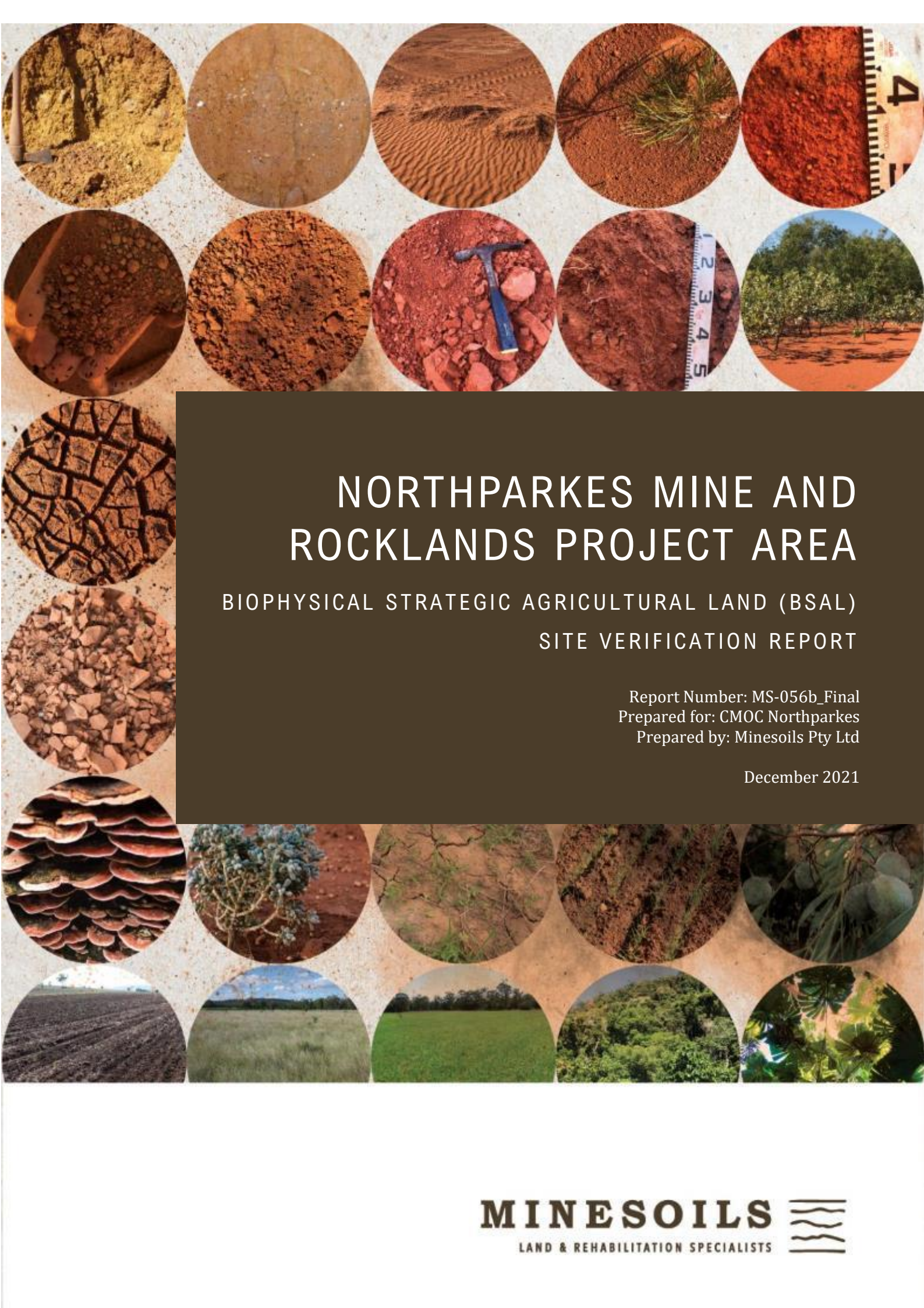




NORTHPARKES MINE AND ROCKLANDS PROJECT AREA

BIOPHYSICAL STRATEGIC AGRICULTURAL LAND (BSAL) SITE VERIFICATION REPORT

Report Number: MS-056b_Final
Prepared for: CMOC Northparkes
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DOCUMENT CONTROL

Reference	Date	Prepared by	Approved
MS-056b_Draft V1	14 th December 2021	Matt Hemingway	Clayton Richards
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Reliable Rainfall in NSW (State Map)

Attachment 2

Groundwater Productivity in NSW (State Map)



1. INTRODUCTION

1.1 PROJECT BACKGROUND

North Mining Limited originally received development consent for Northparkes operations in 1992, 15 years after the first discovery of the onsite resource. In 2019, Project Approval 11_0060 was gazetted as a State Significant Development under section 4 of the EP&A Act and is now referred to as Development Consent 11_0060.

The CMOC Northparkes Mine and adjacent Rocklands Project Area is owned by CMOC Northparkes (Northparkes). The project area is located in the locality of Goonumbla in the Central West Region of NSW. The project area is in a rural setting and consists of grazing paddocks and cropping cultivation areas. The area has been heavily modified through vegetation clearing and mining activity.

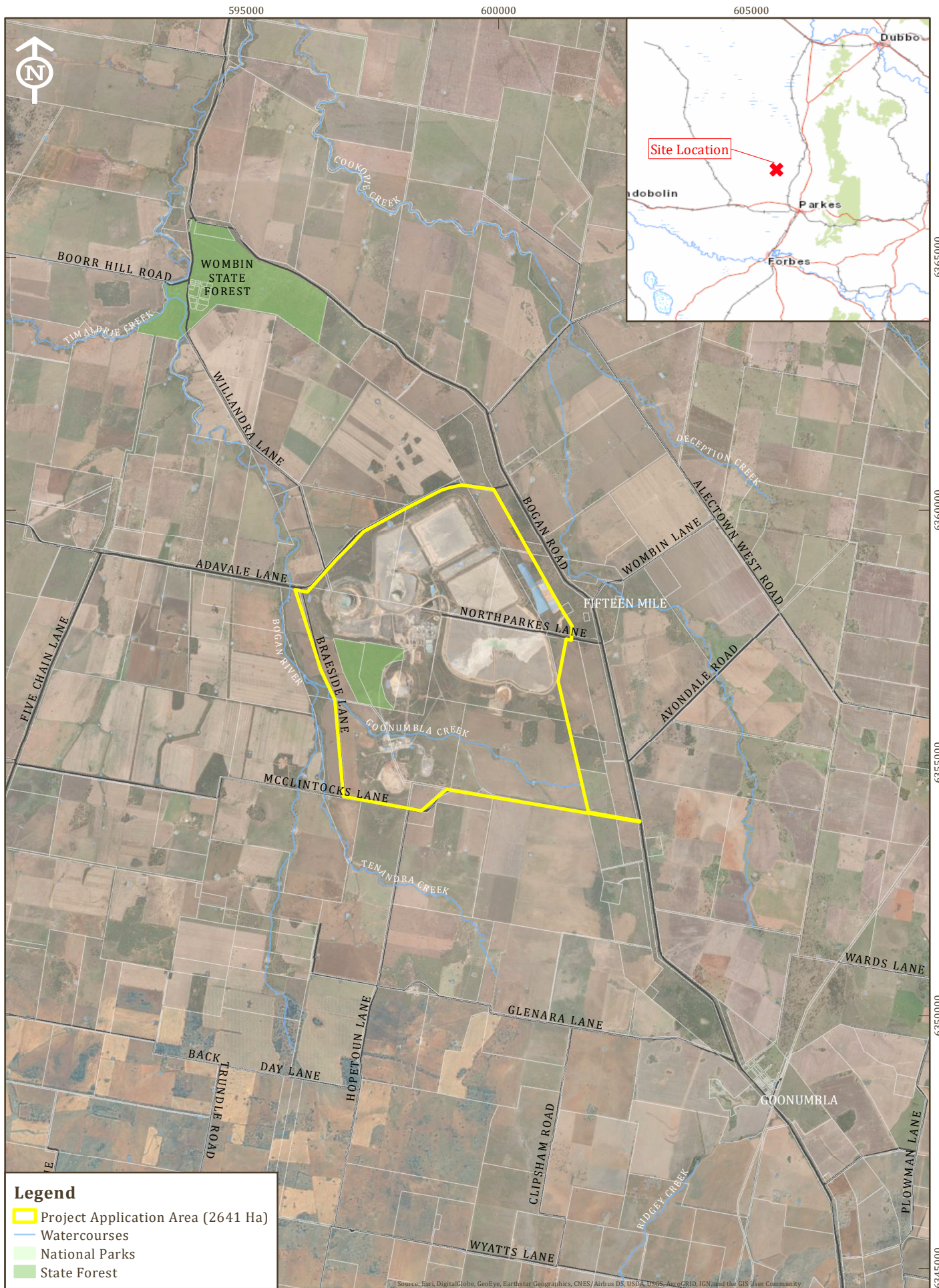
The Proponent is seeking a Site Verification Certificate (SVC) over an area of 2,641 ha herein referred to as the Project Application Area (PAA) of potential future mining and related activities (refer to **Figure 1**). While the PAA is coincident with existing mining leases, restrictions associated with several of these are such that future modifications to operations could require the issue of new mining leases. The SVC is sought pre-emptively of any future applications to modify mining operations which would trigger application for new mining tenements.

1.2 PROJECT OBJECTIVES AND SCOPE

The objective of this report is to define and assess the PAA to verify BSAL or Non-BSAL to support the application for an SVC. The verification program was undertaken in accordance with the *Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land* (Office of Environment & Heritage (OEH) and Department of Primary Industries - Office of Agricultural Sustainability and Food Security (DPI-OAS&FS), 2013); hereafter referred to as the Interim Protocol.

The purpose of this report is to provide the results of the BSAL verification program conducted in accordance with the Interim Protocol





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Regional Context

FIGURE 1

2 EXISTING ENVIRONMENT

2.1 REGIONAL CONTEXT

The dominant land use in the area is grazing on modified pastures and dryland cropping. The dominant landform is gently inclined slopes with slope gradients 3 to 8%, with some lower slopes having slope gradients >5000 m. Minor rock outcrop occurs on some crests and upper slopes.

Vegetation in the area has been extensively cleared for agriculture. Existing remnant trees and native grasses remain in the Limestone State Forest and other smaller patches across the BSAL Assessment Area. This landscape is prone to seasonal waterlogging, high run-on, water erosion hazard and soil structure decline hazard.

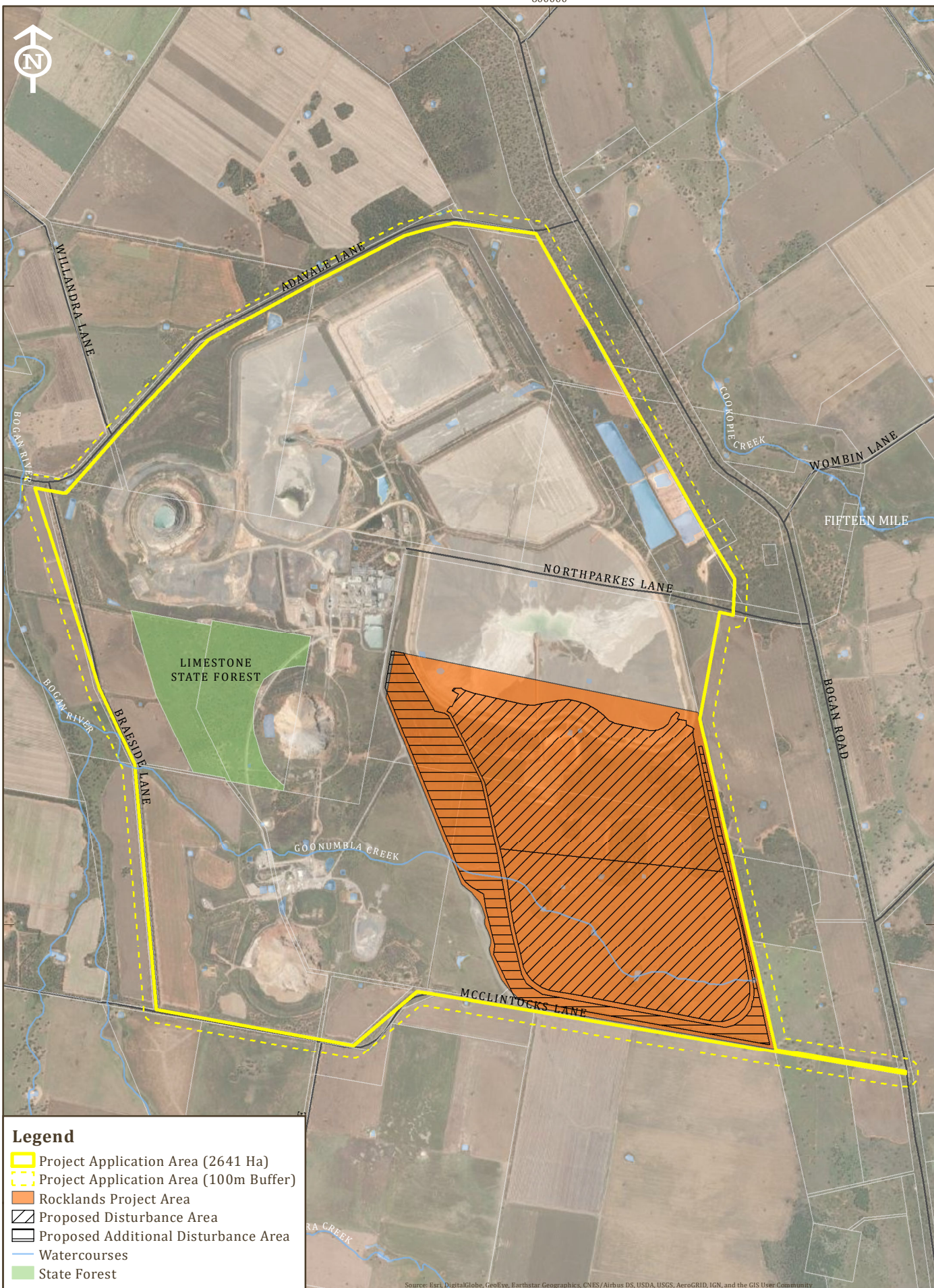
2.2 SITE DESCRIPTION

The PAA covers an area of 2,641 ha (**Figure 2**). Existing mining disturbance occurs on the north, central and south west domains of the PAA, with Limestone State Forest existing in an area of the central west and the Rockland Project area existing in the south west of the PAA.

Elevations range from 310m AHD in the south eastern corner of the PAA to 290m AHD in lower areas associated with Goonumbla Creek (**Figure 3**). The nearest non verified regional trigger mapped BSAL is along Lachlan River approximately 50km from the PAA.



600000



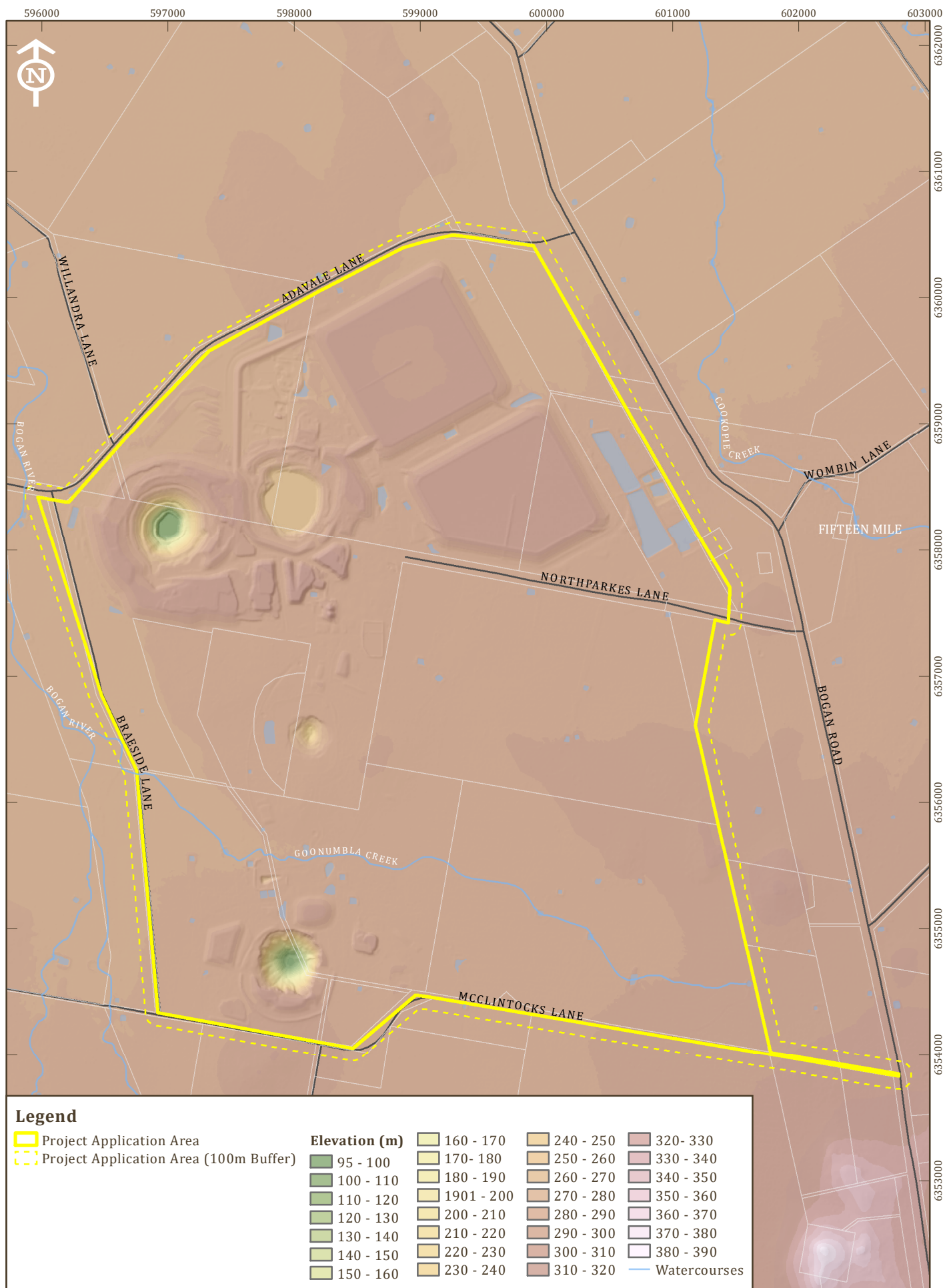
6360000

6355000

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FIGURE 2



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0 125 250 500 Meters
Scale 1:40000 at A4

Topography

FIGURE 3

3 THE BSAL ASSESSMENT PROCESS

BSAL is land with a rare combination of natural resources, highly suitable for agriculture. These lands intrinsically have the best quality landforms, soil and water resources which are naturally capable of sustaining high levels of productivity and require minimal management practices to maintain this high quality.

The criteria used to measure BSAL under the original *New England North West Strategic Regional Land Use Plan* (SRLUP) (DP&I, 2012) were based on three regional scale parameters:

1. Soil Fertility – based on the regional scale *Draft Inherent General Fertility of NSW* (DP&I, 2012),
2. Land and Soil Capability – based on the regional scale *Land and Soil Capability Mapping of NSW* (OEI, 2012), and
3. Access to reliable water supply.

The application of the Strategic Agricultural Land (SAL) mapping is to ‘trigger’ the Gateway Process for new project development applications.

The *State Environmental Planning Policy (Mining, Petroleum Production and Extraction) 2007* (Mining SEPP) requires certain types of developments (i.e. mining or petroleum developments) to verify whether the proposed development is on BSAL. The Interim Protocol assists proponents and landholders to understand what is required to identify the existence of BSAL and outlines the technical requirements for the on-site identification and mapping of BSAL.



4 METHODOLOGY

The methodology reported in the following section has been undertaken based on the Interim Protocol (OEH 2013).

Step 1: Identify the project area which will be assessed for BSAL

“The assessment area should include the entire project area and include at least a 100 m buffer to take into account minor changes in design, surrounding disturbance and minor expansion. If BSAL is part of a larger contiguous mass of BSAL then the boundary of this area must also be identified”.

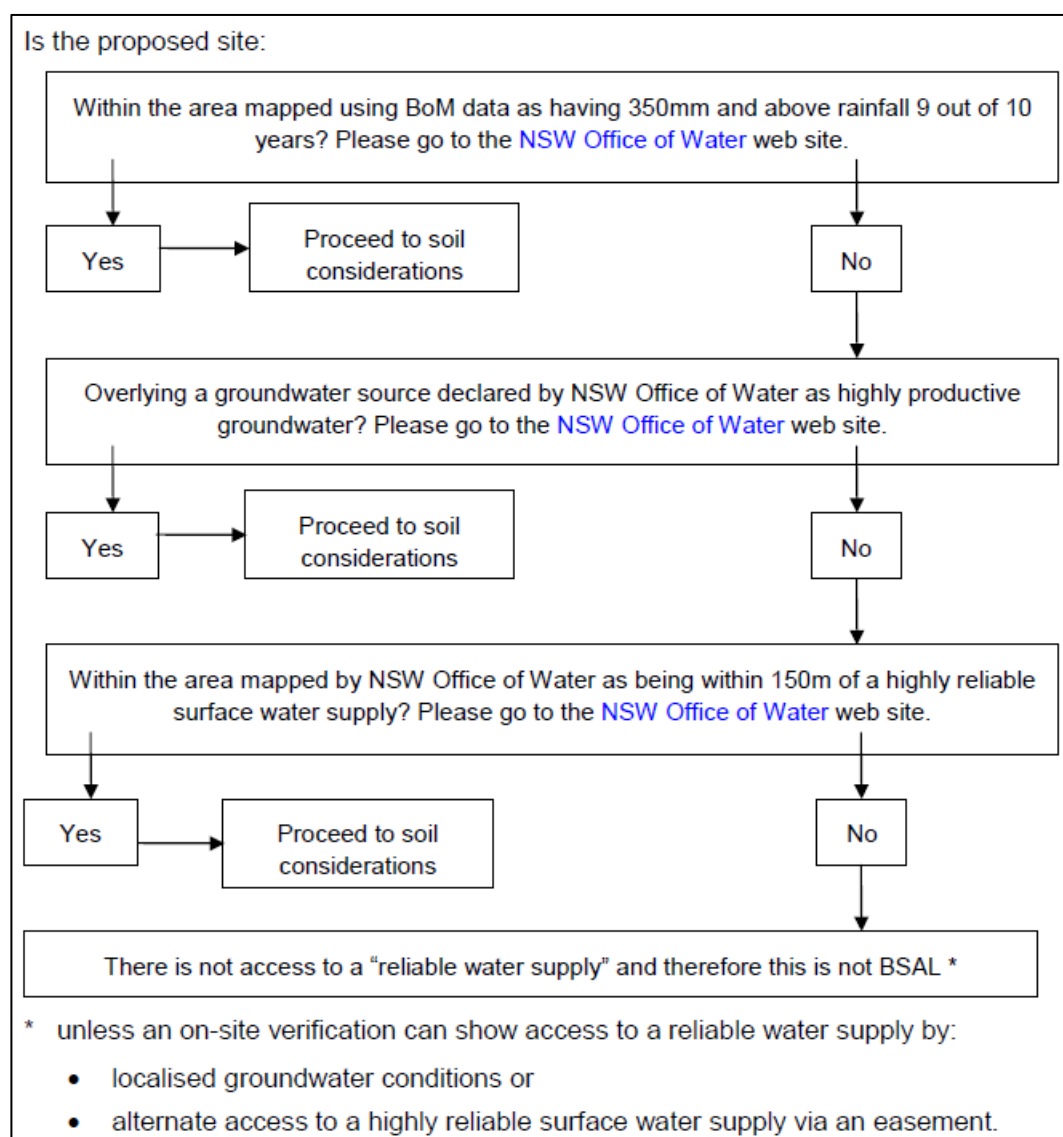
The PAA covers an area of 2,641 ha as identified in **Figure 1**. Due to the outcomes of Step 2 as detailed below, the 100m buffer surrounding the potential disturbance areas which is ordinarily included in verification assessments as per the Interim Protocol is considered extraneous to this assessment, and has therefore not been applied.

Step 2: Confirm access to a reliable water supply

“BSAL lands must have access to a “reliable water supply”.

The Interim Protocol (OEH 2013) includes *Figure 1: Flow chart to verify water reliability*, as shown below:

Figure 4: Interim Protocol Insert



Minesoils has undertaken an assessment in accordance with this flow chart to determine if a reliable water supply can be accessed from or nearby the PAA.

Criteria 1: Reliable Rainfall.

Water NSW (Formerly DPI Water and NSW Office of Water) prepared a Map showing Reliable Rainfall in NSW and is shown in **Attachment 1**. The Interim Protocol requires the PAA to be inside this zone of Reliable Rainfall to be considered having access to reliable water supply. The PAA for the project is located outside this zone and therefore fails the criteria, as shown on **Figure 5**.

Criteria 2: Productive Groundwater.

Water NSW (Formerly DPI Water and NSW Office of Water) prepared a Map showing Groundwater Productivity in NSW and is shown in **Attachment 2**. The Interim Protocol requires the PAA to be inside this zone of highly productive groundwater to be considered having access to reliable water supply. The PAA for the project is located outside this zone and therefore fails the criteria, as shown on **Figure 6**.

Criteria 3: Reliable Surface Water.

The Interim Protocol requires the PAA to be inside or within 150m of:

1. a regulated river, or
2. a 5th order or higher unregulated river, or
3. an unregulated river which flows at least 95% of the time.

The water course which traverses the PAA is Goonumbla Creek, an ephemeral Strahler 2nd order stream (refer to **Figure 2**). The Bogan River which flows to the immediate west of the PAA and Tendandra Creek which flows to the south of the PAA, are both Strahler 3rd order streams where they pass the PAA. Bogan River becomes a Regulated River approximately 10km north of the site, and does not flow continuously at the Adavale Lane crossing which is within 150m of the PAA.

Therefore, there is no regulated river within 150m of the PAA. There is no Strahler 5th order or higher within 150m of the PAA and there is no unregulated river that flows at least 95% of the time within 150m of the PAA. Therefore, the PAA fails criteria 3 and does not have access to reliable surface water.

In accordance with the Interim Protocol, given the Project PAA does not have access to reliable water supply, it is verified non-BSAL. And no further assessment is required.

Step 3: Choose the appropriate approach to map the soils information

Verified Non BSAL and therefore not required.

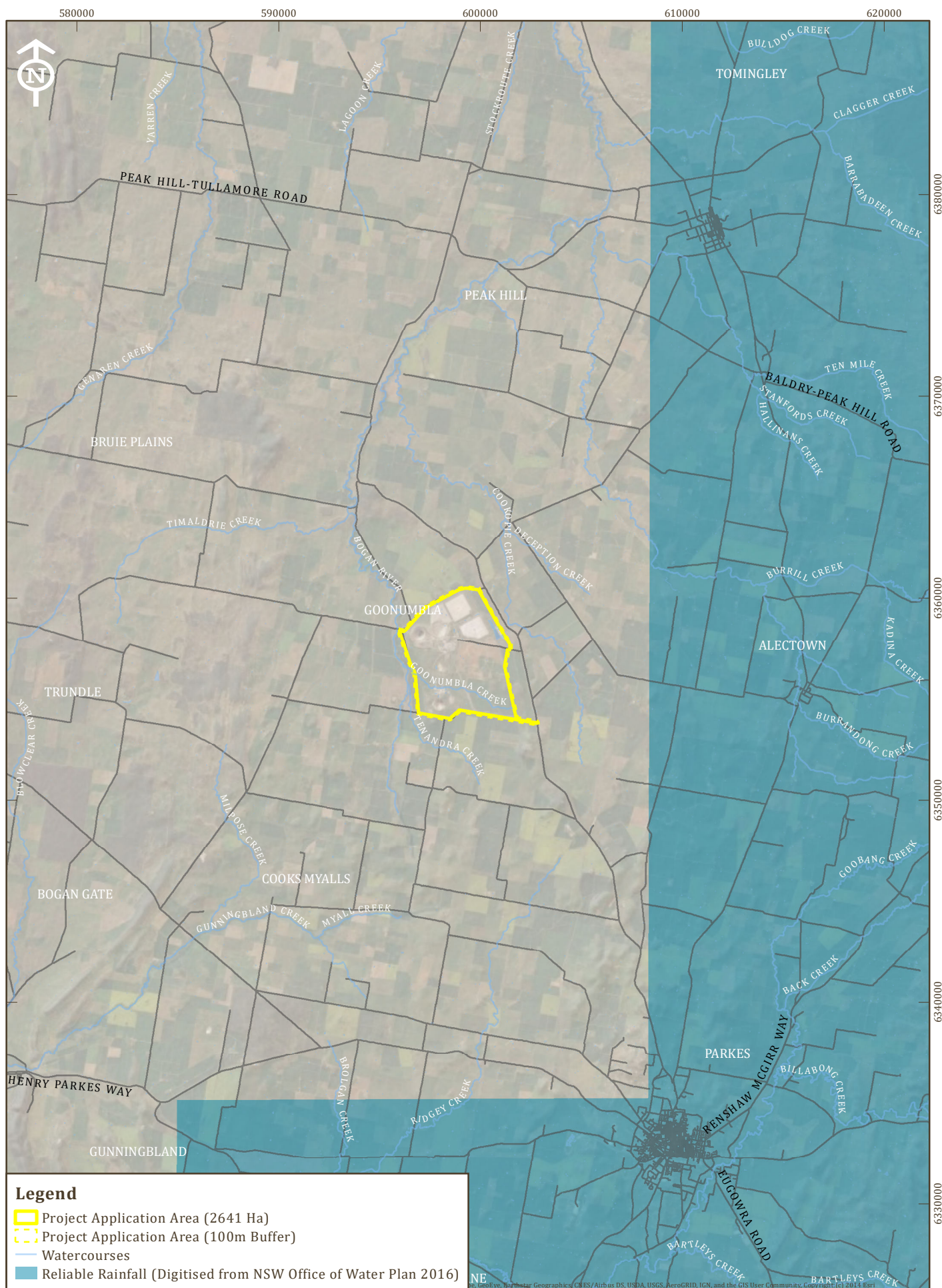
Step 4: Risk assessment

Verified Non BSAL and therefore not required.

Step 4: Soils and landscape verification criteria

Verified Non BSAL and therefore not required.



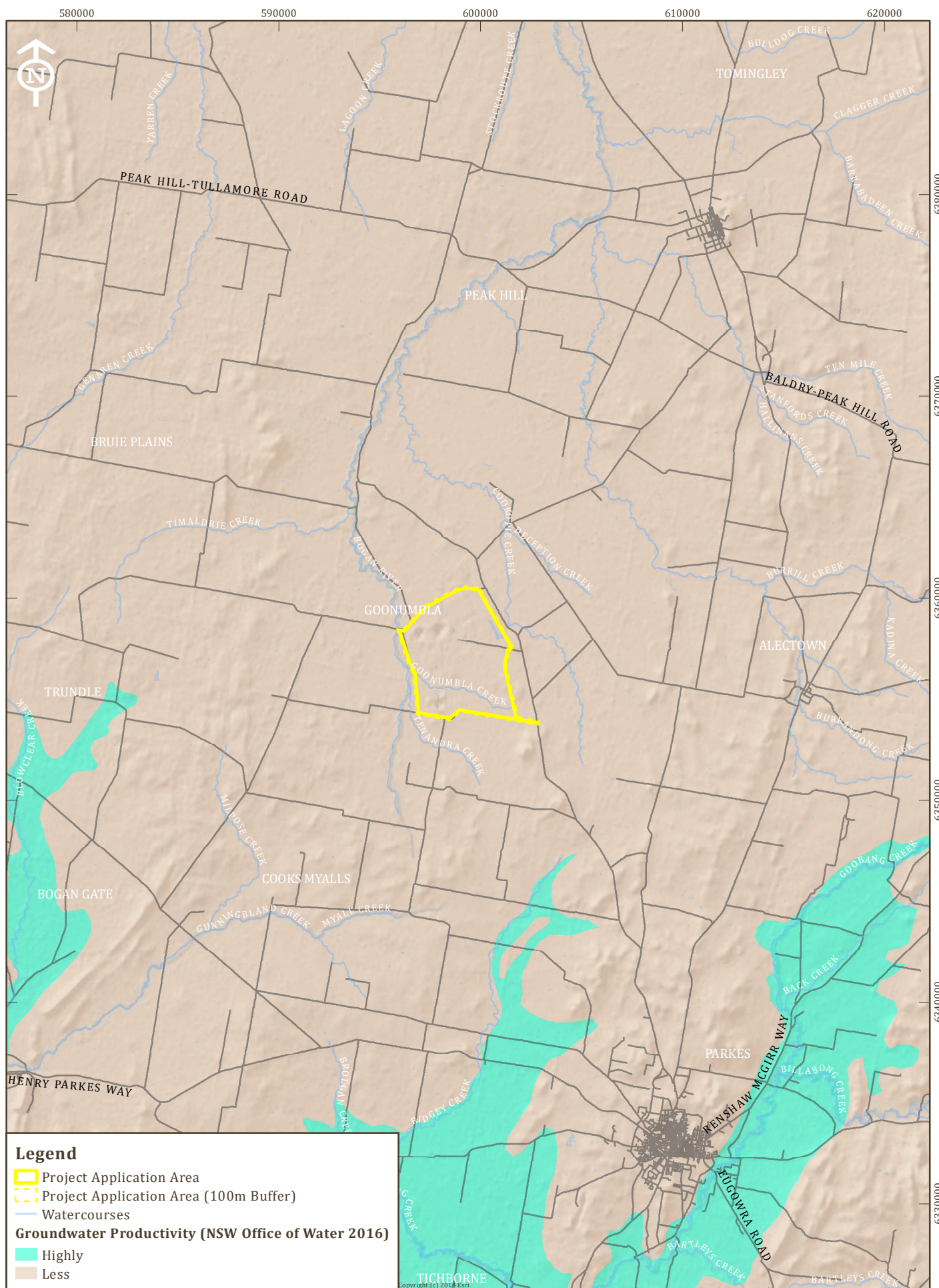


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Reliable Rainfall

FIGURE 5



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0 1 2 4 Kilometers
Scale 1:250000 at A4

FIGURE 6

5 RESULTS

The BSAL site verification assessment resulted in no part of the BSAL Assessment Area satisfying the 'Access to Reliable Water' criteria. Therefore, the site is verified Non BSAL.

6 CONCLUSION

The Northparkes Mine and adjacent Rocklands Project Area BSAL Site Verification Assessment was undertaken in December 2021 by Minesoils' Matthew Hemingway and Clayton Richards (CPSS 2). The area subject to this assessment is defined as the PAA, covering 2,641 ha.

The PAA failed the access to reliable water supply criteria and therefore is considered verified Non BSAL. No further assessment is required.

The supporting documents including the reference mapping metadata have been provided to DPIE as part of the SVC Application.

7 REFERENCES

NSW Water (2016) Groundwater Productivity in NSW Map.

NSW Water (2016) Reliable Rainfall in NSW Map

NSW Water (2021) Waterfront land e-tool (Version 1 – 2020) and Strahler stream order criteria.

OEH and DPI-OAS&FS (2013) Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land.



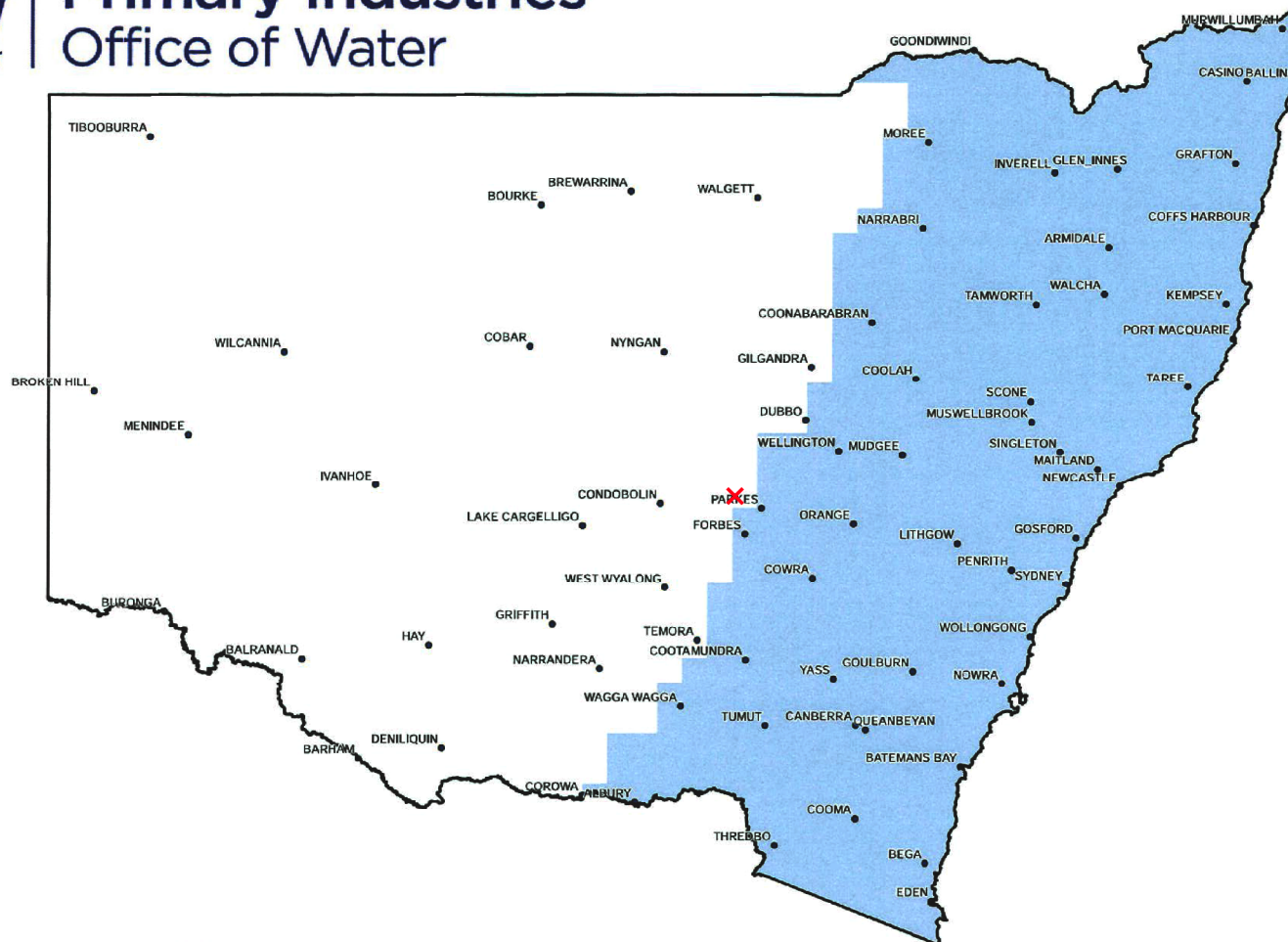
ATTACHMENT 1

Reliable Rainfall in NSW (DPI 2016)





Department of Primary Industries Office of Water



Reliable Rainfall in NSW

Legend

✕ Project Area Location

Legend

Rainfall 350mm or more per annum

GCS GDA 1994



Scale 1:825000 A4

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Reliable Rainfall in NSW

Attachment 1

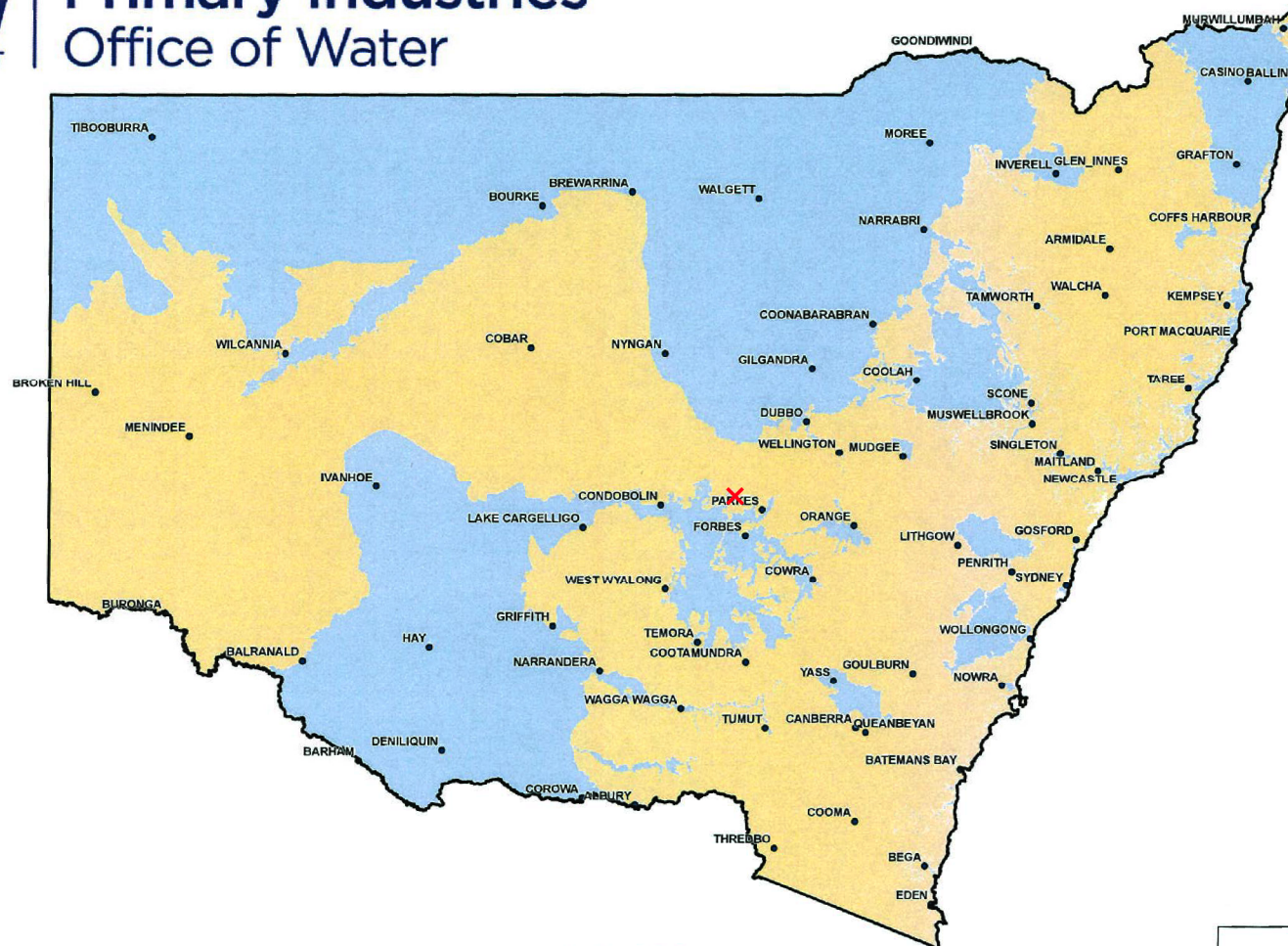
ATTACHMENT 2

Groundwater Productivity in NSW (DPI 2016)





Department of Primary Industries Office of Water



Legend

✗ BSAL Assessment
Project Area

Legend

Blue Highly Productive Groundwater
Yellow Less Productive Groundwater

Groundwater Productivity in NSW

GCS GDA 1994



Scale 1:8250000 at A4

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Groundwater Productivity in NSW

Attachment 2