considered to be appropriate in all modelled scenarios.

B.8.6 Operation of the TSF

The TSF will be developed in stages to match the extraction of waste rock from the open cut pit used for embankment construction and to cater for the rate of rise in tailings. The TSF embankment will be constructed in a number of stages in a series of downstream lifts. The indicative stages are shown in Figures B.5a-B.5f.

Tailings will be discharged into the TSF using subaerial techniques from multiple locations on the perimeter of the TSF. At each discharge location, the tailings slurry will produce near laminar flow over the gently sloping tailings beach to enable settling of tailings solids. Subsequent evaporation from the exposed beach surface in conjunction with controlled seepage will consolidate the tailings.

Water liberated from the tailings through the deposition phase will accumulate within a decant pond decant at the toe of the beach, from where it will be recovered for use in the processing facility. The discharge locations will be varied regularly, up to multiple times per day, to ensure that the tailings are evenly distributed and to maximise the area of damp tailings to minimise dust emissions.

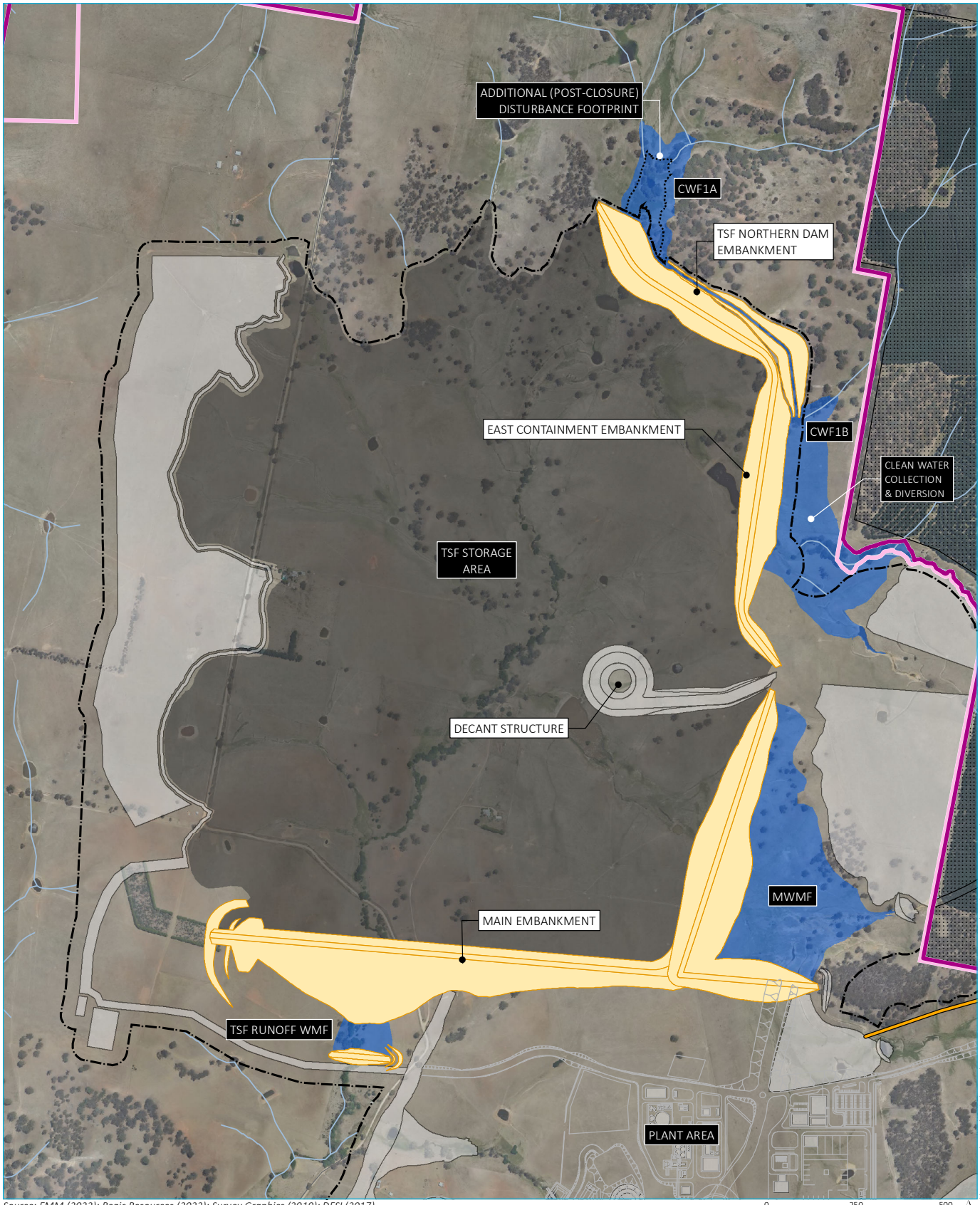
Operational monitoring of the TSF will include:

- regular (and after significant rainfall) inspections of the physical condition of the embankment, spillway, tailings and return water pipelines, seepage system and clean water division system;

- annual dam safety inspections carried out by a suitably qualified and experienced engineer to review monitoring data and inspect TSF and ancillary infrastructure;

- monitoring of pumped TSF tailings inflow, decant water outflows, seepage recovery rates, tailings rate of raise levels and tailings beach development surveys; and

- groundwater and downstream surface water monitoring.



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

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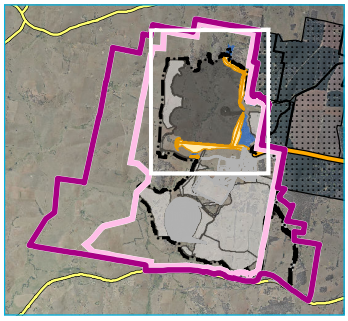

KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Additional (post-closure) disturbance footprint
- Pipeline
- TSF design
- Water management area
- Tailings storage facility
- Other mine layout elements

Existing environment
- Minor road
- Watercourse/drainage line
- Vittoria State Forest

TSF concept design

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Figure B.10

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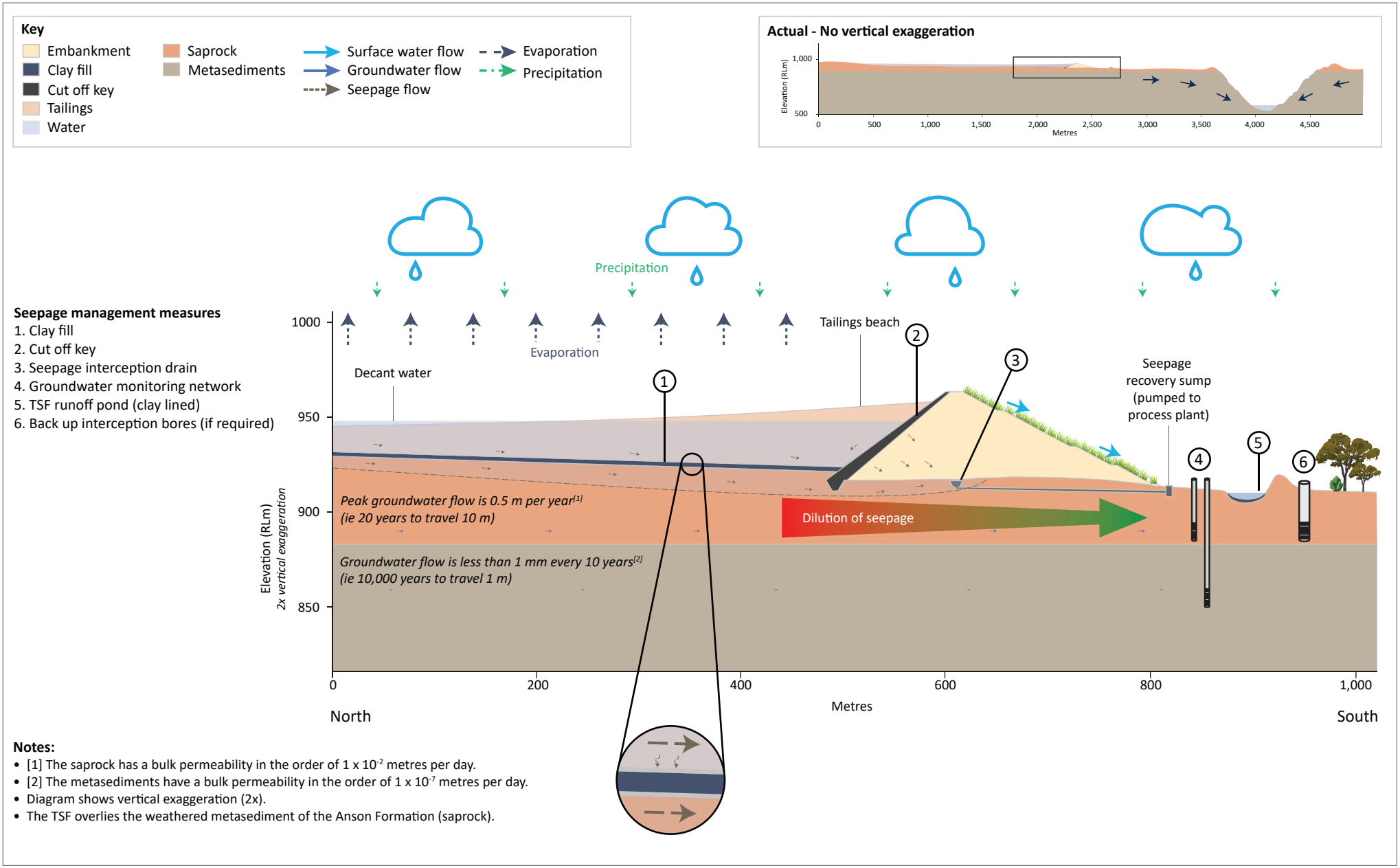
B.8.7 Seepage management

The design of the TSF includes safeguards for seepage management including:

- the embankment foundations will be cleared, stripped and excavated to remove weak, compressible or over-saturated soils;
- the in-situ material (surface geology) has a low hydraulic conductivity and will therefore minimise the vertical movement of seepage from the TSF;
- the floor of the TSF will be conditioned or lined to achieve or exceed EPA's permeability requirements;
- TSF embankment will be constructed with an inner low permeability clay lined zone;
- installation of a clay cut off key below the clay lined zone of the embankment, which will extend to low permeability basement geology;
- a drain will be constructed at the toe of the main embankment, which will capture seepage from the TSF and will then be recirculated back to the processing plant or TSF decant area; and
- groundwater monitoring bores will be installed around the TSF to monitor for early warning of potential seepage from the TSF and, if required, a seepage recovery system will be installed.

A schematic of the proposed seepage management system is presented in Figure B.11. In addition to the above design controls, the TSF will be operated such that the tailings within the TSF achieve a maximum density and minimum permeability.



Seepage management measures

1. Clay fill
2. Cut off key
3. Seepage interception drain
4. Groundwater monitoring network
5. TSF runoff pond (clay lined)
6. Back up interception bores (if required)

Notes:

- [1] The saprock has a bulk permeability in the order of 1 x 10^{-2} metres per day.
- [2] The metasediments have a bulk permeability in the order of 1 x 10^{-7} metres per day.
- Diagram shows vertical exaggeration (2x).
- The TSF overlies the weathered metasediment of the Anson Formation (saprock).

Tailings storage facility – seepage management schematic

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Figure B.11

B.9 Water management

B.9.1 Water demand and supply

i Construction and development of the open cut

During early construction and open cut development activities water will be used predominantly for dust suppression and machinery washdown. Prior to commissioning of the pipeline, water will be derived predominantly from production bores and incidental take from impacted areas in accordance with Regis' harvestable rights and licensed entitlement. Construction water will be transported from production bores via "polypipe" to the raw water management facility (RWMF).

The construction water demand of the mine development is estimated to be 15 to 20 L/s, depending on climatic conditions, with a maximum total of around 470 ML anticipated for around the initial nine months of the project (ie until the anticipated commissioning of the pipeline development).

Investigations into the construction water supply (refer to Appendix H of the 2020 Amendment Report) confirm that the construction water supply can be primarily sourced (up to 15 L/s) from groundwater via production bores at TPB4 and TB05 (refer to Figure B.2). The required volume of water would be extracted pursuant to an existing groundwater licence under the NSW *Water Management Act 2000* (WM Act) held by Regis with an entitlement of 441 unit shares for the Lachlan Fold Belt Murray Darling Basin groundwater source. Regis is in the process of finalising a successful registration of interest for an additional 300 unit shares in this groundwater source under the 2021 Controlled Allocation Order.

In hot, dry weather an additional 5 L/s may be required to meet construction water demand. The groundwater investigation indicated that this additional supply could be met through additional groundwater bores in or near the mine development project area on Regis-owned land (indicative additional groundwater bore locations are shown on Figure B.2). Alternatively, in dry weather Regis may reduce haul road dust suppression water demand by the use of dust suppression agents or from time to time purchase and truck water to site.

ii Processing and mining operations

During the operational phase of the project, encompassing commissioning and operation of the processing plant and mining operations, water will be used for:

- ore processing;
- dust suppression;
- machinery, conveyor and vehicle washdown;
- fire protection systems; and
- amenities and other potable uses.

Demands will be met predominantly through the pipeline development water supply. Rainfall runoff, rainfall and groundwater inflows to the open cut will also meet operational water demand.

The water balance model for the project (HEC 2020) simulates the management of the operational water system over the life of the mine (refer to Appendix G of the 2020 Amendment Report). The model predicts supply reliability will meet the water demands of the mine development once the pipeline development water supply is commissioned. Up until the commissioning of the processing plant, water will be pumped on demand from the

pipeline water supply to ensure site water demands are met and the water management facilities have adequate storage for rainfall events.

The water balance predicts that on average the external supply provided by the pipeline development contributes the highest supply source of operational water followed by rainfall runoff from the operational areas of the mine development. The processing plant represents the highest water demand followed by water required for dust suppression.

B.9.2 Water management system

The surface water management system for the mining development is summarised in Section 6.4 of the 2020 Amendment Report and described in detail in the surface water assessment (HEC 2020) contained in Appendix G of the 2020 Amendment Report. The objective of the water management system will be to control the volume of poor quality water generated by the mine development by maximising its reuse and by limiting and avoiding the contamination of clean water.

Water will be assigned one of the following classifications based on source and expected water quality:

- clean water (ie runoff from undisturbed or established rehabilitation areas);
- operational water (ie runoff from mining areas such as haul roads, the waste rock emplacement, hardstand areas and open cut dewatering as well as pipeline supply water); or
- development/construction water (ie runoff from disturbed areas and unestablished rehabilitation which is potentially sediment-laden).

Water management infrastructure has been sized to meet the mine development water demand requirements, with the capacity to store surplus water generated by the mine development and will not spill in all modelled climate scenarios. The indicative layout of the water management system is illustrated in Figure B.13.

i Clean water management

During mining the majority of clean water runoff will be diverted around the mine development via a series of diversion drains, dams, pumps and pipelines. Runoff from undisturbed areas will be captured in a system of upslope runoff diversion drains and either directed to existing gully lines or to one of six CWFs which will be dewatered by pumping to the Belubula River during and following rainfall events. Clean water will not be retained within CWFs for any extended period of time. Runoff diversion drains will be constructed along the contour with low longitudinal gradients and designed as grassed channels or with rockfill riprap to control the risk of erosion. Engineered drop structures will be used where runoff is directed down slope between diversion drains or at diversion drain outfalls (to existing gully lines).

The largest of the CWFs is CWF1 (comprising facilities 1A and 1B), upslope of the TSF, with an estimated catchment area of 6.8 km^2. CWF1 will be in place prior to the commencement of basin construction works within the TSF storage to capture and divert (via pumping) upslope clean water runoff. The embankment which forms CWF1 is also the northern TSF embankment. This embankment is planned to be built progressively in stages, with a smaller embankment initially resulting in a smaller capacity diversion storage. The capacity of the pumping system which dewaters CWF1 has been sized accordingly, with a larger capacity pump initially and a reduced pump rate when the ultimate embankment is constructed. The pump capacities have been sized such that the CWF1 storage capacity is not exceeded in any simulated climatic scenario (based on the full historical climate record); that is CWF1 is not simulated to spill to the TSF. The pump capacities have also been sized such that the ponded CWF1 water level is not simulated to exceed 954 m AHD, substantially avoiding inundation of the Vittoria State Forest. As described in

Table B.1, the mine development project area accommodates this inundation area. The CWF1 dewatering system (pump and pipeline) will discharge downstream of the proposed TSF and associated TSF Runoff WMF.

A number of additional smaller CWFs (including CWF2, CWF3, CWF4 and CWF5) and associated diversion drains, pumps and pipelines will be constructed to manage and divert clean water runoff around the mine development. The location of the CWFs and associated infrastructure is shown on Figure B.12.

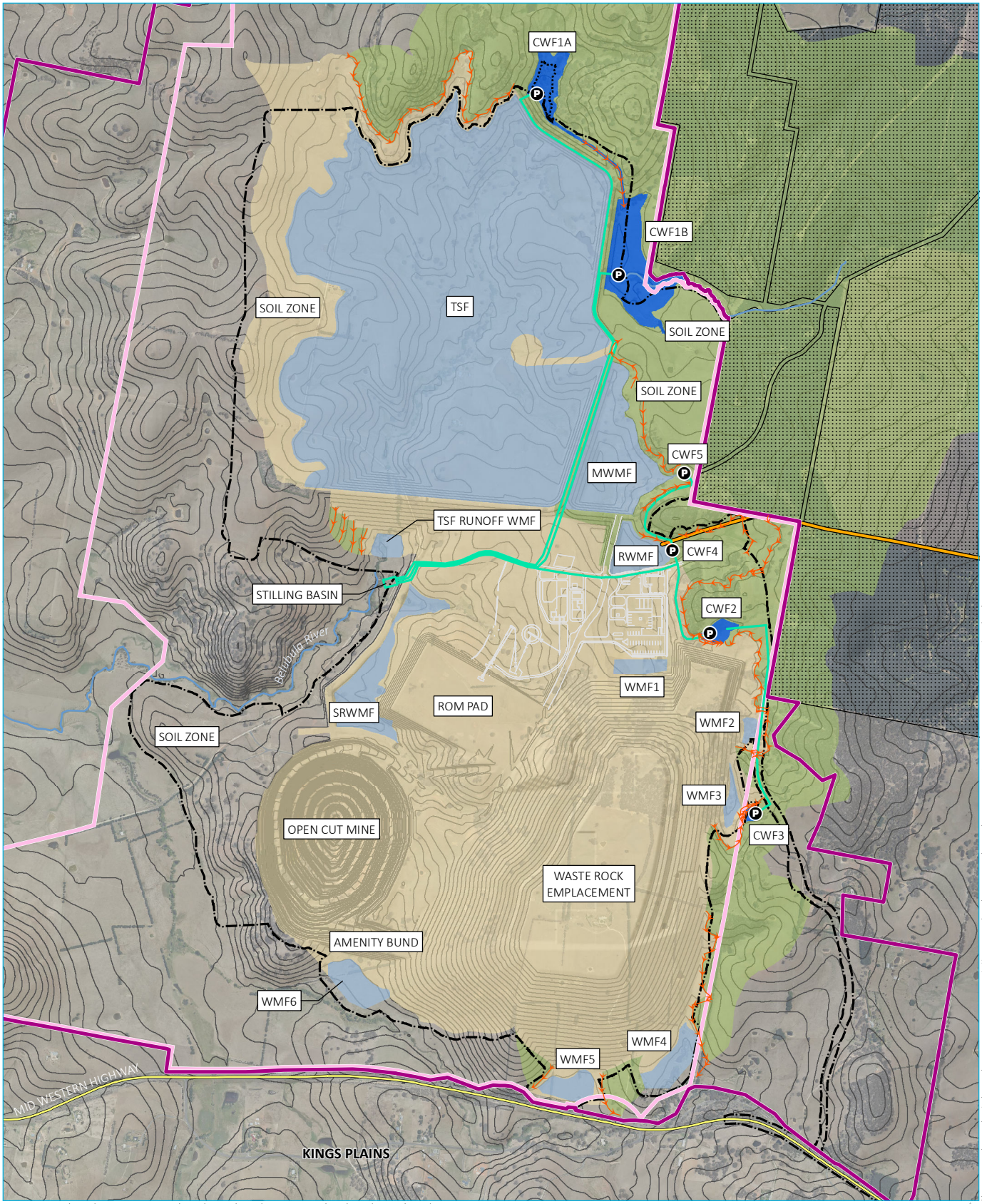
A temporary TSF CWF will be established prior to the start of TSF embankment construction, capturing clean water upslope of the TSF main embankment. This TSF CWF will be decommissioned and the clean water collection and diversion water management facility, upstream of the eastern TSF embankment, will be commissioned prior to this time and will remain in place for the duration of the mine development.

Additional temporary CWFs will be developed as required across the mine development project area to maximise clean water diversion around construction and operational areas.

ii Operational areas water management system

Runoff from mining areas such as haul roads, the waste rock emplacement, hardstand areas and the open cut is defined as part of the operational water system for the mine development. The external water supplied via the pipeline will be pumped into the operational water system. The runoff from the mine development will be used as a priority to imported water to reduce the likelihood of spill from the storages within the operational water system.

The operational water management system will comprise a number of WMFs, the open cut and the TSF, together with a system of pumped transfers and drains. A summary of the WMFs is provided in Table B.6 and Figure B.13 shows a schematic representation of these storages and their inter-linkages for the duration of the mine development.



Source: EMM (2022); Regis Resources (2022); HEC (2020); Survey Graphics (2019); DFSI (2017)

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KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Additional (post-closure) disturbance footprint
- Pipeline
- Mine plan contour (5 m)

- Diversion pump
- Diversion drain
- Plant layout
- Pipeline
- Operational water storage
- Clean water collection and diversion maximum area

- Diverted catchment
- Non-diverted catchment

Existing environment
- Major road
- Belubula River
- Vittoria State Forest

Water management system overview

McPhillamys Gold Project
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Figure B.12

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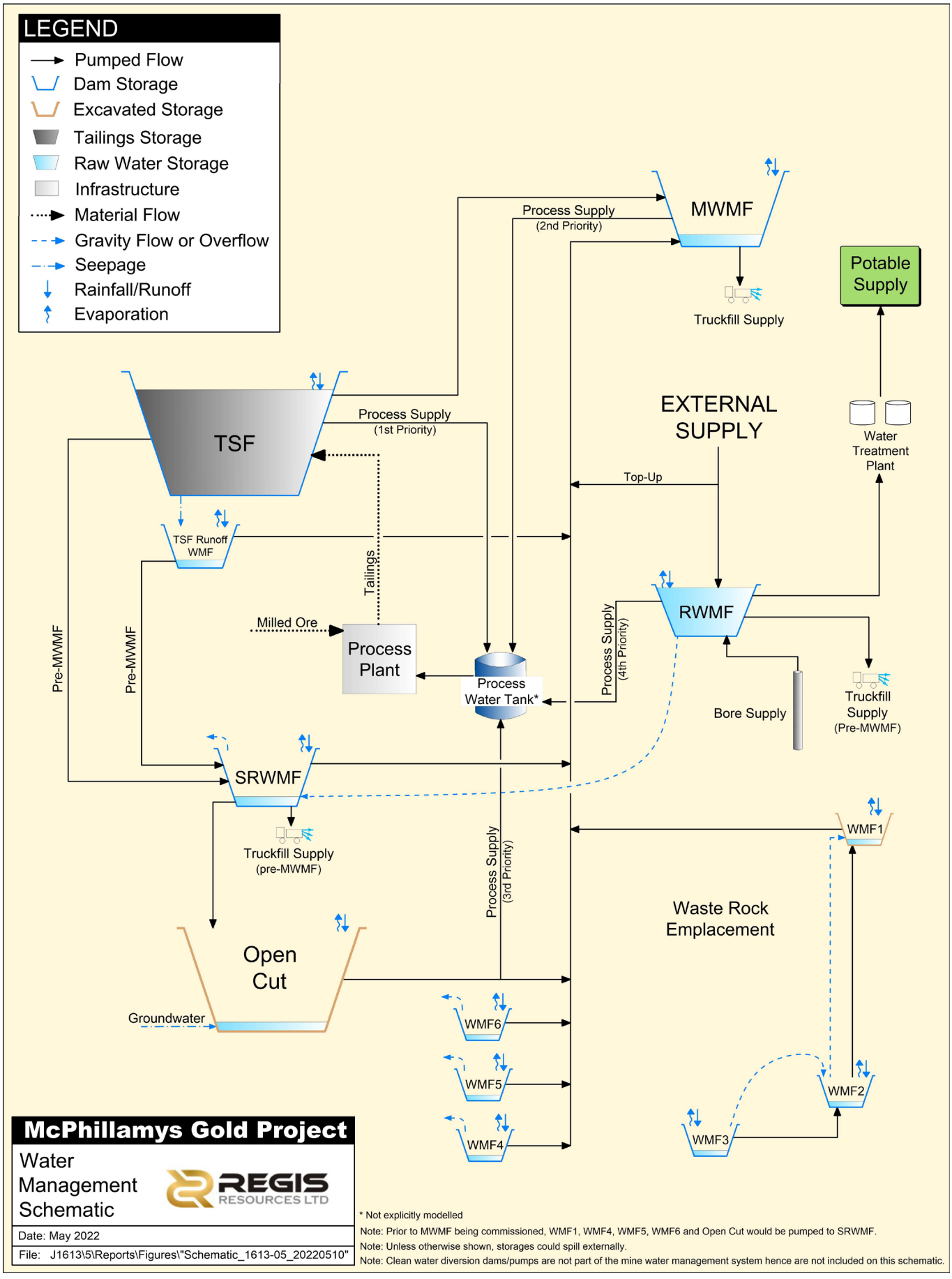
Table B.6 Summary of operational water management facilities

WMF ID	Purpose	Indicative capacity
WMF1	Collect run off from waste rock emplacement	70 ML
WMF2	Collect run off from waste rock emplacement	60 ML
WMF3	Collect run off from waste rock emplacement	22 ML
WMF4	Collect run off from waste rock emplacement	123 ML
WMF5	Collect run off from waste rock emplacement	136 ML
WMF6	Collect run off from waste rock emplacement	158 ML
Site Runoff WMF	Collect run off from processing plant and mine infrastructure area. Prior to MWMF coming online, it will be the main operational water storage	528 ML
Main WMF	Main water storage on the site. Operational water captured in other storages will be pumped to this WMF	2,009 ML
Raw WMF	Store pipeline water supply prior to use in the processing plant	217 ML
TSF Runoff interception WMF	During construction of the TSF will function as a sediment basin. During operations will collect runoff from the TSF embankment and form part of the TSF seepage management system	26 ML

Operational water captured in other storages will be pumped to the Main WMF which will then supply water to the processing plant and truck fill (for haul road dust suppression) as a first priority. Prior to capacity being available in the Main WMF operational water will be pumped to the Site Runoff WMF.

Processing will commence during Year 2, and from this time tailings will be pumped to the TSF with water recovered from the TSF via pumping to the processing plant or Main WMF.

The Site Runoff WMF, WMF1, WMF2, WMF3, WMF4, WMF5 and WMF6 will capture runoff from the waste rock emplacement and other infrastructure areas. As shown in Figure B.5a to Figure B.5f, these WMFs will function as “infrequent” storages. Following and during rainfall events these WMFs will be dewatered to the Main WMF to maintain the capacity of these WMFs. Other than WMF1, WMF2 and WMF3, these WMFs could spill off site, hence their storage and pumping system capacities have been sized such that no spills are predicted during the operational life of the project.



Simplified site water management and process diagram

McPhillamys Gold Project
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Figure B.13

B.9.3 Potable, wastewater and fire protection water

i Potable water

Potable water required within the administration, ablutions and office facilities will be sourced from a combination of rainwater tanks and potable water delivery to site. A reverse osmosis (RO) plant will also be accommodated onsite to treat pipeline water to Australian drinking water guidelines. Waste discharges from the RO plant will be contained onsite and reused in the processing plant or disposed of in accordance with the *Waste Classification Guidelines* (EPA 2014).

ii Sewage

Sewage at the mine development will be managed in two ways:

- a package waste treatment system will be used for areas with high density personnel such as the processing plant and administration area; and
- for ablutions in areas with low or infrequent use, untreated waste will be collected in septic tanks which will be emptied by tanker as required.

iii Fire protection water

Fire water will be stored in designated tanks in the processing plant. The fire water system will comprise of a fire water main around the processing plant and infrastructure buildings including administration officers and mining equipment area and workshop. It is expected that the source of the fire water will be raw water from the pipeline development.

B.10 Mine infrastructure

Supporting infrastructure for the mine development is summarised in the following sub-sections and is shown on Figure B.9.

B.10.1 Administration area

The site administration facilities will be located at the entry to the mine infrastructure area adjacent to the main site access road approximately 3.6 km from the proposed intersection off the Mid Western Highway.

The administration office will have a reception area, a mix of closed offices and open plan office space, meeting and training rooms, kitchen facilities, male and female ablutions and ambulance park bay. The occupational health and safety, first aid and emergency response areas will be located at the end of the administration office closest to the processing plant entrance.

B.10.2 Car parking

A sealed carpark will be provided adjacent to the administration office, accommodating 20 car bays and 2 bus bays.

An additional unsealed carpark immediately to the east of the administration building has been allowed for operations and mining contractor personnel for approximately 210 car bays. Another area further to the east has been allowed for parking for construction personnel which will accommodate approximately 350 car bays and buses during the construction phase.

B.10.3 Workshop and mining equipment areas

A workshop will be established to accommodate required maintenance on mobile equipment during the life of the mine development. The workshop floor area will be bunded and designed to drain to a sump and oily water separator system.

Mining equipment areas comprising large hardstands will be established to the north of the waste emplacement area to provide parking for the mining fleet in the vicinity of the workshop.

There will also be workshop, stores and maintenance buildings associated with the processing plant as shown on Figure B.9.

A laboratory will be located within the processing area (refer to Figure B.9). The laboratory facilities will treat metallurgical samples from the process plant as well as minor quantities of grade control samples.

B.10.4 Electricity supply

The mine development will have an electricity requirement of 26 megawatts (MW) to 28 MW. Power will be supplied from the Transgrid 132 kV system Line 948 which passes between Bathurst and Orange, approximately 14 km to north of the processing plant.

Separate approval under the EP&A Act will be sought to construct this power supply infrastructure. Approval will also be obtained under the EP&A Act for a 132kV switchyard that will be constructed to the north of the processing plant. Separate approval for the electricity supply for the pipeline development will also be obtained under the EP&A Act.

Existing power supply infrastructure within the mine development project area is not suitable for reuse to supply any of the new infrastructure associated with the mine development. Existing powerlines supplying residences or farming infrastructure owned by Regis, but not forming part of the mining operations, will be left in place. Existing power line infrastructure within the mine development project area impacted by mining operations will be removed.

B.10.5 Communications

The communications network for the mine development will be supplied by a communications tower structure to allow the mine site to connect directly to the Blayney township communication infrastructure. The communications tower will be located north of the north of the processing plant at a location suitable to provide coverage and connectivity to all other areas and points around the mine site.

General mine and plant communications will be delivered by UHF, mobile radio, local and repeater channels. Radios will be installed in all mine site vehicles and portable radios provided to mining, processing and maintenance staff.

The processing plant will be managed through a plant control system and supervisory control and data acquisition (SCADA) SCADA network. These control systems will be powered by uninterruptible power supply and will provide continual monitoring of the processing plant.

B.10.6 Security

A gatehouse will be constructed on the new access road approximately 1 km north of the access road's intersection with the Mid Western Highway. All vehicle movements and visitors to the mine development will be continuously monitored 24 hours per day.

Alternative accesses to the mine development project area (such as Dungeon Road and existing farm accesses) will be gated and locked once they are no longer required for initial site establishment activities.

B.11 Workforce

B.11.1 Construction

The peak mine development construction workforce, including processing plant and site infrastructure construction contractors and mining contractors, is anticipated to be around 590 people in Year 1, although it is noted that the number of construction workers on-site at any one time will vary throughout the year, averaging at around 480 people in this first year.

B.11.2 Operations

Regis' intent is for the workforce to reside within the local area, with operational employees generally being required to reside within an approximate 1-hour commute to the mine. This will maximise the socio-economic benefits of the project for the local community by avoiding a 'drive-in-drive-out' or 'fly-in-fly-out' workforce. This will also assist in managing fatigue for the safety and wellbeing of employees. Local suppliers and contractors will also be used wherever possible, although it is expected that some specialist tasks may require a workforce from further afield.

The projected operations workforce will fluctuate over time, generally reflecting changes in the mine production rate. The annual average operations workforce from Year 2 to Year 11 will be approximately 260 FTE persons. The peak operations workforce of approximately 320 FTE persons is anticipated to occur in around Year 6 and will be associated with the increase in production within the open cut operations at this time.

B.11.3 Recruitment

Regis will develop a strategy for local recruitment, which will include recruitment programs that aim to maximise local employment. The required workforce will be sourced through a range of recruitment processes, including local and national recruitment, referrals from existing employees, apprentice, trainee and graduate programs and contract labour.

It is anticipated that approximately 15% or around 40 positions of the required operations workforce will originate from outside of the Mid-West Region of NSW as the specific skills required for a role may not be able to be sourced from the region at the time of recruitment, or Regis and the mining contractor may relocate personnel from their existing operations. Regis will encourage these non-local hires to relocate permanently to the local area, with the principal focus being to relocate to the township of Blayney.

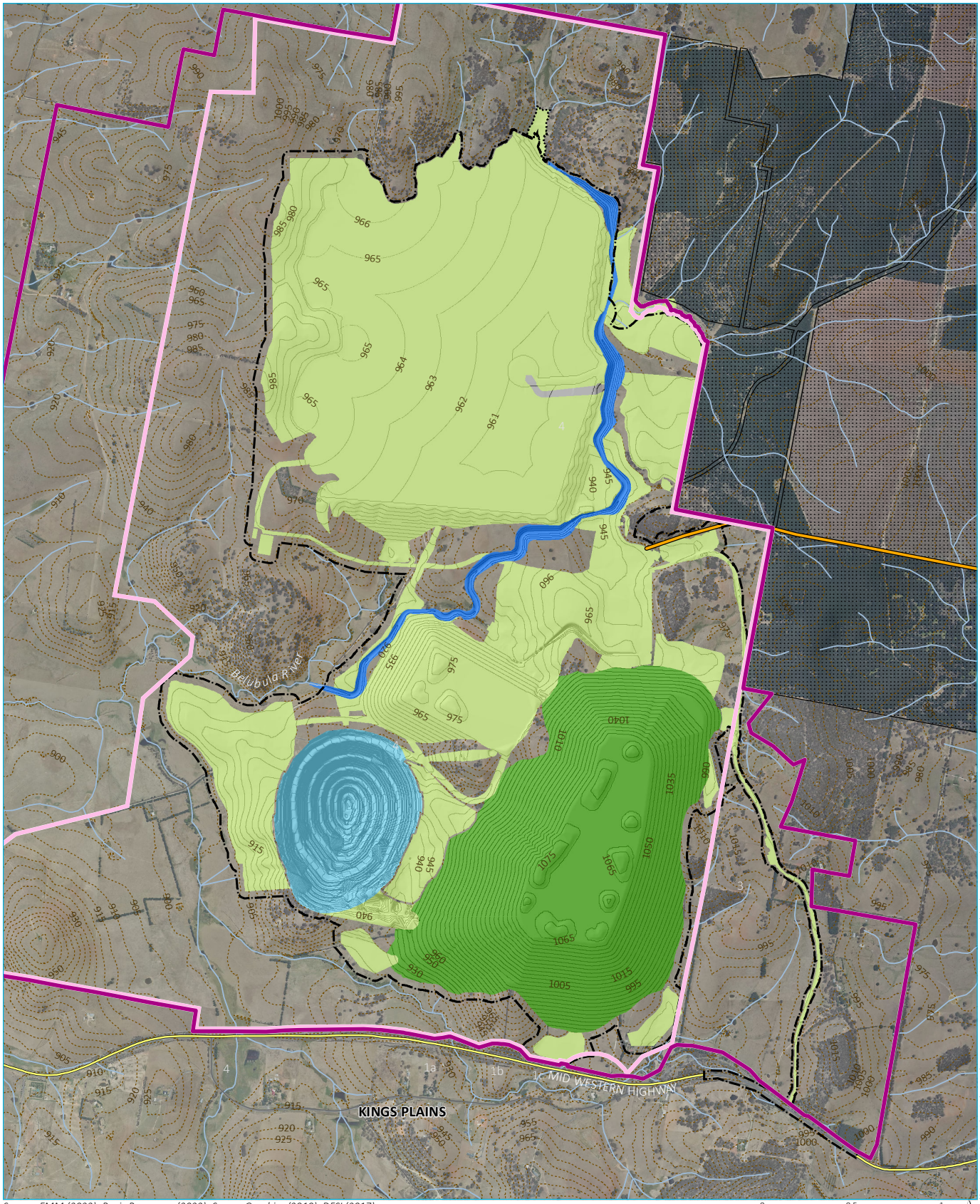
B.12 Decommissioning and rehabilitation

The overarching rehabilitation objective of the project is to restore the land as much as possible to its pre-mining land use at the end of its operational life; that is, primarily an agricultural land use comprising grazing on improved pasture while improving the biodiversity values of the area through re-establishing endemic open-woodland communities as part of the rehabilitation program.

There will be opportunities for progressive rehabilitation of areas as the mine is developed, including the pit amenity bund and waste rock emplacement. Wherever possible during operations, disturbed areas no longer required for mining activities will be progressively rehabilitated.

Closure of the mine will involve rehabilitation of the remaining unrehabilitated sections of the waste rock emplacement, capping of the TSF, decommissioning and removal of infrastructure and services, soil testing of potentially contaminated areas such as ore stockpile areas and hydrocarbon storage areas, and remediation or removal of any contaminated soil if required. NAF waste rock for capping the TSF after closure will be sourced from the cap rock stockpile directly to the north of the waste rock emplacement. Reshaping of disturbed areas will be undertaken where required to blend these surfaces into the surrounding topography. These areas will then be contour scarified and stockpiled topsoil and subsoil applied to promote establishment of species appropriate for the post-mine land use. A number of permanent clean water diversion drains will be constructed to allow a free-draining landform. A conceptual final landform of the fully rehabilitated mine development is illustrated in Figure B.14.

Final rehabilitation and project closure requirements will ultimately be developed as part of a detailed closure plan, which will be produced within five years of closure in consideration of input from key government agencies and relevant stakeholders at the time.



Source: EMM (2022); Regis Resources (2022); Survey Graphics (2019); DFSI (2017)

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KEY

Project application area
- Mine development project area
- Mining lease application area (Note: boundary offset for clarity)
- Disturbance footprint
- Additional (post-closure) disturbance footprint
- Pipeline
- Mine plan contour (5 m); TSF contour (1 m)

Conceptual final landform elements
- Rehabilitated area (grazing)
- Rehabilitated area (open woodland)
- Clean water diversion
- Void

Existing environment
- Major road
- Minor road
- Watercourse/drainage line
- Existing contour (5 m)
- Vittoria State Forest

Conceptual final landform

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Figure B.14

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B.13 Pipeline development

B.13.1 Overview

As described in Section B.9, the mine development will require water for a variety of purposes including product processing. The purpose of the pipeline development is to convey process water which is surplus to the operational requirements of Centennial and Energy Australia to the mine development to fulfil this water demand, in conjunction with other sources on site such as rainfall runoff and pit inflows.

The pipeline development is shown in Figures B.3a to B.3v. The key components include:

- a pipeline approximately 90 km in length, starting at Angus Place and finishing in the mine development project area;
- up to four pumping station facilities including water storage tanks;
- pressure reducing systems (the requirement for these will be determined during detailed design); and
- a control system.

This section provides a description of the pipeline development including:

- the water sources for the pipeline water supply;
- operating regime;
- water availability and security;
- approvals required and infrastructure responsibility;
- the pipeline corridor; and
- key pipeline components.

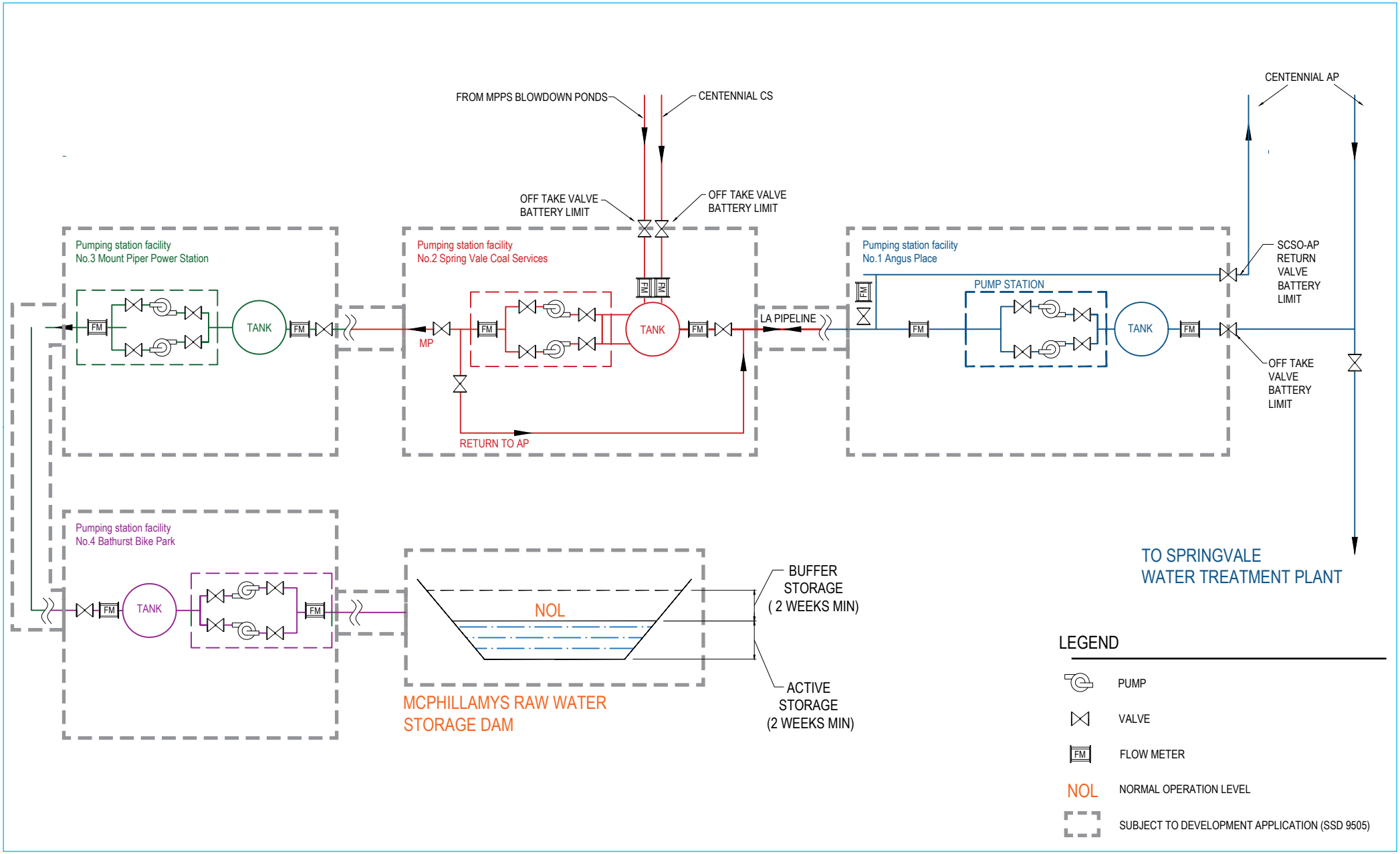
B.13.2 Water sources

The water to be pumped to the mine development via the pipeline will originate from the following three sources:

1. Water at SCSO that is currently discharged by Centennial via licensed discharge point (LDP) 001 (formerly LDP006) into Wangcol Creek in accordance with the requirements of environment protection licence (EPL) 21229.
2. Water from the existing Blowdown Pond 1 (Blowdown Pond) at MPPS originating from the new Springvale Water Treatment Project (SWTP) (SSD-7592) and MPPS cooling towers.
3. Surplus groundwater at Angus Place which is currently transferred to the SWTP via the Angus Place Haul Road Pipeline.

From each of these three sources, water will be pumped to storage tanks (approximately 750 kL) at each of the Regis pumping station facilities at Angus Place, SCSO, and MPPS.

An indicative schematic of the water transfer system between Angus Place, SCSO, MPPS and the mine development project area is provided in Figure B.15.



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Pipeline development operation schematic

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Figure B.15

B.13.3 Operating regime

The pipeline development will:

- transfer water from Centennial's Angus Place and SCSO and EA's MPPS operations to the mine development continuously, apart from periods required for maintenance at the mine site or for pipeline maintenance requirements;
- discharge water into the RMWF and MWMF located at the mine site;
- pump water over a period of 24 hours per day; and
- have a maximum transfer rate of up to 15.6 ML/day.

External water drawn from the imported pipeline supply would vary through the project life. Median annual external supply is predicted to peak in Year 6. Model results indicate that, during periods of lower rainfall (indicated by the 90th/95th percentile results), the project would use up to approximately 3,900 ML of imported pipeline supply (refer Section 6.4 and Appendix G of the 2020 Amendment Report).

The pipeline development will be designed and operated so a combination of the three sources is always capable of delivering up to 15.6 ML/day to the mine development. This flexibility will provide ongoing water availability for the mine development in periods of low rainfall, which will affect the availability of water at SCSO, or operational changes at MPPS.

The supply of water will be generally prioritised in the following order to provide water to the mine development:

1. SCSO;
2. MPPS; and
3. Angus Place.

The objective of this priority system is to eliminate discharge of untreated mine water from LDP 001 at SCSO which enters Wangcol Creek, a tributary of the Coxs River. On average between 1 to 3 ML/day of water is expected to be supplied by SCSO. However, during rainfall events, water supplied from SCSO may increase up to full supply.

When the water contribution from SCSO falls below requirements, then transfers from MPPS will be brought online with process water from the MPPS Blowdown Ponds transferred to the main pipeline. Surplus groundwater from Angus Place will be used to supplement supply to a maximum of 15.6 ML/day supply.

The project's water management system has been designed so that water runoff from disturbed areas within the mine development area will not discharge from the site consistent with regulatory requirements. To meet this objective the pipeline supply may be reduced or cease for some periods. Arrangements will be determined to vary supply in accordance with a pipeline operating protocol and the mine development water management plan. The protocol will provide for water collected at SCSO to be redirected to Angus Place where water collected at SCSO exceeds pipeline demand. Provision has been made for the transfer of excess water from SCSO to Angus Place via a bi-directional pipeline (referred to as the LA pipeline) within pumping station facility No.2 (as shown in Figure B.15). The excess water will then be transferred to pumping station facility No.1 at Angus Place. Centennial Coal will be responsible for any approvals required for water transfer from SCSO within Angus Place downstream of pumping station facility No. 1. In addition, Centennial has submitted a modification to the Springvale Coal Services Operations approval (SSD-5579) for the construction and operation of a water supply pipeline to connect the Blowdown Pond to pumping station facility No.2.

B.13.4 Water availability and security

i Rights to water

Rights to the above water sources will be authorised through the proposed Regis Resources Water Offtake Agreement (the agreement) with Centennial. The existing water access licences (WALs) held by Centennial and respective water sources relevant to the pipeline development are summarised in Table B.7. As shown, the WALs are of varying sizes as a result of having been established due to progressive mining development.

Table B.7 Water access licences held by Centennial

WAL #	Sydney Basin Coxs River (ML/annum)	Sydney Basin (ML/annum)
36443	585	-
36446	3,300	-
36445	2,701	-
41881	1,471	-
37340	329	-
36383	-	5,958
36449	-	2,523
37343	-	35

ii Ongoing water availability

The ongoing operation of the mine development relies on the continued supply of water. The proposed water offtake agreement has been drafted with the intent of securing a reliable water supply to the mine development. The RWMF within the mine development project area will have the capacity to store enough water to meet demand for up to two weeks in the event of a water supply interruption, such as a planned or unplanned shutdown, and an additional two weeks storage buffer could be transferred to provide up to four weeks supply in total.

B.13.5 Approvals required and infrastructure responsibility

The pipeline corridor, which is described in detail in the following Section B.13.6, defines the area over which approval is sought by Regis for the pipeline development. The interface at the start of the pipeline with Centennial operations and Energy Australia's MPPS is illustrated in the schematic in Figure B.15. This figure illustrates the battery limit (the defined boundary of responsibility) of where Regis will hold responsibility for the pipeline infrastructure and where it will be the responsibility of Centennial or Energy Australia.

In addition to the development consent sought by Regis for the pipeline corridor, approval is required to be obtained by Centennial under the EP&A Act to enable the transfer of water between Angus Place, SCSO and the mine development. The approval will need to authorise:

- construction and operation of a water transfer pipeline and associated infrastructure between Angus Place and pumping station facility No.1;
- construction and operation of a water transfer system and associated infrastructure between SCSO and pumping station facility No.2;

- the transfer of up to 15.6 ML/day of water from Angus Place or SCSO to pumping station facility No.1 and No.2, respectively; and

- the receipt of up to 15.6 ML/day of water from SCSO to Angus Place as required (ie at times when water is not able to be delivered to the mine development).

Further, approval is required to be obtained by Centennial under the EP&A Act to enable the transfer of water between the MPPS and the mine development. The approval will need to authorise:

- construction and operation of a water transfer system and associated infrastructure between MPPS and pumping station facility No.2; and

- the transfer of up to 15.6 ML/day of water from MPPS to pumping station faciality No.2.

B.13.6 Pipeline corridor

The corridor will accommodate all components of the pipeline development including pumping station facilities and associated pipeline infrastructure. The pipeline corridor also accommodates required construction ancillary areas such as compounds, laydown and stockpile areas as well as allowance for the movement of construction machinery, equipment delivery and personal vehicles along the corridor. Approval is sought for two pipeline route options for a section of the pipeline corridor west of Bathurst as shown in Figure B.1 with the option to be constructed dependant on the finalisation of landholder access agreements with relevant landholders.

Direct disturbance is not proposed across the entire 20 m wide corridor. The anticipated disturbance footprint has been delineated based on the nature of the vegetation or existing disturbance the pipeline route travels through. The area that will be directly impacted by construction activities within the pipeline corridor will range in width from 6-8 m, such as in areas of native vegetation and State forest, and up to 20 m in open farmland, depending on a range of factors such as presence of significant vegetation, constructability, construction management and safety considerations, landform, slopes and anticipated sub-soil structures. Wherever possible the pipeline route follows existing roads and tracks to avoid vegetation clearance.

The proposed route of the pipeline corridor is shown in Figures B.3a to B.3v, and is summarised from the beginning of the corridor at pumping station facility No.1 as follows:

- from pumping station facility No.1 at Angus Place, the pipeline will travel over land owned by Centennial and a private landholder, crossing the Coxs River south of the haul road owned by Coal-Link Pty Ltd, through land owned by Energy Australia and the Forestry Corporation of NSW, before crossing the Castlereagh Highway to pumping station facility No.2 at SCSO;

- from pumping station facility No.2 at SCSO, the pipeline will continue over land owned by Centennial and Crown Land onto land owned by EA, to pumping station facility No.3, which will be approximately 4.3 km to the west of MPPS, on Pipers Flat Road;

- from pumping station facility No.3, the pipeline will continue to Pipers Flat Road, before heading west to John Mackey Drive crossing Sunny Corner Road to Reservoir Road (south of Portland) and continuing west to Bourkes Road in Forestry Corporation NSW lands;

- in the Forestry Corporation of NSW lands the pipeline:

    - travels south-west along Sugarloaf Creek Road, then north-east along Sunny Corner Road and south over Forestry tracks, before turning briefly west along Kelly Boundary Road and then south-west along Forestry tracks to Egan Road;

- continues west along Egan Road, before heading south and then south-west along Ridge Road, passing to the south of the Kirkconnell Correctional Centre;

- continues south along Sunny Corner Road, then west along a forestry track to Kirkconnell Forest Road then south on Macabees Road, turning immediately west along Phillips Boundary Road and south along Stoney Trig Road; and

- travels west along Gulf Boundary Road, before a short crossing over native forest, then south along Sibleys Road to the pressure reducing system until turning west along Yetholme Drive;

- leaving Forestry Corporation of NSW lands, the pipeline corridor continues west along the northern side of the Great Western Highway, before crossing the highway then heading south across privately owned farmland to the APA gas pipeline easement. From here, the corridor follows the APA gas pipeline easement across Brewongle Lane, before leaving the APA easement, and crossing the railway line just north of the town of Brewongle and then west along Tarana Road to the junction with O'Connell Road;

- continues north-west along (and crossing) O'Connell Road, then west across farmland tracks to Thompsons Hill Retreat, north along White Rock Road to the Macquarie River;

- under the Macquarie River and remerging on Montavella Road, south on Gormans Hill Road and then west along a fenceline, crossing Lagoon Road and Queen Charlottes Creek (Vale Creek), Vale Road and the rail line at Orton Park (south of Bathurst) to pumping station facility No.4 within the Bathurst Bike Park in the vicinity of the velodrome and Bathurst Waste Management Centre;

- from pumping station facility No.4, the corridor heads south-west over farmland for approximately 3 km, before splitting into two options:

    - the northern option is approximately 11 km long from where the two options split and travels through farmland before travelling along the Mid Western Highway before rejoining the original alignment;

    - the southern option is approximately 9 km long and will travel through farmland before crossing the Mid Western Highway at Bathampton; and

- across a scattered treed landscape until reaching Forestry Corporation of NSW lands to the north-west and along forest roads, crossing Gardiners Road before entering the eastern boundary of the mine development project area.

B.13.7 Components

The components of the pipeline development are described in the following sub-sections. This description is based on a concept design for the pipeline development and as such will be subject to refinement during the detailed design and construction phases. These refinements may include minor changes to the proposed technology of the water supply pipeline or pumping station facilities, or minor changes of the alignment of the pipeline within the defined pipeline corridor.

i Water supply pipeline

The pipeline will have a nominal diameter of between 300 mm to 650 mm.

The majority of the pipeline will be laid underground in a trench ranging from 1.3 m to 2 m deep, with a minimum cover of 800 mm. Where underboring of roadways, rail lines or watercourses is required, the specific engineering design for that location will dictate the depth of the pipeline. The pipeline material will be confirmed during detailed

design, but may be ductile iron cement lined (DICL), heavy duty polyethylene, steel or glass reinforced plastic, or a combination of these.

a Valves

Isolation, scour and air release valves will be located as required along the pipeline. Isolation or section valves will be provided to isolate the pipeline into discrete sections and allow only part of the whole pipeline to be dewatered for maintenance, or to provide security in an event such as a pipe burst. Isolation valves will also typically be installed on either side of main crossings, such as a watercourse crossing. Valves will be typically buried in the ground at the same depth as the pipeline and fitted with a spindle that rises to the surface which opens and closes the valve. The spindle will be enclosed in a small valve box. The valve box will be installed to be flush with the existing ground level.

Scour valves will be located at low points of the pipeline to facilitate maintenance and emergency drainage of the pipeline. Scour valves will be buried and fitted with a spindle and valve box flush with the existing ground level. The valves will discharge to a nominal 750 mm diameter scour pit. Scour pits will be approximately 1 to 3 m deep and finished flush with the existing ground level where possible.

Air release valves are designed to automatically release the small amounts of air that will accumulate in high points of the pipeline during operation. They will also discharge or admit air during the filling or draining process. Air release valves will be typically enclosed within 1.2 m^2 concrete pits with steel lids, and will be located below ground, finishing flush with the existing ground level.

Scour valves and air release valves will be installed approximately every 1 to 2 km as required by the prevailing topography. The final location and design of the respective valves will be determined during detailed design.

b Other pipeline infrastructure

Tapping points may be required along the pipeline for insertion of chlorine for maintenance or cleaning purposes. If required, cleaning (or 'pigging') stations will also be located as required along the pipeline. At the cleaning stations, which would be fabricated from concrete, cylindrical cleaning apparatus known as 'pigs' will be inserted into the pipeline during maintenance periods. Each cleaning station will be located below ground and will be approximately 5 m wide, 10 m long and 1 to 2 m deep. The requirement for tapping points or cleaning stations will be confirmed during detailed design.

Anchor or thrust blocks will be used as necessary to mitigate the hydraulic 'effect' which occurs when pumps commence or cease operation. This hydraulic effect could result in movement of the pipeline or breakage, particularly at sharp changes in direction, unless the pipeline is held in place securely.

ii Pumping station facilities

Four pumping station facilities will be required to ensure efficient transfer of water through the pipeline as follows:

- pumping station facility No.1 (Angus Place);
- pumping station facility No.2 (SCSO);
- pumping station facility No.3 (Pipers Flat); and
- pumping station facility No.4 (Bathurst Bike Park).

Pumping station facilities No.1 and No.2 will occupy a maximum area of approximately 0.56 ha. Pumping station facility No.3 will occupy a maximum area of approximately 0.3 ha and pumping station facility No.4 will have a maximum area of approximately 35 m x 50 m or 0.17 ha. Pumping station facilities will be fenced for public safety and security purposes. Within each pumping station facility there will indicatively be the following:

- a water storage tank with a capacity of approximately 750 kL, approximate dimensions of 6 to 9 m high and diameter of between 11 m to 14 m. The tank will be constructed of concrete or steel;
- above ground and underground pipework and valving connecting to the water supply pipeline;
- monitoring and control equipment, including flow metres, tank level detection and automated valves;
- a pump and motor building, typically comprising electric motor and pump sets in a duty–standby configuration;
- a pad mounted power transformer and incoming high voltage electricity supply;
- a control room / electric switchroom housing:
    - SCADA instrumentation for the remote control of the system;
    - high voltage circuit breakers;
    - low voltage switch gear;
    - variable voltage variable frequency drives for pump speed control; and
    - fire suppression equipment.
- bunding and water collection systems (collection sump and pump) depending on the environmental requirements at the pump station location; and
- an access road and small parking area.

The buildings at each pumping station will be rectangular, single storey structures, fabricated from either tilt-up concrete, moulded concrete, block work or brick work, and will be fitted with a structural steel or concrete roof. The facility will have fencing and access gates (typically galvanised pipe posts and rails with chain mesh wire).

iii Pressure reducing system

Pressure reducing systems may be required at locations along the pipeline corridor. If required, location and number of pressure reducing systems will be confirmed during detailed engineering design. Construction works and infrastructure (predominately below ground) associated with pressure reducing system/s (if required) will be accommodated within the defined pipeline corridor.

iv Power supply infrastructure

Power required for the pipeline development, particularly the pumping station facilities and pressure reducing system, will be sourced from the relevant electricity network distributor; either Endeavour Energy or Essential Energy. Assessment and approval for the power supply works will be subject to the requirements of the EP&A Act.

v Communications System

An end to end communications system will be required to control the operation of the pumps and pressure reducing system. The communications system will either be a fibre optic system, a radio telemetry or 4G mobile connection or a combination of these. A fibre optic cable system will be installed in the same trench as the pipeline to connect each pumping station facility and pressure reducing system to the control centre at the mine site. If it can be demonstrated that a radio telemetry system or 4G mobile network connection can provide the required reliability a system comprising one or both of these may be implemented instead. These systems will require the construction of a small mast and antenna at each pumping station and the pressure reducing system(s).

B.14 Pipeline development construction

B.14.1 Overview

This section provides a description of the pipeline development construction including:

- construction methodology, comprising:
  - trenched pipeline installation;
  - underboring pipeline installation;
  - pumping station facilities and pressure reducing system;
- construction timing and staging;
- construction workforce;
- proposed construction traffic access arrangements;
- construction equipment;
- utility adjustments; and
- pipeline commissioning.

B.14.2 Construction methodology

i Pipeline trenching - construction methodology

The indicative construction sequence for installation of the pipeline will involve:

- consultation with landowners regarding access;
- establishing site environmental controls;
- erecting temporary stock fences where required;
- creating temporary access tracks where required;
- clearing vegetation and removing and stockpiling topsoil;

- trench excavation;
- stringing of pipes along route;
- placing bedding material;
- installing pipework;
- casting and pouring of concrete thrust blocks;
- installing valves (e.g. scour valves and pits, air valves and pits);
- backfilling the trench; and
- site restoration.

It is anticipated that the majority of the pipeline will be constructed using open trenching techniques. However, rail crossings and some road and watercourse crossings will be undertaken using underboring. The typical trench will be approximately 1 m wide and ranging from 1.3 m to 2 m deep with a minimum cover of 800 mm.

The area that will be directly impacted by construction activities within the pipeline corridor will range in width from 6 m, such as along forestry tracks, to 20 m in open farmland, depending on a range of factors such as presence of significant vegetation, constructability, construction management and safety considerations, landform, slopes and anticipated sub-soil structures. The final disturbance zone, within the pipeline corridor, will be confirmed during detailed design.

Erosion and sediment controls will be installed and maintained prior to the start of construction activities in accordance with Landcom (2004) and DECC (2008).

Clearing and grading will be minimised where practicable to the extent necessary for construction of the pipeline and ancillary infrastructure and will not exceed the pipeline corridor. Topsoil and other obstacles such as rocks will be removed with a bulldozer, motor grader or excavator. The trench will then be excavated using a tracked excavator, backhoe, tracked chain trencher or other similar mechanical equipment. Where rock is encountered, hydraulic breaking and/or blasting may be required. Topsoil and spoil will be stockpiled adjacent to the excavated trench.

Pipe sections will be stockpiled within the pipeline corridor approximately 2 to 4 km apart adjacent to an existing road or access which will be suitable for a semi-trailer or truck access. The pipes will be transported along the corridor and strung out along the edge of the proposed trench alignment. Regis has obtained NSW Forestry's permission to use existing disturbed areas within NSW Forestry lands as construction ancillary areas such as material and equipment laydown areas.

Pipeline construction will be a progressive operation with a number of work fronts potentially being constructed concurrently. The trenching rate will be variable depending upon ground conditions and machinery used. In rocky conditions, for example on forestry tracks through Sunny Corner State Forest, the trenching rate will be around 40-80 m/day, compared to open farmland where the rate may be 600 – 650 m per day. Trench excavation, pipe installation and backfilling will generally occur within the same day for pipe laying and backfilling of the open trench within the same day. Appropriate construction techniques and safety controls will be utilised, including safety barriers, as required, for open trenches.

Once a trench has been excavated, granular bedding material will be placed in the base of the trench by an excavator (or similar plant) and levelled. The pipeline segments will then be lowered into the trench. Where ductile iron or steel pipes are used, a plastic sleeve may be wrapped around the pipe to provide corrosion protection. Each pipe segment will then be joined to the pipeline. Valves and concrete thrust blocks will then be installed as required.

Once the pipe has been laid and joined, backfill will be placed around the pipe with an excavator (or similar plant) and compacted, typically with a hand-held vibrating plate compactor. Backfill material will comprise a combination of excavated trench material (depending on condition) and imported fill.

Imported fill will be delivered to site via a tipping truck. Excess excavated material unsuitable for use as backfill will be removed from the site to a suitable landfill via a tipping truck.

Tipping trucks (for spoil movement) and flatbed trucks (for movement of pipes and equipment) will shuttle between the stockpiles and pipeline construction sites. The trucks will be loaded by an excavator (or similar plant). Bulk supplies of material will be delivered to the stockpile sites via semi- trailer.

Site rehabilitation will be undertaken progressively following construction. Typical rehabilitation activities will include spreading topsoil and revegetation. In some areas, tree replacement will be undertaken.

ii Trenchless technology - construction methodology

Underboring (such as horizontal directional drilling or micro-tunnelling) will be employed for three rail, six road, two watercourses and under a stretch of protected native vegetation as follows:

- Castlereagh Highway;
- Pipers Flat Road
- Mid Western Highway;
- Great Western Highway;
- O'Connell Road;
- Vale Road;
- Wallerawang Gwabegar Railway Line;
- Main Western Railway Line (two crossings);
- Macquarie River;
- Queen Charlotte Creek; and
- Biodiversity offset site – Energy Australia land.

Horizontal directional drilling (HDD) will generally involve the following activities:

- Excavation of drill launch site and drill reception site (approximately 6 m x 6 m). The drill launch site will contain the drilling rig and a control room. Launch and reception pits will also capture drilling mud prior to solids removal and reuse.
- Drilling of a pilot hole by a rotating, remotely-controlled drilling head attached to hollow drilling rods. The rotating and steerable drill will be launched from the surface or a shallow excavation at the drill launch site. The drill launch site will be preferably at the downstream end of the proposed drill line.

- Water, a drilling fluid, or drilling mud, will be used to lubricate the drilling head and flush the drilled hole. Drill cuttings are removed in the drilling fluid or drilling mud, which travels down the hollow drilling rod string back to the drill launch site where it is contained, collected and passed through sets of screens and liquid cyclones to remove the abrasive drill cuttings so that the "mud" can be recirculated. The mud cleaning and recycling plant will be self-contained and powered by an onsite generator.

- Reaming (ie enlarging) the pilot hole by attaching a back reamer or forward reamer to the string of rods will be used to progressively enlarge the pilot hole.

- When the required diameter of the hole is reached, the new pipe will be attached to the string of drill rods and pulled through the hole.

- The annulus surrounding the installed liner pipe is back grouted at each entrance.

A typical underboring installation will take approximately three weeks. Underboring crossings in more sensitive locations such as the Macquarie River will take approximately four to six weeks.

iii Trenched crossings - construction methodology

a Road crossings

Road crossings, with the exception of the roads identified in Section B.14(ii) above, will be undertaken using open trenching techniques. Trenching will be carried out in two stages with trenching and backfilling of half the road width, and then completion of the remaining half of the road crossing. Traffic movements in a single lane will be maintained in accordance with traffic management and traffic control plans.

Pipeline construction and rehabilitation within road reserves will be undertaken in accordance with the requirements of the relevant road authority.

A typical crossing using this method will take approximately two to four days.

b Waterways

The pipeline development will cross 113 watercourses if the northern option is constructed and 122 watercourses if the southern option is constructed. Most of these are minor streams and gullies which are ephemeral and only flow after large rainfall events. The following crossings will be associated with named watercourses as follows (from east to west):

- Coxs River;

- Wangcol Creek;

- Pipers Flat Creek;

- Salt Water Creek (two crossings);

- Macquarie River;

- Queen Charlotte Creek (Vale Creek);

- Springs Creek;

- Evans Plains Creek;

- Dicks Creek (northern pipeline option only); and
- McLeans Creek.

Regis proposes to cross the above watercourses via open trenching, with the exception of the Macquarie River, Queen Charlotte Creek, which will be under bored and Wangcol Creek where the pipeline will be fixed to the existing causeway. It is noted that the outcomes of geotechnical investigations to be carried out during detailed design may require further watercourses to be underbored.

Watercourse trenched crossings will be scheduled as far as practicable to occur during drier low flow conditions. Coffer dams will be used, as required, to enable trenching of these watercourses. The coffer dams will be sized to provide sufficient water storage to allow the trench to be excavated, the pipeline to be laid and the protective concrete encasement to be placed. If the flow rate and gradient of the creek is such that insufficient storage volume is available, a bypass pumping system around the dam may be established.

A typical crossing using this method will take approximately two to four days.

c Gas pipeline crossings

The pipeline will cross the APA gas pipeline at several locations. Construction methodology for these crossings will meet APA's strict safety requirements and will generally be carried out by trenching methodology with a combination of hand tools and conventional trenching machinery used. Each crossing will take up to three days.

iv Pumping station facilities and pressure reducing system - construction methodology

The indicative construction sequence will involve:

- establishing site environmental controls;
- clearing vegetation and removing and stockpiling topsoil;
- site grading;
- site establishment (site sheds, amenities and stores);
- constructing hard stand areas where required (typically road base);
- excavating for footings and foundations;
- installing footings and foundations;
- erecting structures, tanks and pipework;
- installing mechanical and electrical equipment;
- mechanical, electrical and hydraulic commissioning; and
- construction site demobilisation and restoration.

Within these construction footprints of the pumping station facilities, clearing and grading will be minimised where practicable to the extent necessary for construction. The final construction site footprint will be determined in consultation with the contractor.

v Construction compounds

Construction compounds will be placed predominantly within the pipeline corridor. Regis has obtained permission from the Forestry Corporation to use existing disturbed areas within NSW Forestry lands in the vicinity of the pipeline corridor as construction compounds.

The mobile work fronts will be supported by secondary stockpiling sites, approximately every 2 to 4 km along the pipeline route. These sites will be used as staging areas for the laying down of bulk supplies of pipe work, bedding material and possible excess backfill to be transported to an approved landfill site. They are likely to be provided with a portable toilet, small demountable site shed and one or two shipping containers for storage.

B.14.3 Construction duration and hours

Construction is estimated to take approximately 9 to 12 months, subject to arrangements made between Regis and the contractor. It is anticipated that construction will commence upon the required approvals being obtained.

Standard construction hours will be 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 TfNSW, the NSW Police (ie trenched road crossings) or property owners to minimise specific impacts. Any variations to the nominated construction hours will be communicated to relevant neighbouring land owners.

B.14.4 Workforce

Construction activities will be carried out by a workforce of approximately 120 full-time equivalent employees during peak periods.

It is anticipated that two to four crews will be involved in the pipeline construction. A further two crews will be working on the pumping station facilities, and a separate construction crew will be responsible for underboring works.

B.14.5 Construction access

The pipeline development will require access agreements along the pipeline corridor prior to the commencement of construction activities to enable the necessary surveys and construction works to be undertaken. Permissions from easement holders of existing services will be obtained for traversing public and private easements and land.

Access to the proposed pipeline corridor will be via various routes, including public roads and State Forest tracks and private lands including within Angus Place, SCSO and MPPS. Any fencing taken down to permit access to the corridor will be replaced with a gate, in consultation with the landholder. Individual property management plans will be developed in consultation with individual landowners with respect to property access arrangements and rehabilitation of the construction corridor.

B.14.6 Construction equipment

An indicative equipment fleet to be used during construction is as follows:

- 20 t excavator for pipe laying and backfilling;
- 30 t excavator with impact hammer (for rock breaking);
- jack hammer (for rock breaking);
- track trencher;

- vibrating plate compactor;
- concrete mixer;
- horizontal directional drilling rig; and
- drilling mud plant.

Ancillary equipment will also be required including (but not limited to) petrol pumps, welders, generators, hand tools, delivery and light vehicles.

B.14.7 Utility adjustments

Consultation with utility authorities has been carried out as part of the development of the concept design for the pipeline development to identify and locate existing services. Should existing services need to be relocated, work will be undertaken in consultation with the relevant service providers. The pipeline corridor has been defined to accommodate service relocations as required within the corridor.

B.14.8 Pipeline commissioning

During commissioning, the pipeline will be pressure tested and monitored for any leaks. Emptying of the pipeline will occur at scour valves located at intermediate low points along the alignment, and water will be removed via suction tanker truck and taken to the mine site or to an appropriately licensed wastewater treatment facility such as Bathurst Council's sewage treatment plant.

B.14.9 Rehabilitation

Practical and achievable rehabilitation objectives will be agreed with each landowner. Agreed rehabilitation requirements for individual properties will be incorporated into property management plans, which will be developed prior to construction starting on the relevant property.

One of the primary aims of rehabilitation activities will be to rapidly stabilise disturbed areas. The reinstatement of disturbed areas will take place as soon as possible after construction has been completed. These activities will include:

- reinstatement or replacement of gates and fences;
- spreading topsoil and ground cover seeding;
- treatment of new ground cover to retain moisture and accelerate regrowth;
- installing sediment and erosion control measures to provide an optimal environment for regrowth;
- return of all disturbed land, waterways and riparian zones to a stable condition; and
- ongoing monitoring and approval of rapid reinstatement work by the environmental representative and project manager.

Following stabilisation of disturbed areas, rehabilitation activities will focus on the establishment of a permanent cover of vegetation that reflects the:

- original vegetation;

- findings and recommendations of the terrestrial ecology assessment; and
- requirements of maintaining an ongoing easement (for land subject to the easement).

Rehabilitation will initially be managed by the construction/restoration contractor, with sign off and handover to Regis at an appropriate time. Regis will continue to monitor the construction corridor and if issues arise will take action in consultation with the landowner.

B.15 Pipeline development maintenance and decommissioning

B.15.1 Overview

This section describes the maintenance and decommissioning of the pipeline development. It also describes the creation of the pipeline easement. An overview of the operating regime of the pipeline is provided in Section B.14.3 above.

B.15.2 Maintenance

During the operational phase, Regis will periodically inspect the pipeline development, undertaking routine and planned maintenance to ensure that the pipeline is functioning adequately. This will include maintenance of the pumping stations, pressure reducing system and valves.

Fault detection systems will be incorporated within the pipeline design. If a pipeline leak occurs, the fault detection systems will shut down the water transfer and notify the operator that an inspection of the system is required. The maintenance team will undertake any repairs and will remain in the cleared pipeline easement to avoid disturbance to the natural environment.

Operation (opening) of the scour valves will allow dewatering of the pipeline for emergency repairs and maintenance. Dewatering will involve release of water to scour pits via the scour valves. Scour water will be transferred from the pits via a suction tanker truck and taken to the mine site or to an appropriately licensed wastewater treatment facility such as Bathurst Council's sewage treatment plant or pumped to the nearest pumping station or the next appropriate pipeline section.

Cleaning stations may be required to facilitate cleaning of the pipeline during operations. If required, water from this cleaning process will contain chlorine and material scoured from the wall of the pipe. As described above, water will be transferred from the scour pits via a suction tanker truck to the mine site or to an appropriately licensed wastewater treatment facility.

B.15.3 Decommissioning

It is anticipated that the pipeline will remain in the ground at the end of the mine operating period. There may be an opportunity for the pipeline infrastructure to continue to provide future public benefit by enhancing water security and supply to the region, subject to obtaining the necessary approvals. At the end of the mine life, the pipeline development will be prepared for long term (mothball) shutdown. The above ground components will be removed, if after a reasonable time period, no additional users for the water or pipeline are identified.

B.15.4 Easement

The final easement will be confirmed during detailed design. It is likely that the final easement will be, on average, 6 to 10 m wide. However, the easement may need to be wider in some areas, depending on the location, local conditions, and the presence of other infrastructure. The easement will remain as a cleared landscape to facilitate maintenance during the operational phase.

During operation, usage restrictions will apply to private land within the easement to protect the pipeline development. These restrictions will be included in the easement agreement entered into between Regis and landowners. Acquisition and compensation payable will be consistent with the NSW *Land Acquisition (Just Terms Compensation) Act 1991.*