SARAJI EAST MINING LEASE PROJECT

Environmental Impact Statement

Appendix K-2
Subsidence Management Plan

BHP

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Abbreviations

BMA	BM Alliance Coal Operations Pty Ltd
DES	Department of Environment and Science
EA	Environmental Authority
EIS	Environmental Impact Statement
ERA	Environmentally Relevant Activity
FPC	foliage projective cover
FY	Financial Year
IRC	Isaac Regional Council
km	kilometres
LGA	Local Government Area
m	metres
ML	Mining Lease
MLA	Mining Lease Application
NATA	National Association of Testing Authorities
RE	regional ecosystem
REMP	receiving environment monitoring program
RMP	Rehabilitation Management Plan
SMP	Subsidence Management Plan

Saraji East Mining Lease Project

1 Subsidence Management Plan

1.1 Introduction

The purpose of this Subsidence Management Plan (the Plan) is to:

- identify the potential environmental impacts associated with the longwall top coal caving at the Saraji East Mining Lease Project (the Project)
- outline the controls required to monitor, minimise and mitigate these environmental impacts.

This plan will form a part of the Project's environmental management system intended to meet the obligations of the guidelines and the Environmental Authority (EA). This plan should be read and implemented in conjunction with the site's Rehabilitation Management Plan (RMP).

1.2 Obligations

This plan aims to satisfy the obligations associated with subsidence outlined in:

- Guideline: Application requirements for activities with impacts to land (Version 4, DEHP, March 2017)
- Guideline: Application requirements for activities with impacts to water (Version 4, DEHP, March 2017)
- Queensland Environmental Offsets Policy (Version 1.1, DEHP, December 20014).

These obligations and the area in which they are addressed in this Plan are summarised Table 1.

Table 1 Regulatory obligations

Description	Reference	SMP Reference
Provide a drawing/site plan showing the impacts arising from subsidence associated with the Environmentally Relevant Activity (ERA).	Guideline: Application requirements for activities with impacts to land	Figure 3-
Describe in detail all land disturbance associated with the ERA.	Guideline: Application requirements for activities with impacts to land	Section 1.4 Potential Impacts
Demonstrate how the ERA will be managed to minimise the extent and severity of land disturbance including any areas which are likely to experience underground subsidence are to be identified.	Guideline: Application requirements for activities with impacts to land	Section.1.5 – Subsidence Management
Where contaminant release to waters or disturbance of waters (i.e. reshaping of the bed and banks of a watercourse) is proposed, the applicant must identify how the site will be rehabilitated. The rehabilitation plan must provide for the following (where relevant): managing subsidence to ensure that overland and surface water flows are not impacted.	Guideline: Application requirements for activities with impacts to water	Section 2.3 – Surface Water
Where the proposed ERA involves, or may involve, subsidence, applicants are encouraged to provide details of how this will be managed within a subsidence management plan. The management plan should address all of the potential impacts resulting from subsidence at the site, including: • the physical condition of surface drainage • overland flow • land condition and future suitability.	Guideline: Application requirements for activities with impacts to land	Section 3 –Mitigation Measures
Offsets are required where impacts to remnant vegetation are unavoidable.	Queensland Environmental Offsets Policy (Version 1.1)	Section 2.5 - Ecology

1.3 Project Description

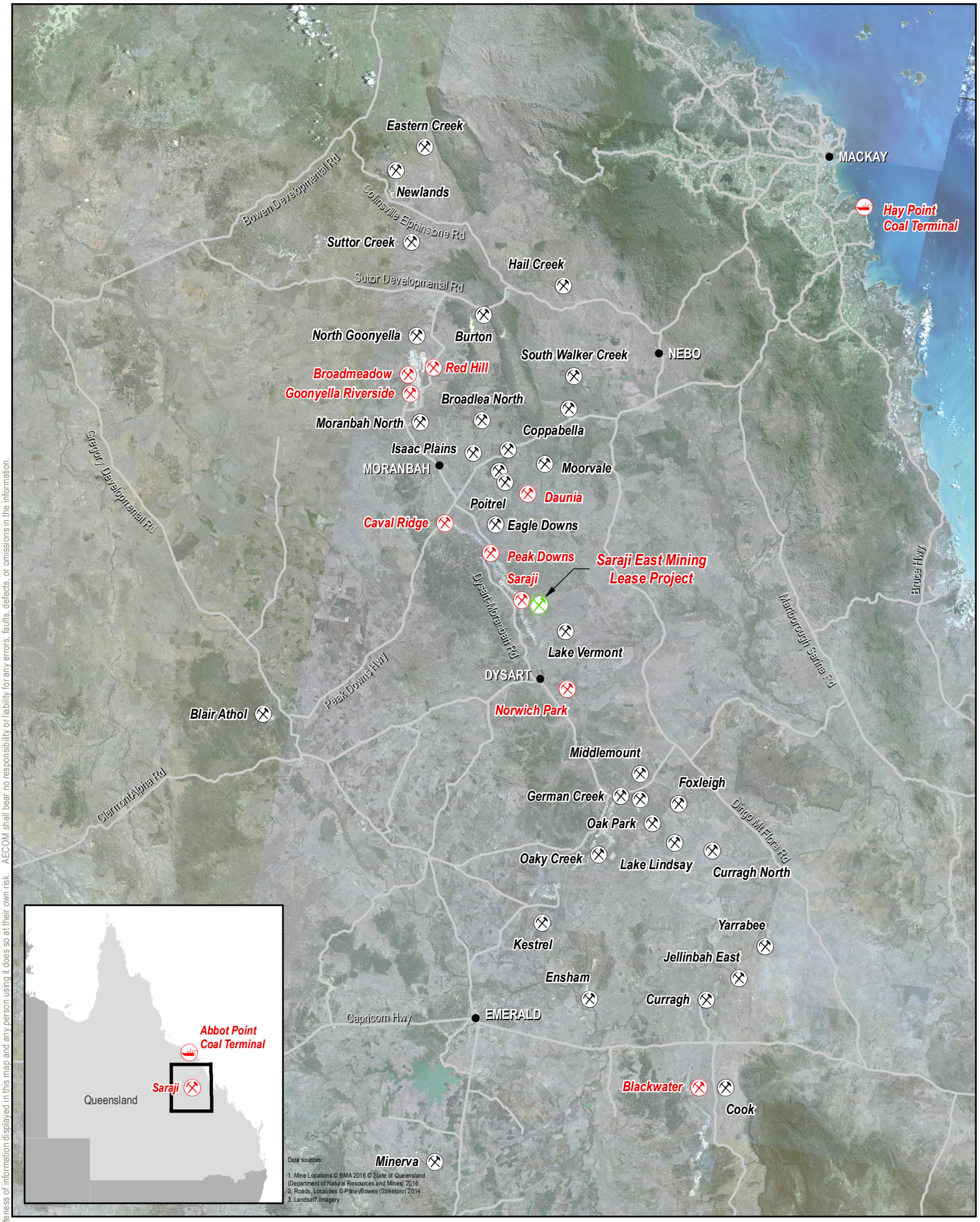
The Project is a greenfield single-seam underground mine development on Mining Lease Application (MLA) 70383. The Project is located within the Isaac Regional Council (IRC) Local Government Area (LGA) approximately 30 kilometres (km) north of Dysart and approximately 167 km south-west of Mackay in Queensland (Figure 1).

The longwall panels at the Project are approximately five km by 11 km (Figure 2). BM Alliance Coal Operations Pty Ltd (BMA) will progressively mine the coal within each longwall panel. As mining activities retreat along the longwall panel, overlying strata collapses into the area known as the goaf. The extent to which this subsidence can be seen at the surface depends on the type of overlying strata, the thickness of the extracted seam and the distance between the mining operations and the surface (the greater the distance, the broader the spatial extent of the surface changes).

The subsidence modelling has been undertaken based on:

- A maximised spatial footprint which relates to the limit of subsidence (refer Figure 2) (herein referred to as the maximised footprint)
- A production schedule (from Financial Year (FY) 2023 to FY 2042) which spatially relates to the optimised mine plan (refer Figure 2) (herein will be referred to as the optimised footprint).

The assessment was undertaken using the maximised footprint from a spatial perspective and the optimised footprint from a coal extraction perspective. It is considered that the use of the maximised footprint allows for a conservative assessment which considers the largest potential impacts of mining.



LEGEND

- Saraji East Mining Lease Project
- Locality
- Major Road
- BMA Coal Terminal
- BMA Mine
- Other Mine

N

Figure 1
Regional Location

Subsidence Management Plan
Saraji East Mining Lease Project

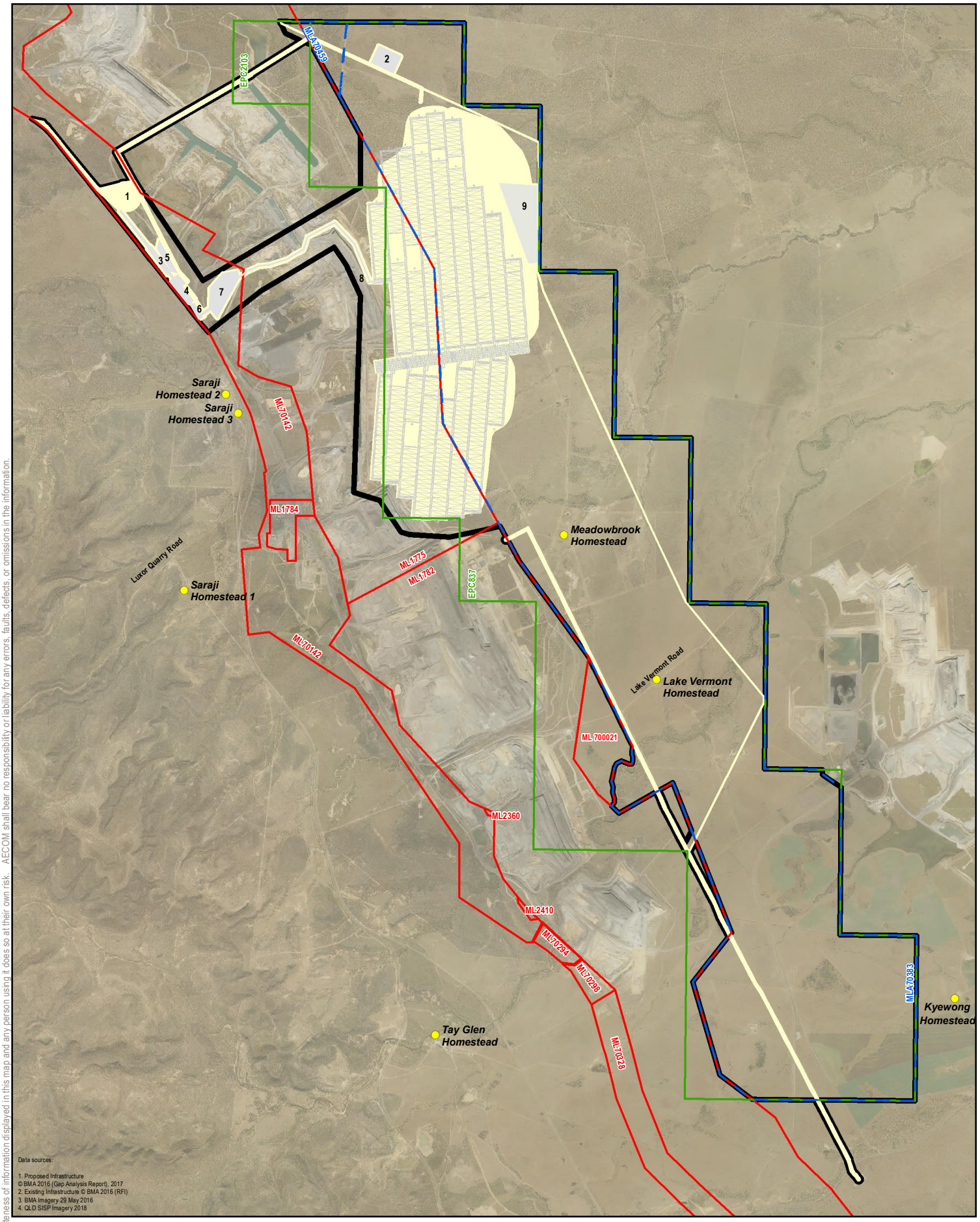
0 5 10 20
Kilometres

Scale: 1:1,500,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

BHP

DATE: 8/03/2019 VERSION: 3



LEGEND

- Project Site
- Project Footprint
- Exploration Permit Coal (EPC)
- Mining Lease (ML)
- Mining Lease Application (MLA)
- Underground layout (optimised)
- Surface Infrastructure
- Homestead

Surface Infrastructure

1 Rail Loading Balloon Loop
2 Process Water Dam
3 Product Stockpiles
4 CHPP
5 Raw Water Dam
6 ROM Pad
7 Future MIA
8 Conveyor
9 Construction Accommodation Village

N

Figure 2
Project Layout

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.5 1 2
Kilometres

Scale: 1:110,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

BHP

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1.4 Potential impacts

Modelling of specific environmental impacts, such as on surface water, is being undertaken in parallel with the development of this plan. This modelling section of the SMP will be updated accordingly as the results become available, in order to provide greater detail around specific impacts, such as flood behaviour. Subsidence impact modelling undertaken for the Project (refer to Minserve, 2017) identified a number of potential general impacts. The potential impacts include:

- surface depressions
- surface cracking:
  - tension cracks will form above the longwall abutment edge and on either side of the chain pillars
- surface water resources:
  - morphological stability of water courses
  - the creation or alteration of riffle and pool sequences
  - changes to flood behaviour
  - incision processes
  - stream widening
  - lowering of creek bed and banks
  - reduced flow due to increased porosity and permeability
  - change of water quality due to a reduction in dissolved oxygen and to increased salinity, iron oxides, manganese, and electrical conductivity
  - decrease in bank stability.
- erosion and sedimentation until the bed profile is restored to a stable profile
- groundwater drawdown:
  - fractures in the Permian rock mass and overlying Tertiary sediments may provide pathways for drainage of groundwater resources
- ecological impacts:
  - dieback of riparian vegetation due to cracks beneath streams
  - changes to riparian community structure and composition due to water loss and disturbance of the root zone
  - reduction of creek stability due to the death of fringing vegetation and tree fall
  - vegetation stress from either mechanical disturbance or water table change.

Prior to mining, the land has been utilised for cattle grazing. Due to the gradual nature of the subsidence, it is expected that grazing activities will continue during mining operations but out of direct operational areas while any related subsidence occurs.

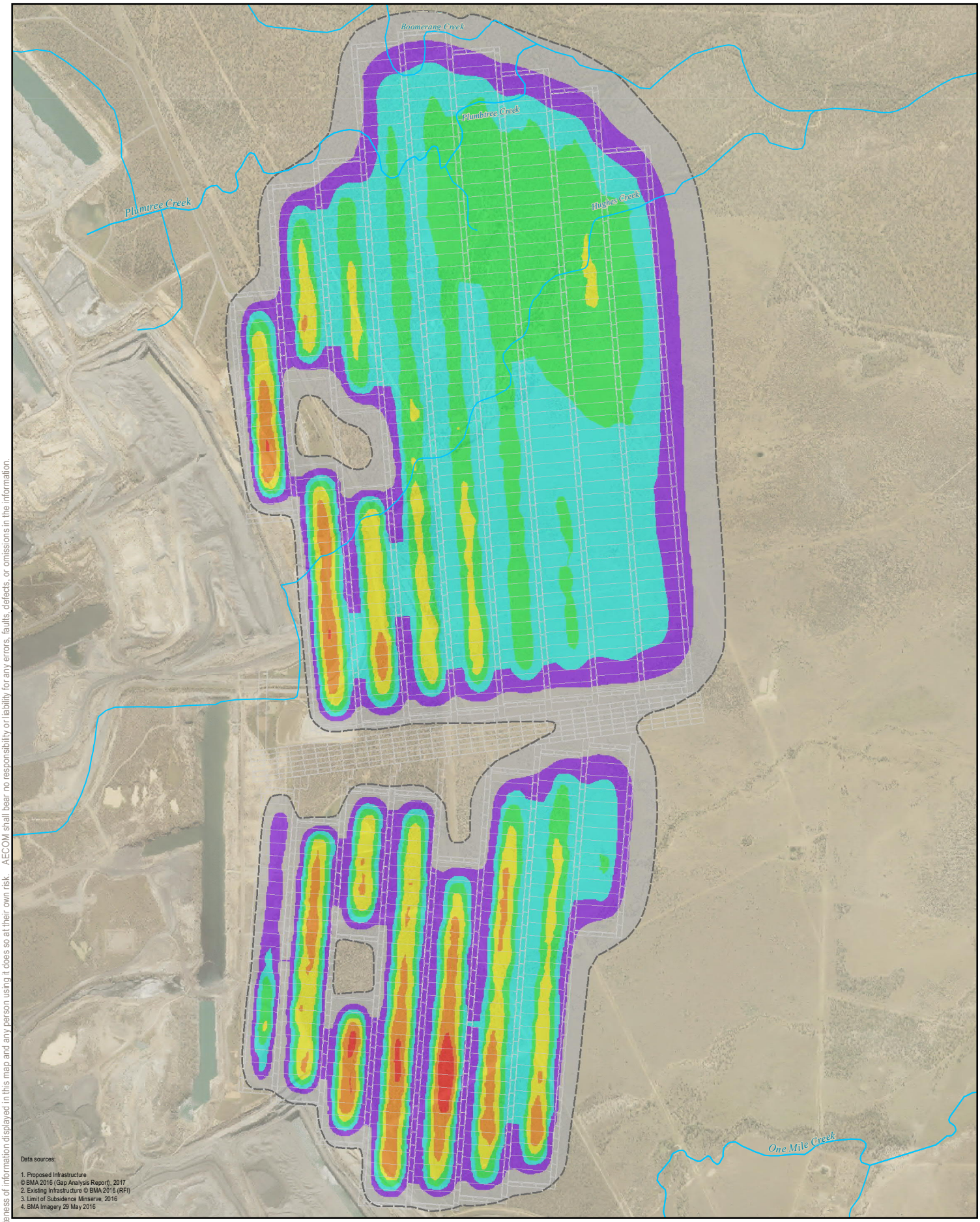
The modelled subsidence impact can be seen in Figure 3. Over the northern panels where:

- the maximum predicted subsidence is 3.2 metres (m)
- the deepest panel is 440 m below ground level
- Hughes Creek, Plumtree Creek and Boomerang Creek run through the northern panels.

Over the southern panels:

- the maximum predicted subsidence is 3.5 m
- the deepest panel is 350 m below ground level.

The existing and predicted topography is represented in Figure 4 and Figure 5.



Data sources:

1. Proposed Infrastructure
© BMA 2016 (Gap Analysis Report), 2017
2. Existing Infrastructure © BMA 2016 (RFI)
3. Limit of Subsidence Minserve, 2016
4. BMA Imagery 29 May 2016

LEGEND

- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence
- Watercourse

Subsidence Contour

- < 0.5m
- 0.5 - 1.0m
- 1.0 - 1.5m
- 1.5 - 2.0m
- 2.0 - 2.5m
- 2.5 - 3.0m
- > 3.0m

N

Figure 3
Subsidence Contours

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.25 0.5 1
Kilometres

Scale: 1:38,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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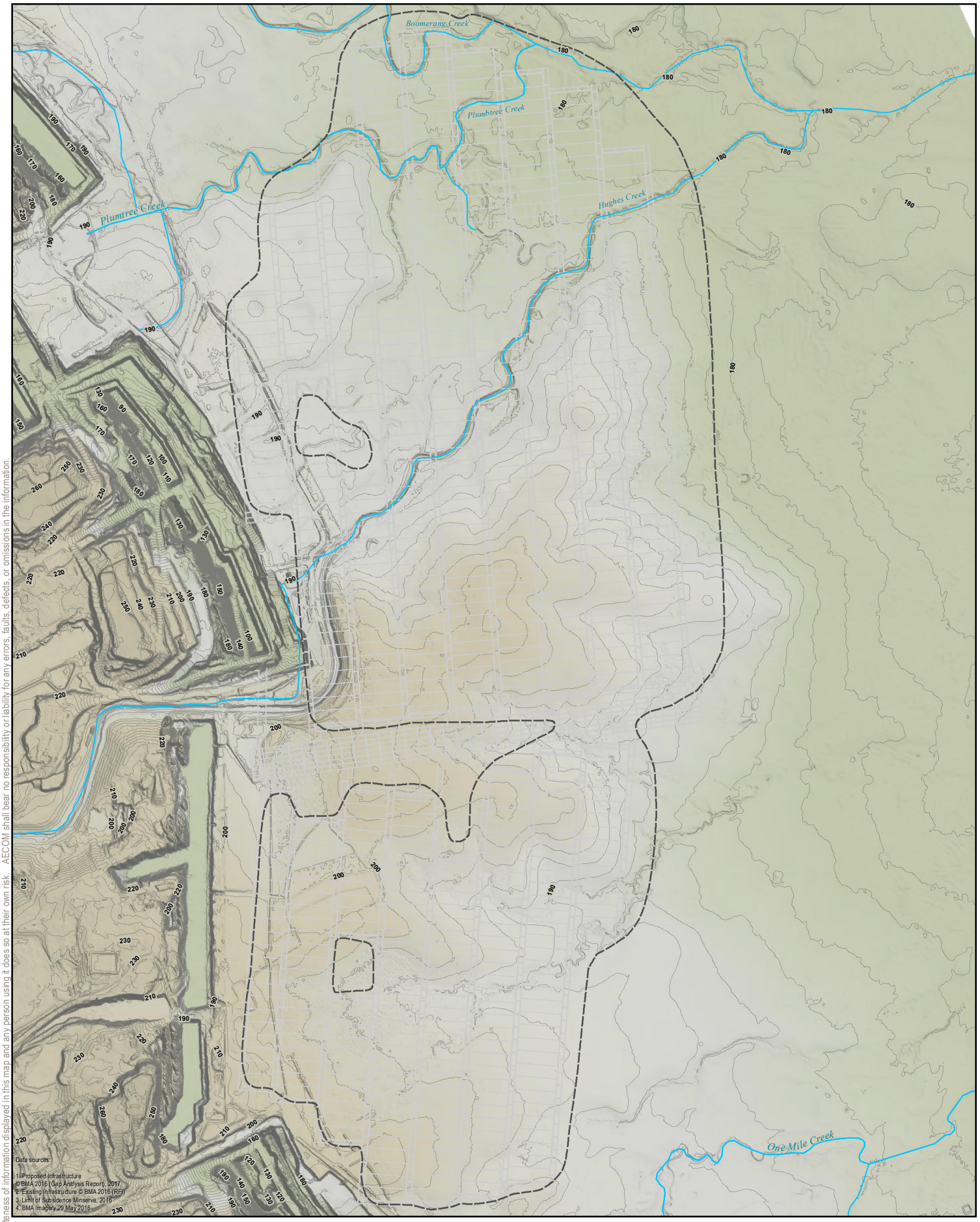
DATE: 12/05/2021 VERSION: 3

Filename: L:\Secure\Projects\605X\60507031\4. Tech Work Area\4.99 GIS\02_MXDs\06 Environmental Impact Statement\K-1 Subsidence and Rehab Plans\Subsidence Management Plan\60507031_G124_v3_A4P.mxd GISWR-23, 45



Data sources:
1. Proposed Infrastructure @BMA 2016 (Gap Analysis Report), 2017
2. Existing Infrastructure © BMA 2016 (RFI)
3. Limit of Subsidence Minserve, 2016
4. BMA Imagery 29 May 2016

LEGEND

- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence
- Watercourse
- Contour (2m)

N

Figure 4
Existing Topography

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.25 0.5 1
Kilometres

Scale: 1:38,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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LEGEND

- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence
- Watercourse
- Contour (2m)

N

Figure 5
Subsided Topography

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.25 0.5 1
Kilometres

Scale: 1:38,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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DATE: 12/05/2021 VERSION: 3

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1.5 Subsidence management

- The proposed approach to managing subsidence is to use pro-active measures to predict and potentially improve the overall condition of the potentially affected areas, so that any adverse effects of subsidence are minimised.
  The order of controls for subsidence management is: mitigation
- monitoring and rehabilitation.

Ongoing reporting will be conducted during the operation of the mine, in accordance with the Environmental Authority (EA) and this plan.

The implementation of all rehabilitation strategies for subsidence is addressed in Section 8 of the RMP.

2 Monitoring

2.1 Overview

This section of the Plan provides an overview of the monitoring requirements pre and post mining to ensure relevant data is captured for:

- landform
- surface water
- groundwater
- ecology
- infrastructure.

A pre-subsidence risk assessment will be conducted prior to subsidence and will include a cross section of suitably qualified personnel. The findings of the risk assessment and monitoring will be used to identify suitable measures to mitigate the environmental risks.

Monitoring of the proposed subsidence areas prior to any panel being subsided will ensure that any subsidence impacts are quickly identified and appropriate mitigation applied. Monitoring for surface water, groundwater and ecological parameters will commence after cessation of subsidence movements and will continue annually or in accordance with the EA conditions. Table 2 provides an indicative timeline of the frequency of monitoring events and will be updated upon the issue of the EA.

This monitoring program will be reviewed every two years or after any major change to operations; The monitoring data will also be used to optimise and inform the monitoring program to maximise the value of the data produced.

Surface water and groundwater laboratory analysis is to be undertaken by a National Association of Testing Authorities (NATA) accredited laboratory. Monitoring will be conducted in accordance with the relevant Australian standards or in accordance with the EA conditions which will stipulate the requirements.

A summary of all monitoring requirements is outlined in Table 2.

2.2 Landform

2.2.1 Baseline

The baseline monitoring will involve geomorphologic condition/status surveys including photographic recording of reach condition. Monitoring will extend over the length of the potentially affected drainages.

Monitoring will include the assessment of impacts on:

- soils
- sediment accumulation
- watercourse stability
- land use related to water availability or quality (e.g. cattle grazing).

The baseline survey will be completed prior to subsidence to provide an indication of the natural processes at work and will continue periodically during mining. The baseline survey should involve aerial LiDAR to establish the baseline landform conditions.

2.2.2 Post mining

Monitoring of drainage stability will be an ongoing activity through the subsidence and post restoration phases of the Project. Regular visual inspections will be conducted throughout the wet season and as required in the dry season. Aerial LiDAR will be flown annually to validate predictions and help mitigate future impacts.

2.3 Surface water

2.3.1 Baseline

Baseline surveys will be undertaken of the pre-subsidence channel geometry of specific reaches of the three waterways and their surrounding areas (refer Figure 6):

1. Boomerang Creek
2. Plumtree Creek
3. Hughes Creek.

The baseline surveys will include a detailed pre-mining photographic record of the creeks as they pass over the subsided area.

Photographic monitoring will be:

- conducted annually
- conducted on the channel reach for 1 km upstream of the subsidence area
- conducted downstream of the subsided areas to the extent of the mining lease (ML)
- should include a geomorphologic assessment of the entire reach
- include photos of:
  - each proposed pillar intersection
  - the intersection of proposed centre of each longwall panel
  - any additional points of likely impact identified during the recording process.

The monitoring locations will be identified and mapped in GIS and will form the basis of a consistent monitoring program.

The assessment may segment the watercourses in distinct reaches (e.g. lower, middle and upper reaches). Monitoring control locations will be established and will capture any catchment-wide variations.

The pre-subsidence surveys will quantify:

- pool/riffle sequences
- bed controls
- entry points of other watercourses and localised tributaries
- existing bed and bank scour points
- any infrastructure located within the watercourse
- channel slope
- channel description including flow channel dimensions
- riparian vegetation conditions
- flow
- peak discharge flow
- erosion points
- overflow and flood points
- floodplain description
- catchment size
- catchment relief.

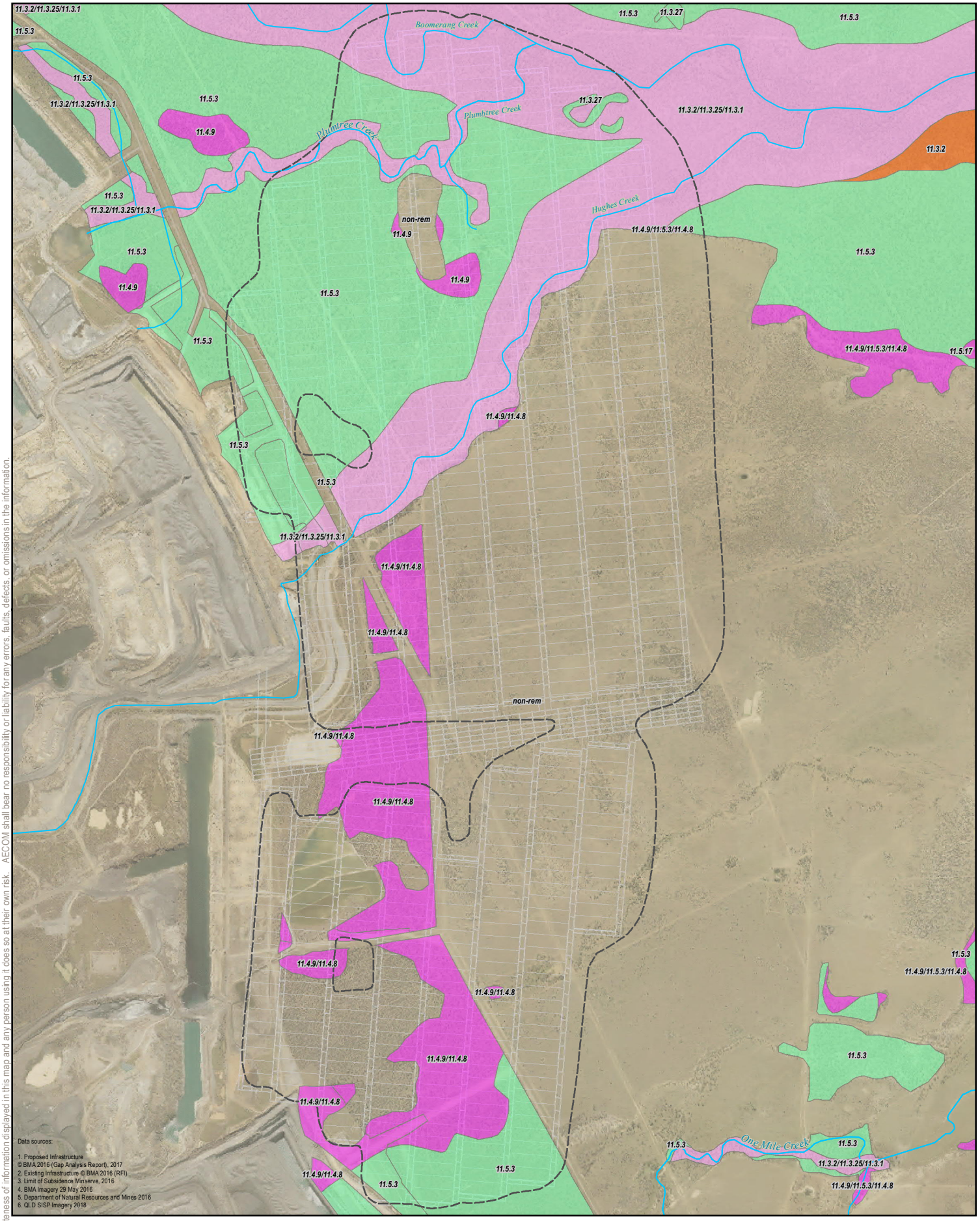
Rainfall and flow event monitoring in each creek will be carried out prior to the subsidence of any panel to establish pre-impact flow conditions.

2.3.2 Post mining

The post-subsidence monitoring program aims to quantify any changes to the pre-mining conditions and will look for changes in sedimentation and increased erosion and riparian vegetation die back. The program will comprise:

- erosion or deposition processes that have occurred as a result of subsidence
- migration of head cut erosion within watercourses and tributaries
- localised changes to stream bed slope
- localised widening of channels
- destabilisation of stream bed and banks including fracturing and incision
- localised changes to bank heights
- active searches for cracks within a 50 m radius of monitoring locations
- monitoring of ponding.

Post-subsidence monitoring should occur at all locations outlined in the pre-subsidence baseline monitoring (based on modelled predictions of cracking areas) as well as any other areas that were affected by subsidence that were not monitored as a part of the baseline survey. Monitoring will occur annually or in accordance with EA conditions. Monitoring data will be reviewed as necessary to determine when stability has been established.



LEGEND

Regional Ecosystems v10.1 (DNRM)

- Engangered dominant
- Engangered subdominant
- Of Concern dominant
- Least Concern
- Watercourse
- Watercourse_250K
- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence

N

Figure 6
Expected Subsidence, Waterways and Regional Ecosystems

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.25 0.5 1
Kilometres

Scale: 1:38,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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2.4 Groundwater

2.4.1 Baseline

The Groundwater Technical Impact Assessment completed as part of the Saraji East Mining Lease Project (the Project) Environmental Impact Statement (EIS) will act as baseline monitoring for this project.

This study describes the pre-existing groundwater conditions prior to any panel being subsided and provides baseline data for comparison (as well as predicting impacts to groundwater as a result of the Project). This forms a key part of understanding the changes occurring in the groundwater and will enable appropriate measures to mitigate environmental harm to be implemented.

Groundwater control monitoring locations will be established as part of a Project-wide groundwater monitoring program. This will capture any broad-scale variations in groundwater levels and chemistry which may not be associated with subsidence impacts.

The initial pre-subsidence groundwater monitoring will be utilised to determine trigger levels and compliance limits against which monitoring during operations and post-closure can be compared. All groundwater monitoring data (level and chemistry) will be entered into a BMA environmental monitoring database to enable a regular assessment of impacts.

Figure 7 presents the monitoring bores located within the limit of subsidence.

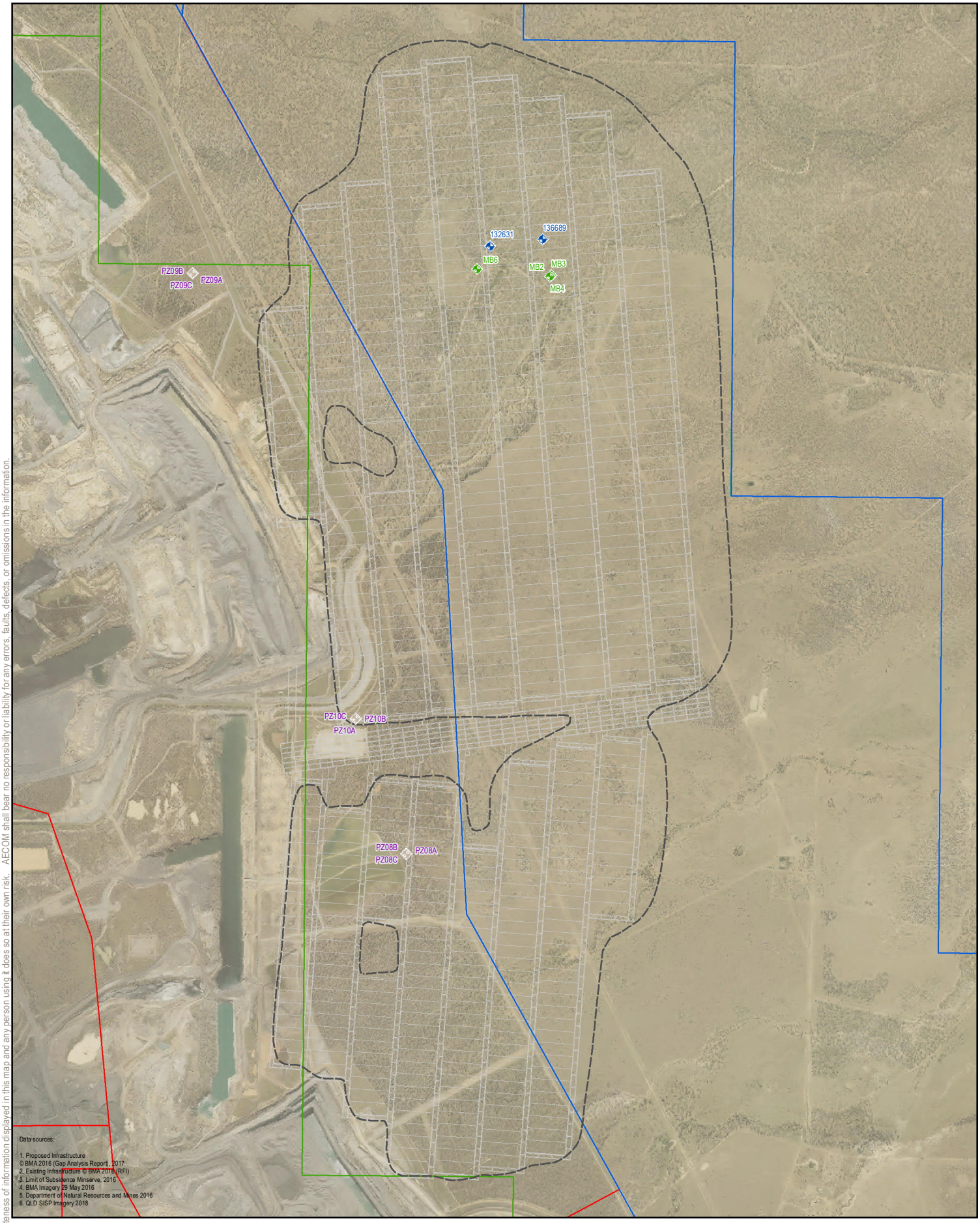
2.4.2 Post mining

The groundwater monitoring program will be developed in accordance with DES guidance and the Project EA.

Monitoring will include:

- water level measurement
- water quality field conductivity measurement
- chemical analysis of water samples (to meet the requirements of the EA as a minimum)
- groundwater level rebound
- groundwater flow patterns.

Groundwater monitoring will occur in accordance with EA conditions.



LEGEND

- Saraji Monitoring Bores
- Registered Bore
- Census Bore
- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence

Mining Tenement

- Exploration Permit Coal (EPC)
- Mining Lease (ML)
- Mining Lease Application (MLA)

N

Figure 7
Expected Subsidence and Groundwater Bores

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.225 0.45 0.9
Kilometres

Scale: 1:40,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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DATE: 28/02/2019 VERSION: 2

2.5 Ecology

2.5.1 Baseline

The ecological studies completed as part of the Project's EIS will act as baseline monitoring for the Project.

Vegetation surveys were conducted to determine the ecological values of the Project area. These baseline studies have mapped seven regional ecosystems (REs) that may be impacted (refer Figure 6).

This baseline information will allow any alterations to vegetation community structure to be detected. This information will inform species selection and seeding/planting density for rehabilitation operations.

The baseline study for vegetation included:

- height class and life form of the dominant species within each strata (emergent, canopy, subcanopy and understory)
- foliage projective cover (FPC) of each strata
- coarse woody debris
- groundcover composition
- native and introduced plant species richness
- native and introduced plant species relative abundance
- tree health parameters.

The baseline study for fauna included:

- intensive trapping
- microhabitat search program to characterise the faunal usage of the ground layer.

2.5.2 Post mining

Remnant vegetation within subsidence impacted areas will be monitored for foliar discolouration, partial defoliation, increased pathogenic attack, or tree death as signs of vegetation impacts from subsidence. Tree deaths and regrowth in areas affected by subsidence will be monitored to assess whether rehabilitation is required. In areas where natural regrowth is not sufficient to replace dead trees, replanting will be undertaken.

2.6 Infrastructure

2.6.1 Baseline

Any infrastructure that will not be removed prior to subsidence should be monitored photographically.

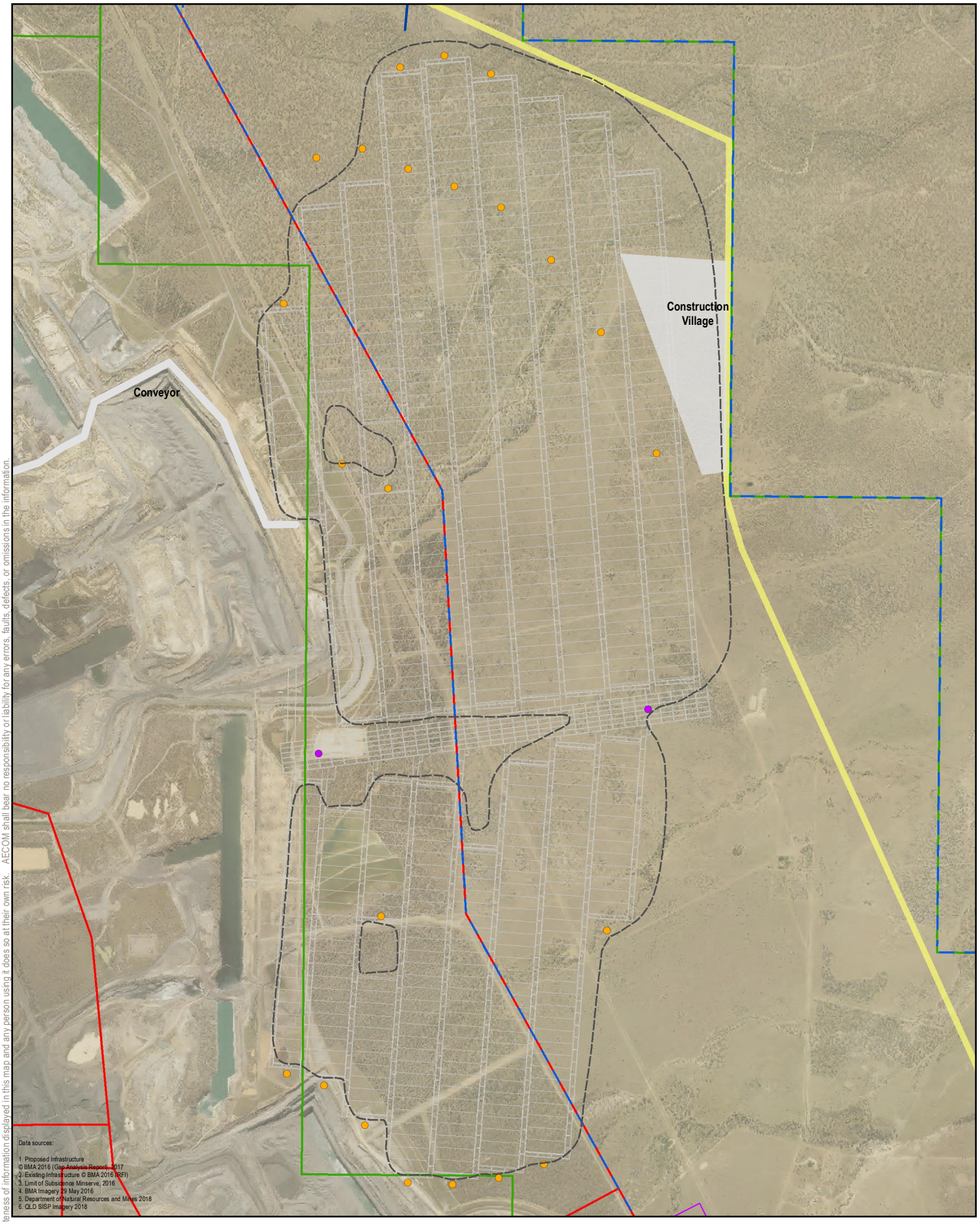
As pipeline and electricity transmission infrastructure will be removed, the only remaining infrastructure that may require monitoring for impacts would include any:

- watercourse related infrastructure
- dams and collection ponds
- bores
- windmills
- fencing
- tracks and roads
- livestock infrastructure.

BMA will engage with the relevant landholders to determine the extent of removal of infrastructure. Agreement with landholders may be developed to retain infrastructure.

2.6.2 Post mining

Any infrastructure within the predicted subsidence area (refer Figure 8) will be photographically monitored for impacts immediately following mining activity. Monitoring will be undertaken annually or in accordance with EA conditions.



Data sources:

1. Proposed Infrastructure © BMA 2016 (Gap Analysis Report) - 2017
2. Existing Infrastructure © BMA 2016 (RFI)
3. Limit of Subsidence Minserve, 2016
4. BMA Imagery 29 May 2016
5. Department of Natural Resources and Mines 2018
6. QLD SISP Imagery 2018

LEGEND

- Exploration Permit Coal (EPC)
- Mining Lease (ML)
- Mining Lease Application (MLA)
- Proposed Underground Mine Layout (Maximised)
- Limit Of Subsidence
- Surface Infrastructure
- Transport and Infrastructure Corridor
- 66kV Powerline
- Pipeline
- Flare
- Vent

N

Figure 8
Expected Subsidence and Project Infrastructure

Subsidence Management Plan
Saraji East Mining Lease Project

0 0.225 0.45 0.9
Kilometres

Scale: 1:40,000 (when printed at A4)

Projection: Map Grid of Australia - Zone 55 (GDA94)

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2.7 Monitoring summary

Table 2 Monitoring summary

Subsidence impact	Parameters	Frequency
Landform	• geomorphologic condition/status surveys including photographic recording of reach condition, including – soils – sediment accumulation – watercourse stability • land use related to water availability or quality (e.g. cattle grazing).	• prior to mining / subsidence • regular visual inspections will be conducted throughout the wet season and as required in the dry season • aerial LiDAR to be flown annually. • in accordance with EA conditions
Surface Water	• creek flow monitoring – mean annual stream flow – peak discharge flow • surface water quality.	• prior to mining / subsidence • regular visual inspections will be conducted throughout the wet season and as required in the dry season • in accordance with EA conditions
	• creek bed monitoring e.g.: – instream ponding – instream tension cracking – overflow and flood points – erosion points – riparian vegetation conditions (foliar discoloration, defoliation, pathogenic attack, uprooting and tree mortality) – bed and bank scour points – sediment deposition areas – entry points of other watercourses and localised tributaries – any infrastructure located within the watercourse – channel profile – channel slope – bank height – erosion points – ponding – sediment deposition areas – bed and bank scour points	• prior to mining / subsidence • after the commencement of operations monitoring will occur as outlined in the EA • ongoing monitoring in accordance with the Receiving Environment Monitoring Program (REMP) and EA conditions.

Subsidence impact	Parameters	Frequency
	– bed slope • size of subsidence any voids created within watercourse.	
Groundwater	• water level measurement • water quality field conductivity measurement • chemical analysis of water samples to be taken annually • groundwater level rebound • groundwater flow patterns.	• prior to mining / subsidence • In accordance with EA conditions
Ecology	• flora – height class and life form of the dominant species within each strata (emergent, canopy, subcanopy, understory) – foliage projective cover – coarse woody debris – groundcover composition – native and introduced plant species richness – native and introduced plant species relative abundance – tree health parameters • fauna – intensive trapping • microhabitat search program.	• flora and fauna prior to mining / subsidence • flora annually during operations or as outlined in the EA • in accordance with EA conditions.
Infrastructure	• photographic records of – pipelines – electricity transmission infrastructure – watercourse related infrastructure – dams and collection ponds – bores • windmills.	• prior to mining / subsidence • after the commencement of operations monitoring will occur annually or as outlined in the EA

3 Mitigation measures

Potential mitigation measures for the management of subsidence are listed in Table 3; these measures will be applied as necessary to achieve the most practicable environmental outcomes. Progressive rehabilitation will be conducted as the mine advances and panels subside. For further detail regarding the implementation of rehabilitation, refer to Section 8 of the RMP.

Table 3 Indicative mitigation measures for subsidence

Subsidence Impact	Mitigation Measure
Landform	• ripping • tyning • grading • compaction • crack infilling with concrete or clay • progressive rehabilitation • embankment arming • bed stabilisation such as pervious weirs • geomorphological modelling to predict high energy areas of the subsided landform • grazing access / controls to mitigate vegetation stripping and bank damage • channel re-profiling and construction of contour banks • vegetation planting • erosion control matting in high energy or erosive areas • construction of drop structures at head cut erosion features.
Surface Water	• ripping • tyning • grading • compaction • crack infilling with concrete or clay • progressive rehabilitation • embankment arming • bed stabilisation such as pervious weirs • geomorphological modelling to predict high energy areas of the subsided landform • additional grazing access / controls to mitigate vegetation stripping and bank damage • channel re-profiling and construction of contour banks • vegetation planting • erosion control matting in high energy or erosive areas • construction of drop structures at head cut erosion features.
Ecology	• pump areas of persistent ponding • revegetate areas impacted • utilise dead vegetation in habitat creation • regrading to promote drainage • investigate and establish offsets.
Infrastructure	• repair infrastructure as required • where possible, remove all infrastructure within the subsidence zone prior to the subsiding of any panel.

4 Reporting

Internal reporting will be carried out to maximise the efficiency of BMA's rehabilitation activities; external reporting to meet the requirements of the EA. The monitoring data will be compiled in the site's monitoring database for internal reporting purposes. Monitoring will be carried out in stages designed to mirror the development of the mining areas. Key aspects of the reporting are:

- mining activities in the 12 months preceding subsidence
- rehabilitation activities in the 12 months since the last report
- presentation of baseline monitoring data results from the 12 months preceding subsidence
- assessment of monitoring data (pre and post mining) against completion criteria in the RMP
- mitigation measures to be implemented in the subsequent 12 months in order to achieve completion criteria.

As a minimum, the report will address:

- watercourse condition and geomorphic processes
- the condition of remnant vegetation in riparian zones and in areas of subsidence
- examination of pillar zones in watercourses
- the creation of in-stream water holes
- groundwater impacts.

The report will also include updates on:

- the integrity and effectiveness of the pre-subsidence mitigation measures implemented
- the current state of the groundwater and surface water resources
- vegetation health assessment
- any impacts on these features
- a commitment to implement the findings of the report.

Reporting will occur annually or in accordance with the Project EA.

5 References

Department of Environment and Heritage Protection (2017), Guideline: Application requirements for activities with impacts to land, accessed online on 4 December 2017 at: https://www.ehp.qld.gov.au/assets/documents/regulation/era-gl-land-impacts.pdf

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Department of Environment and Heritage Protection (2014), Queensland Environmental Offsets Policy, accessed online on 4 December 2017 at: https://www.ehp.qld.gov.au/assets/documents/pollution/management/offsets/offsets-policyv1-1.pdf

Department of Natural Resources and Mines (2014), Guideline: Works that interfere with water in a watercourse – watercourse diversions, accessed online on 4 December 2017 at: https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0015/212424/guideline-watercourse-diversions.pdf

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