Regional Interest Development Approval – Supporting Document

Curragh Extension Project Regional Interest Development Approval RPI15/009 Requested Amendment

Coronado Curragh Pty Ltd

Prepared by:

SLR Consulting Australia

SLR Project No.: 620.040791.00001

14 November 2024

Revision: 3.0 - **Final**

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
3.0 - Final	14 November 2024	Ben Brooks Emma Williams Michelle Papenfus	Peter Allen	Draft for client review. Not Authorised.
2.0 - DRAFT	12 November 2024	Ben Brooks Emma Williams Michelle Papenfus	Peter Allen	Draft for client review. Not Authorised.
1.0 – DRAFT	1 November 2024	Ben Brooks Emma Williams	Michelle Papenfus	Draft for client review. Not Authorised.

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Coronado Curragh Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1.0 Introduction

This document has been prepared to support a **Requested Amendment** (as listed under Section 55 of the *Regional Interests Planning Act 2014* (RPI Act)) to the approved Regional Interest Development Approval (RIDA) application reference RPI15/009 approved 23/11/2016.

The applicant for the Requested Amendment to the RIDA is Coronado Curragh Pty Ltd. The application seeks to amend the approved conditions (in particular Condition 5 and 7 of RPI15/009) to allow the development and the extension of the existing open cut resource activity which is mapped within a strategic cropping area (SCA) in reference to the RPI Act.

The Curragh Extension Project (the Project; or the CEP) remains the same as listed in the approved RIDA RPI15/009 and entails the following major components (described in more detail in **Section 2.0)**:

- Extension of the existing open cut mine activities.
- Construction of additional associated mine infrastructure.

The Project is proposed to commence in 2025 and will allow the Proponent to continue its production capacity at Curragh Mine Project (Curragh Mine) and continue to supply coal products for both export and domestic markets.

This supporting document represents the assessment of the Project against the RPI Act, the *Regional Planning Interests Regulation 2014* (RPI Regulation) and the RPI Statutory Guidelines.

This 2024 RIDA requested amendment to RPI15/009, seeks a formal reassessment by the Department to confirm the Strategic Cropping Land (SCL) status within the project area. Supported by detailed soil characterisation and comprehensive evidence, the requested amendment demonstrates that 11 out of 12 representative laboratory analysed observation sites the majority of representative laboratory analysed observation sites soil samples do not meet the criteria for SCL. As such, the requested amendment specifically aims to reduce the previously determined SCL area based on these new results, which indicates that significant portions of the land do not align with the SCL criteria under the *Regional Planning Interests Act 2014*. This amendment ensures the SCL designation accurately reflects the land's actual suitability for cropping.

1.1 Curragh Extension Project (CEP) RIDA application

On 23 November 2016, application RPI15/009 (Wesfarmers Curragh Expansion Project (CEP)) was approved by the then Department of Infrastructure, Local Government and Planning (DILGP) (refer to **Appendix A**).

The purpose of this Requested Amendment Supporting Information Document is to provide further technical information supported by field validation undertaken in 2024.

As stated in the original application material (RPI15/009), commencement of construction activities within the proposed CEP area was proposed to start in 2022, with operation commencing from 2025. To-date, no activities relating to the approved CEP has commenced. Coronado has revisited the previous sampling program and further strengthened the findings based on a 2024 soil testing program.

The information presented in this requested amendment further supports previous findings from the RPI15/009 application material, and demonstrates that the majority of analysed sites representative of Soil Unit 1 fail to meet the Strategic Cropping Land (SCL) criteria and that Required Outcome 1 (RO1) under Schedule 2 of the RPI Regulation for SCA (Part 4) is achieved by the Project.

A summary of the existing environment at the Project Site is provided under **Section 4.0** and potential impacts of the Project to SCA is discussed under **Section 6.0**. An assessment of the Project against the ROs under the RPI Regulation is provided under **Section 8.0**.

1.2 Proposed Requested Amendment

Under Section 55 of the RPI Act, the holder of a RIDA may, in writing, ask the chief executive to make either of the following amendments (i.e., a Requested Amendment) to the approval:

- A minor amendment.
- An amendment the chief executive is satisfied would not adversely change the impact of the resource activity or regulated activity on the area of regional interest.

This Requested Amendment does not adversely change the impact of the resource activity as approved under RPI15/009. This requested amendment is considered to be a minor amendment, and provides further technical information that demonstrates that the majority of analysed sites representative of Soil Unit 1 fail to meet the SCL criteria, Soil Map Unit 1 has been assessed as being 'non-SCL'.

2.0 Project Description

This section provides an overview of the Project, including the Proponent, Project history, and proposed activities.

2.1 The Proponent

The proponent for the Project, and applicant for this application for a RIDA Requested Amendment, is Coronado Curragh Pty Ltd (Coronado) (ABN 90 009 362 565). Coronado is the principal and sole holder of the Curragh Mine Mining Leases and Environmental Authority (EPML00643713). The registered address for the proponent is:

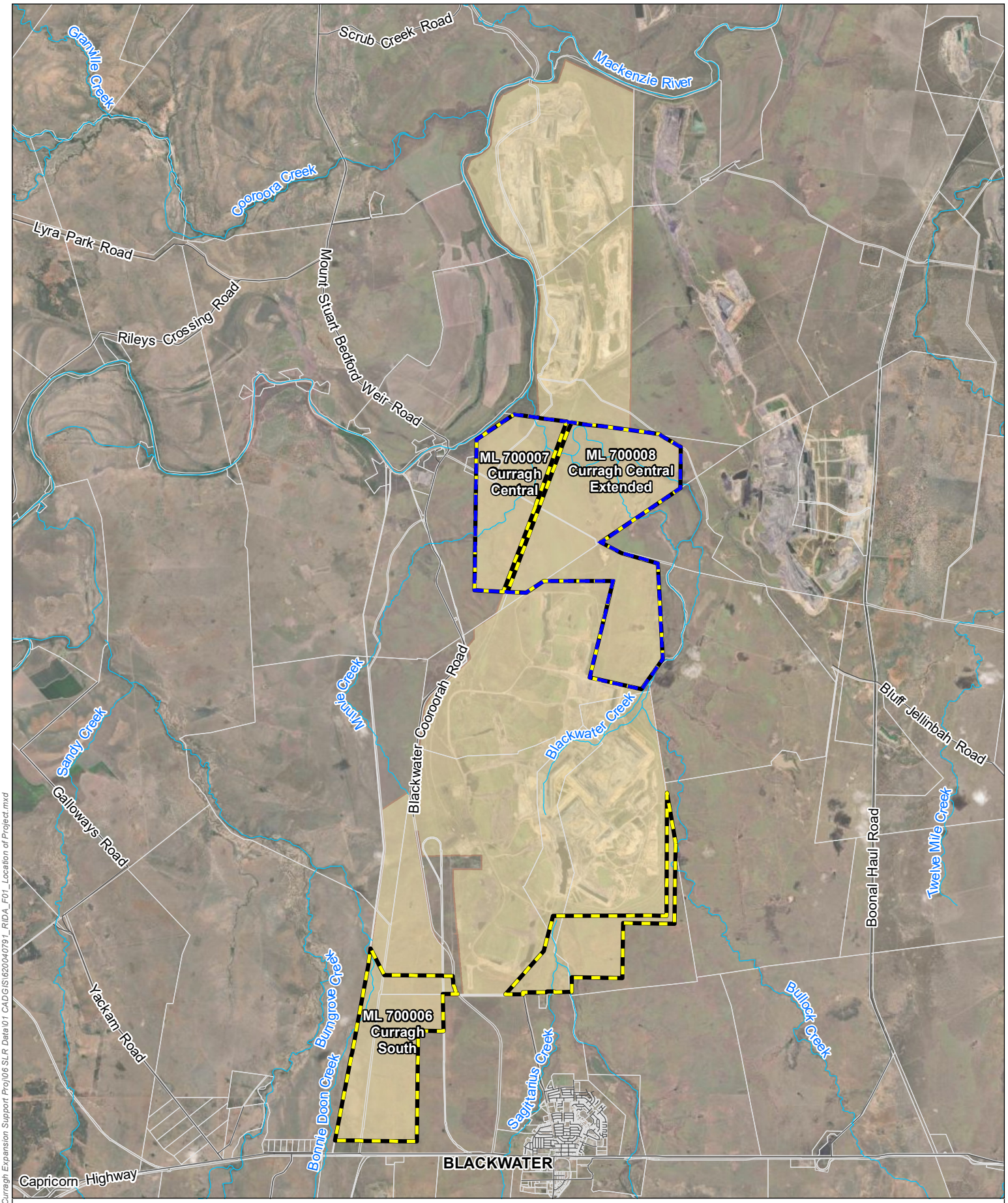
Coronado Curragh Pty Ltd
Level 31, Central Plaza One
345 Queen Street
Brisbane City QLD 4000.

2.2 Curragh Extension Project

Coronado Curragh Pty Ltd (Coronado) operates the existing Curragh Mine under EA EPML00643713. Coronado acquired the Curragh Mine from Wesfarmers Curragh Pty Ltd in 2018.

The Curragh Mine commenced operation in 1983 and is an open cut coal mining operation located approximately 6 kilometres (km) north of the township of Blackwater in Central Queensland. The Curragh Mine produces a variety of coking, pulverised coal injection and steaming coal products for both export and domestic markets (**Figure 1**).

The Curragh Extension Project (the Project; the CEP) is for the extension of open cut coal mining operations at the Curragh Mine in four adjacent Mining Lease (ML) areas (**Figure 2**). The Project will extend the life of the Curragh Mine to 2044.



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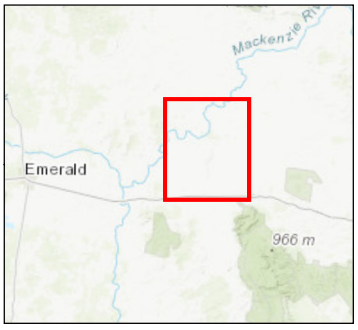
Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:3,000,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

SLR

Watercourse
Road
Combined Study Area
Curragh Extension Project Mining Lease Boundary
Property Boundary
Existing Curragh Mine Operations Area

Data Sources:
QLD DoR Spatial Catalogue,
ESRI Basemap World Imagery (Sept 2024)



CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Location of Project

FIGURE 1

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2.3 Project History

On 15 April 2015, the Proponent lodged four ML applications for the Project with the then Queensland Department of Natural Resources and Mines (DNRM):

- ML700006 Curragh South (Pit Z) (1,432 ha).
- ML700007 Curragh Central (Pit X) (1,123 ha).
- ML700008 Curragh Central Extended (Pit X and Pit D) (2,643 ha).
- ML700009 Curragh Extended (Pit J) (797 ha).

Public notification of the ML applications closed on 16 June 2015. No objections to the ML applications were received during the public notification period. All the MLs were granted by the DNRM in 2015 – 2016.

On 15 April 2015 an application to amend EA EPML00643713 was lodged with the then Queensland Department of Environment and Heritage Protection (DEHP). No objections to the EA amendment application was received during the public notification period. The application to amend EA EPML00643713, incorporating the Project, was approved on 31 August 2015.

On 2 July 2015 a referral for a proposed action was made in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). No submissions were received from the EPBC Act referral public notification stage. On 12 August 2015, the Commonwealth Department of Environment (DoE) decided that the controlled action will be assessed by way of Preliminary Documentation. Public notification of the EPBC Act Preliminary Documentation occurred in late 2015. The Project received EPBC Act approval (2015/7508) on 2 November 2016.

All information presented in both the EA application and ML application relating to disturbance footprint and proposed infrastructure remains the same with no changes to impact. The delay in commencement of mine activities has allowed further field validation to be collected in 2024, which supports this requested amendment application.

2.4 RIDA History

An original RIDA application was lodged on 10 December 2015. The RIDA application RPI15/009 considered 855.84 ha of mapped SCL impacted by the Project, which was considered to be non-SCL. The application was assessed, and it was determined that 523 ha was provisional non-SCL; however, the remaining area required additional further field validation. The application was amended to include 278.42 ha identified as provisional SCL.

On 23 November 2016 an approval for the Project was granted (RPI15/009) with conditions. The approval stated the maximum area of permanent impact on SCA as 630.05 ha.

As part of the 2015 application process, a draft report was submitted on the 23 July 2015 to the DILGP and the DNRM. Subsequent meetings were held (4 August 2015 and 11 September 2015) to discuss comments raised and a response to comments made by DNRM.

The purpose of this current 2024 RIDA Requested Amendment is to re-evaluate this SCL and confirm whether it is/is not SCL.

2.5 Study Area

For the purpose of this Requested Amendment RIDA application, the Study Area is defined as the following and is shown in **Figure 2**:

- Area within ML700006.
- Combined study area that is within ML700007 and ML700008 plus part of ML80110 (conveyor corridor that currently traverses through ML700007 and ML700008).

The study area remains the same as presented in the 23/11/2016 approved RIDA application (RPI15/009).

The overland conveyor is part of existing Curragh Mine operations (part of ML80110) and also contains the central access road connecting the Curragh North Mine with the Curragh Mine. The overland conveyor and central access road traverses ML700007 and ML700008. The development of ML700007 is not proposed to start until all mining operations at Curragh North have ceased and the overland conveyor and central access road are no longer required. The development of this mining area is proposed to commence from 2025 and will be developed with ML700008. Therefore, as part of this Amendment Request and the previously approved RIDA, the desktop review and field assessment considered the overland conveyor corridor (part of ML80110).

ML700009 has not been included in this application or the study area for this RIDA Amendment Request as it does not include areas mapped on SCL trigger maps.

The Project is located partly within SCA as defined under the RPI Act (**Figure 3**).

In October 2014 a detailed field sampling program was undertaken for the Project. An updated field sampling program was undertaken in 2024. The 2024 assessment builds upon, and makes reference to, earlier SCL assessments relating to the Project and the Study Area undertaken by SLR (SLR Consulting, 2015). The methodology, soil sampling sites and field and laboratory results are presented in **Appendix B**.

2.6 Proposed Activities for the Project

The Project involves four mining areas – ML700006, ML700007, ML700008 and ML700009 (**Figure 2**). All future mine activity remains within the 2015 approved disturbance (as per the current EA). Priority remains with development activities commencing in the Curragh Central Extended (X-Pit) area from 2025 onwards, however sequencing depends on optimisation of Coronado's mine planning.

As stated in Table 1 of the approved 23/11/2016 application (**Table 1**), all approved activities remain the same.

Table 1 Approved Activities as per Approved 23/11/2016 RIDA

Area of regional interest	Resource activity	Location	ML	Total area of SCA disturbance (ha)
Strategic cropping area (SCA)	• spoil dump • open cut mining pit • associated infrastructure	Lot 1 on Plan RP613729	ML700006	181.6
	• open cut mining pit • sediment dam • associated infrastructure • protection levee/creek diversion	Lot 35 on Plan SP247242	ML700007 ML80110	403.55
	• open cut mining pit • associated infrastructure • protection levee/creek diversion	Lot 12 on Plan HT493	ML700007	0
	• open cut mining	Lot 2 on Plan SP223677	ML700007	41.47
	Not applicable	Lot 2 on Plan HT606	ML700008	0
	Not applicable	Lot 46 on Plan HT610	ML700008	0
	• open cut mining pit • associated infrastructure	Unnamed road on Lot 1 on Plan RP613729 *(parcel# 39832/037)*	ML700006	3.43
	• protection levee/creek diversion	unnamed road reserve on Lot 12 on Plan HT493 and Lot 35 on Plan SP247242 *(parcel# 37480/064)*	ML700007	0
	• open cut mining pit • associated	Temporarily closed road on	ML700007	0

As stated under heading ‘Regional interest conditions’ (page 3) of the approved 23/11/2016 application, all approved activities remain the same as listed with the approved plan (**Appendix A**).

2.6.1 Infrastructure Requirements

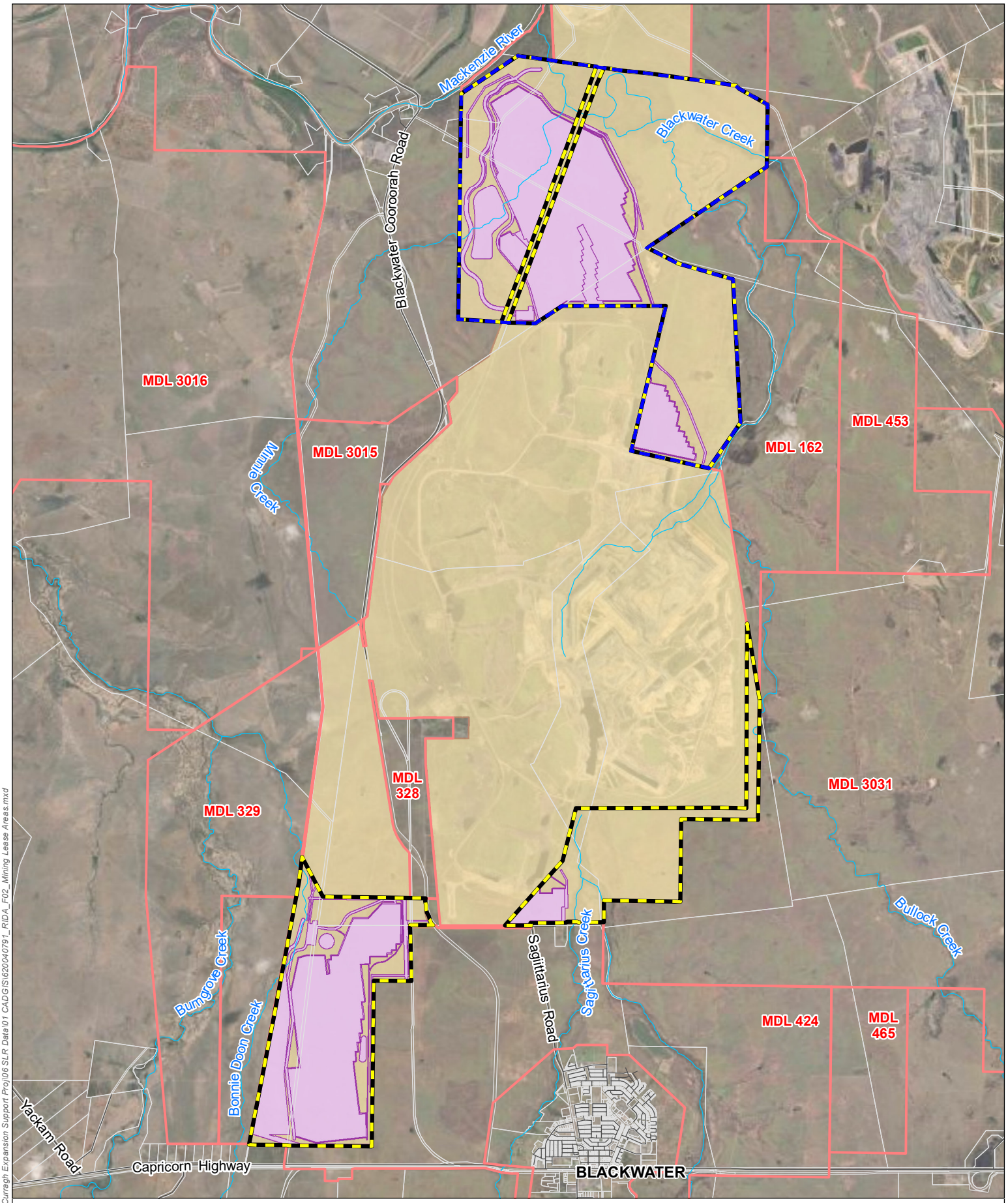
No new infrastructure requirements are proposed for the 2024 RIDA Requested Amendment.

All infrastructure stated within approved documents for RPI15/009 remains the same. **Table 2** presents a listing of infrastructure that was stated in the 23/11/2016 approved application and remains relevant for this RIDA Requested Amendment.

Infrastructure required to support the development of the Project within the MLs is as previously shown in **Figure 4** and **Table 2** and described below. All additional infrastructure not listed in **Table 2** will rely on existing Curragh Mine infrastructure.

Table 2 Curragh Extension Project Infrastructure Requirement (as approved 2015)

Key Infrastructure Requirements	ML700008 Curragh Central Extended (Pit D)	ML700009 Curragh Extended (Pit J)	ML700007 Curragh Central and Curragh Central Extended (Pit X)	ML700006 Curragh South (Pit Z)
ROM/Pads/Hardstand (m2)	--	--	66,370	106,100
HV Roads (km)	--	--	9.1	12.5
LV Roads (km)	--	3.0	5.8	10.5
Levee (m)	--	730	11,100	850
Diversion (km)	--	--	6.9	1.1
Water Management Dams (number required)	--	--	2	2
Water Pipeline (m)	--	--	2,600	2,600
Powerlines (km)	8.1	--	11.9	37.3
Fuel facility (number required)	--	--	1	1
Truck fill (number required)	--	--	1	1
Crib facility (number required)	--	--	1	1



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

SLR

- Watercourse
- Road
- Disturbance Footprint
- Combined Study Area
- Curragh Extension Project Mining Lease Boundary
- Mineral Development Licence
- Property Boundary
- Existing Curragh Mine Operations Area

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (November 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Mining Lease Areas

FIGURE 2

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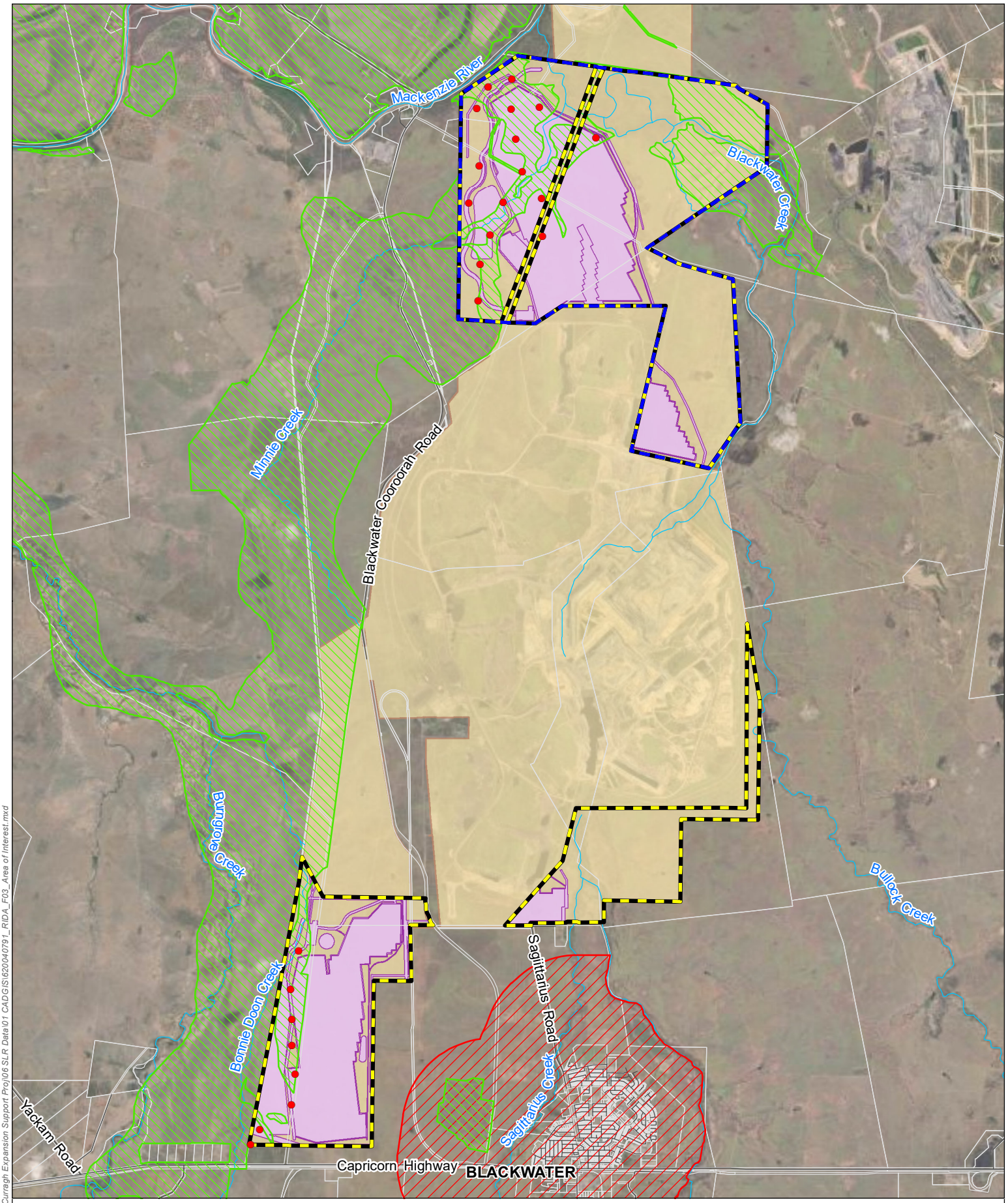

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Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

SLR

- SCL Site
- Watercourse
- Road
- Disturbance Footprint
- Combined Study Area
- Curragh Extension Project Mining Lease Boundary
- Property Boundary
- Existing Curragh Mine Operations Area
- Strategic Cropping Land
- Priority Living Area

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (November 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Area of Interest

FIGURE 3

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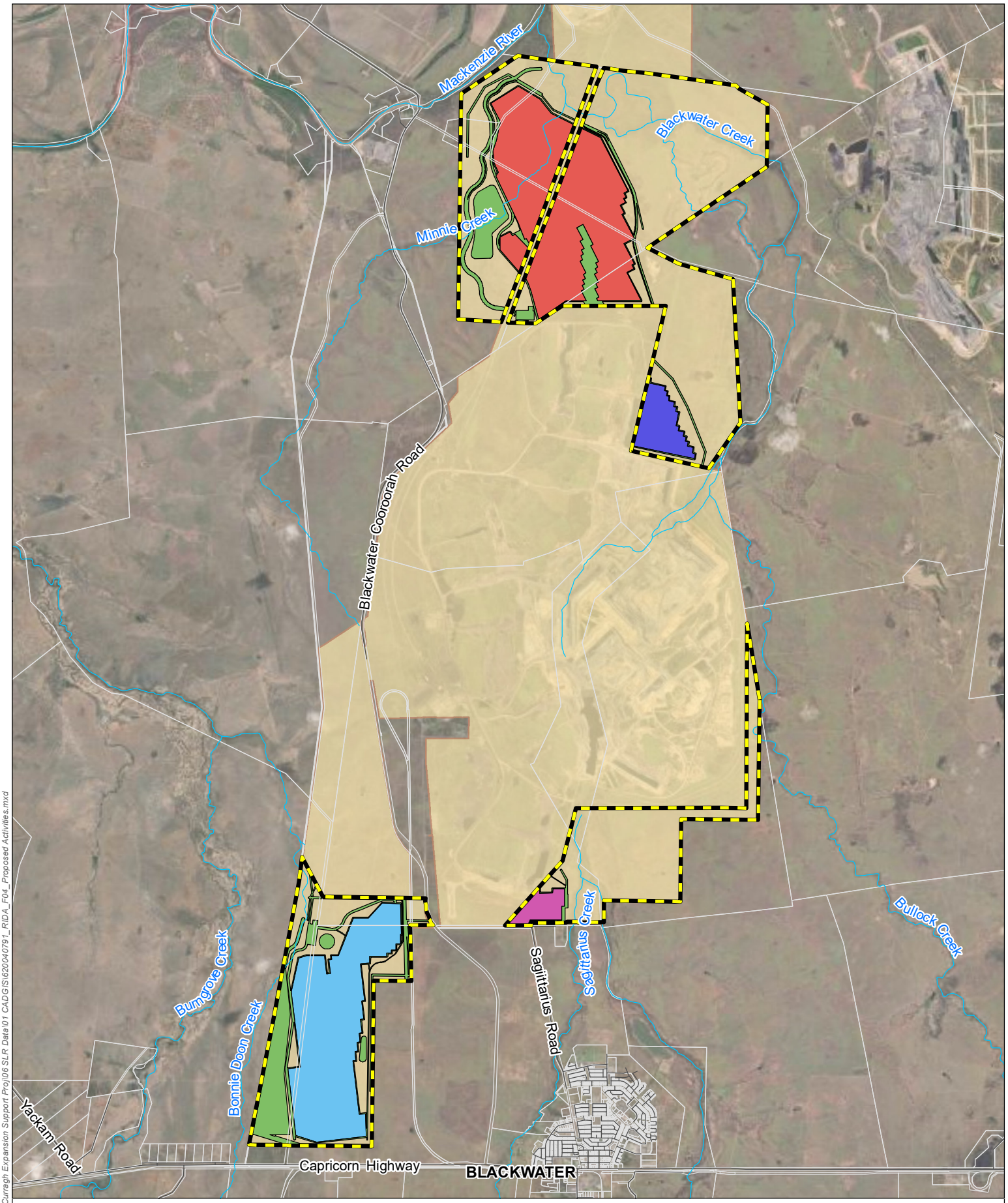

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Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

SLR

- Watercourse
- Road
- Curragh Extension Project Mining Lease Boundary
- Property Boundary
- Existing Curragh Mine Operations Area

Disturbance Footprint

- Pit D
- Pit J
- Pit X
- Pit Z
- Infrastructure

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Proposed Activities

FIGURE 4

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3.0 Regulatory Considerations

3.1 Regional Planning Interests Act 2014

The RPI Act identifies and protects areas in Queensland that are of 'areas of regional interest' (ARIs). The RPI Act outlines the requirement for a RIDA for resource activities carried out in ARIs, other than exempt resource activities. RIDA applications are primarily considered and evaluated by the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP), however various other department bodies are consulted throughout the application process.

Four ARIs are identified by the RPI Act as follows:

- **Priority Agricultural Area** (PAA) – an area which includes one or more areas used for a priority agricultural land use (PALU). A PALU is highly productive agriculture of a type identified in a Regional Plan for an ARI or of a type prescribed under a regulation for an ARI.
- **Priority Living Area** (PLA) – an area mapped as a PLA and exists as a settled area of a city, town or other community and other areas deemed necessary or desirable.
- **Strategic Cropping Area** (SCA) – an area shown on the SCL trigger map as SCL. SCL is defined as land that is, or which is likely to be highly suitable for cropping, because of a combination of the land's soil, climate and landscape features.
- **Strategic Environmental Area** (SEA) – an area with strategic environmental value which is either shown on a map in a Regional Plan or prescribed by regulation, where there is a quality or characteristic of the environment that is conducive to ecological health or public amenity.

The Project is partly located within a SCA (**Figure 3**). The Project is not located within a PAA, PLA or SEA.

3.2 Regional Planning Interests Regulation 2014

The RPI Regulation underpins the RPI Act and defines criteria for assessment of impacts to ARIs. Schedule 2 of the RPI Regulation details important definitions of ARIs, 'Required Outcomes' (ROs) and 'Prescribed Solutions' for impacts to ARIs. The ROs relevant to the Project are limited to those for SCA.

The RPI Regulation (Schedule 2, Part 4) outlines the following ROs for the SCA:

- RO1 – no impact on SCL.
- RO2 – managing impacts on SCL on property in the SCA.
- RO3 – Managing impacts on SCL for a region.

An assessment against the ROs has been outlined under **Section 5.3** and **Section 8.0**.

3.3 Statutory Guidelines

The RIDA Requested Amendment is informed by the RPI Act and RPI Regulation. The RPI Guidelines are used to aid the compliance with the RPI Act and RPI Regulation. The RPI Guidelines cover all elements of the RIDA process, however not all guidelines are relevant to each individual application / Requested Amendment. As the proposed mining footprint is being conducted within SCA mapped land, this RIDA Requested Amendment has been assessed against the following RPI Guidelines:

- *RPI Act guideline 01/14 - How to make an assessment application under the RPI Act.*
- *RPI Act guideline 03/14 - Carrying out activities in the strategic cropping area.*
- *RPI Act guideline 06/14 – Notification requirements under the RPI Act.*
- *RPI Act guideline 08/14 – How to demonstrate that land in the strategic cropping area does not meet the criteria for strategic cropping land*.
- *RPI Act guideline 09/14 – How to determine if an activity has a permanent impact on strategic cropping land.*

There are several other RPI Act guidelines available, however these are not relevant to the Project and this RIDA Requested Amendment.

3.4 Public Notification

Public notification of a RIDA Requested Amendment provides the opportunity for the community to express their views about a particular proposal and for the government to consider these views when deciding a Requested Amendment.

Under Section 55, part 2, of the RPI Act, before deciding whether to approve a Requested Amendment, the chief executive may give the holder of the approval a notice, requiring the holder to notify the application under division 4 of the RPI Act within a reasonable stated period.

Hence, the RIDA Requested Amendment may be required to be publicly notified subject to advice being received by the chief executive.

Further information is presented in **Appendix C** and **Section 10.0**.

4.0 Existing Environment

The following section details the existing environment in the vicinity of the Project.

This has been updated and presented in this requested amendment application but remains the same as previously stated for RPI15/009.

4.1 Climate

The climate of the region is subtropical with the highest rainfall and evaporation occurring from October through till March (BoM, 2021). Historical climate data was obtained for the period January 1900 to September 2021 from the Scientific Information for Landowners (SILO) database for the location of the mine area (latitude -23.5, longitude 148.9). **Table 3** outlines the total monthly average rainfall (565 mm) and evaporation. The data shows that the total potential average annual evaporation (2,054 mm/yr.) is almost four times annual rainfall (565 mm/yr.). The high annual evaporation rates are strongly related to seasonal temperatures (**Figure 5**).

Table 3 Total Monthly Rainfall and Evaporation (January 1900 to August 2021)

Average Total Monthly (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall	93	88	58	30	29	29	24	16	21	42	56	80	565
Evaporation	229	184	190	151	118	94	103	132	173	214	226	240	2,054

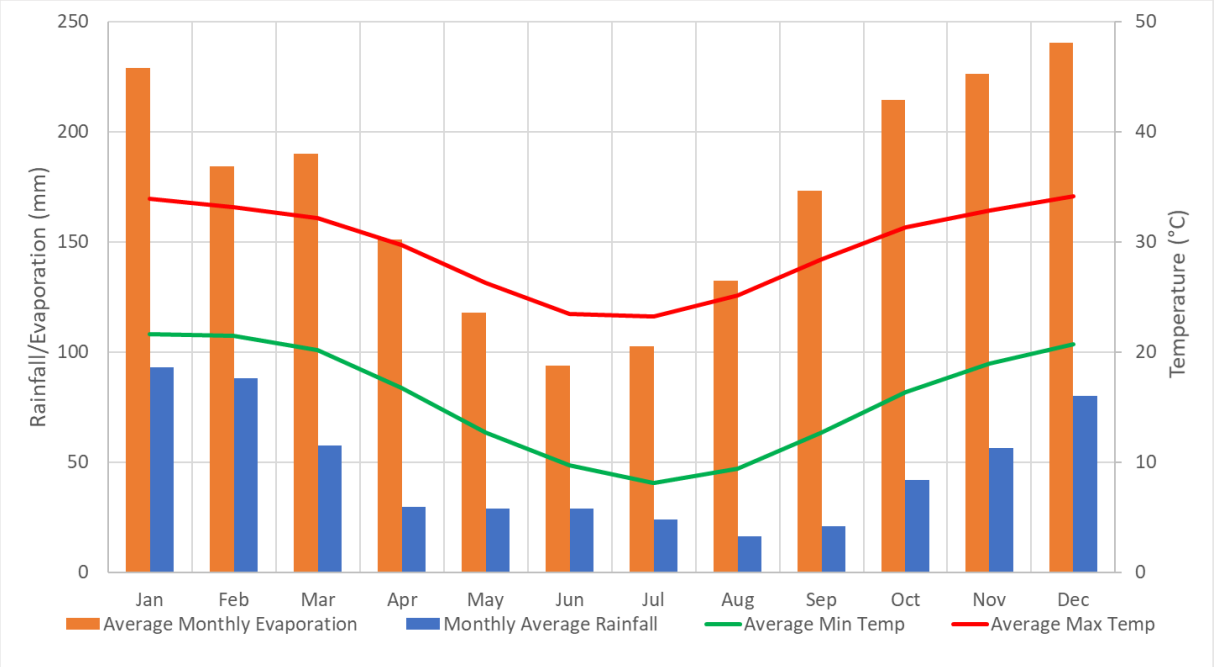


Figure 5 Average Monthly Evaporation, Rainfall and Temperature (January 1900 to August 2021)

In order to assess recent rainfall distribution in a historical context for water modelling purposes, the cumulative rainfall departure (CRD) was calculated for the data period 1900 to 2021 (**Figure 6**). The CRD is a summation of the difference between the actual monthly rainfall and the average monthly for the same period. A rising slope in the CRD indicates periods of rainfall above the long-term average (e.g., 2010 to 2012), and a falling slope indicates periods when rainfall is below the long term average (e.g., 1999 to 2007). Rainfall volumes over more recent years of the record (2017 to 2021) have been lower than average, as is indicated by the falling slope in the CRD. Since the start of mining in 1983 the area has generally seen lower than average rainfall, except for the remainder of the 1980s and significant wet seasons in late 1998 and 2010/11.

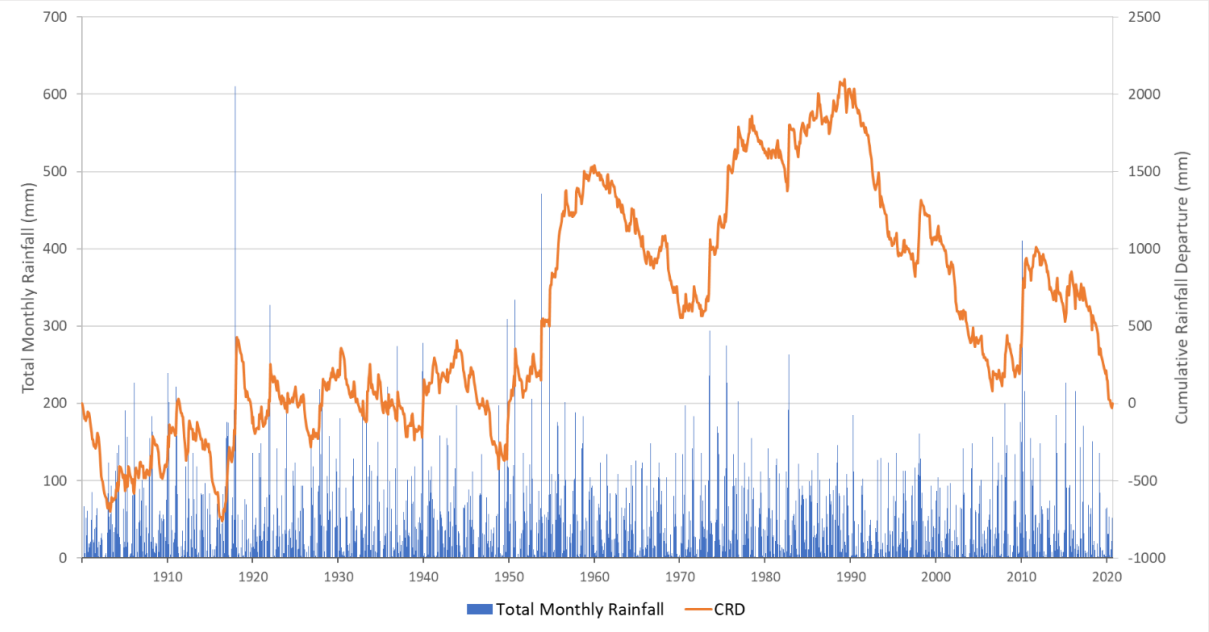


Figure 6 Cumulative Rainfall Departure and Total Monthly Rainfall (1900-2021)

Since the start of mining in 1983 the area has generally seen lower than average rainfall except for the remainder of the 1980s and significant wet seasons in late 1998 and 2010/11.

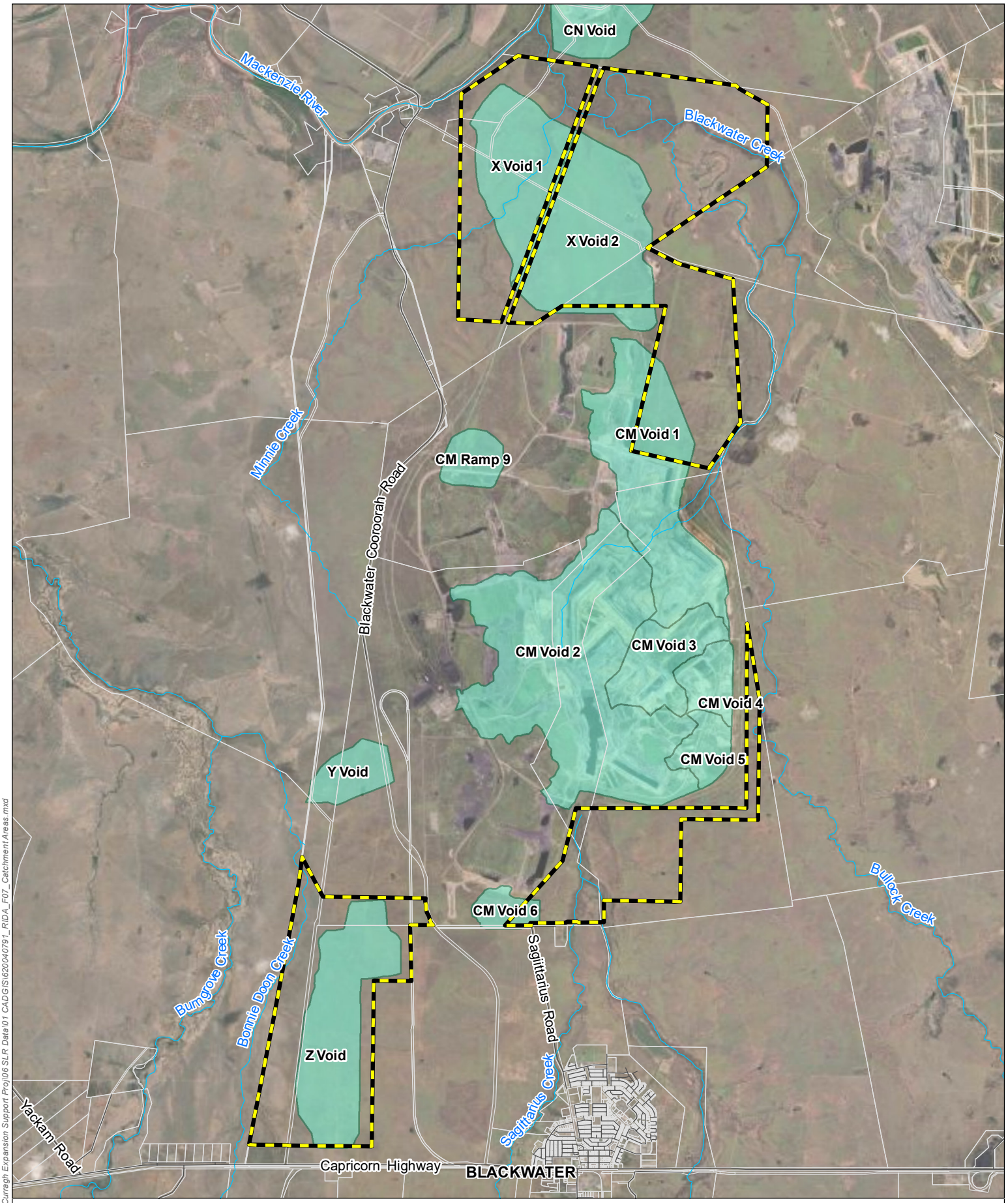
4.2 Surface Water

4.2.1 Mackenzie River

The project is located within the Mackenzie River catchment (**Figure 7**), which forms at the confluence of the Nogoa and Comet Rivers, is a major tributary of the Fitzroy River which flows through Rockhampton into the Coral Sea (Parsons Brinckerhoff, 2015). The project area is surrounded by ephemeral waterways such as Blackwater Creek and Sagittarius Creek which drain north and north-west to the Mackenzie River (Coronado Curragh, 2021).

The catchments are bordered by the Expedition Range to the east, the Great Dividing Range to the south, the Drummond Range to the west and the Peak Range to the north. The total catchment area of the Mackenzie River to the Bingegang Weir (downstream of project boundary) is approximately 50,960 km2. The catchment areas of the tributaries at the upstream end of the Mackenzie River are approximately 28,550 km2 for Nogoa River and 16,510 km2 for Comet River (SLR, 2021a).

During the dry season, flows are controlled by the upstream structures, including Fairbairn Dam and the Bedford Weir and are usually within the river channel typically a flow width of 30-40 m. During the wet season, flow widths can reach 200-300 m during frequent rainfall (Parsons Brinckerhoff, 2004).



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
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Drawn by:	JG

Watercourse
Road
Curragh Extension Project Mining Lease Boundary
Property Boundary
Void Catchment Areas

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Catchment Areas

SLR

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (November 2024)

FIGURE 7

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Water quality in the Mackenzie River sub-catchment (including Project Area) has previously been categorized as poor to moderate due to (Parsons Brinckerhoff, 2015):

- Turbidity higher than the relevant water quality guidelines.
- Electrical conductivity higher than the relevant water quality guideline.
- Dissolved oxygen that typically lower, but sometimes higher than the water quality guidelines.
- Concentrations of metals (including dissolved aluminium, copper, chromium, iron, lead, silver, zinc and uranium) higher than the relevant water quality guidelines.
- Concentrations of nutrients (nitrogen and phosphorus) higher than the relevant water quality guidelines.

4.2.2 Blackwater Creek

Blackwater Creek is the main local tributary draining into Mackenzie River about 3.3 km downstream of the Bedford Wier (1 km upstream of project boundary), which flows in a northerly direction through the Project site (SLR, 2021a).

Blackwater Creek has undergone a number of diversions, the last of which was completed in December 2009 to allow for access to additional coal reserves while maintaining the watercourse corridor through the area (Lanyonscapes, 2019). Blackwater Creek has Curragh Coal Mine and numerous other mines (Jellinbah, Curragh, BMA Coal & Cook Mine) dissecting its flow. During the wet season, Blackwater Creek only exhibits intermittent short duration flows.

Just downstream of the diversion around Curragh Main and to the east of the proposed Pit X, Blackwater Creek becomes an ephemeral braided channel system.

Tributaries of Blackwater Creek include Taurus Creek, Sagittarius Creek, Minnie Creek and Bullock Creek, all of which are ephemeral. Minnie Creek flows through the proposed Pit X area and will be subject to a 5.3 km diversion near its confluence with Blackwater Creek plus a 2.9 km diversion of one of its unnamed tributaries around the western side of the pit prior to the commencement of mining in this area (Parsons Brinckerhoff, 2016).

4.2.3 Minor Tributaries

There are several minor tributary systems of Blackwater Creek that traverse the mining area, and the total catchment area from these tributaries at the confluence of Blackwater Creek and Mackenzie Creek is some 1,082km2 (SLR, 2021a). These tributaries include:

- Taurus Creek.
- Sagittarius Creek.
- Bullock Creek.
- Minnie Creek.
- Bonnie Doon Creek.
- Burngrove Creek.

4.3 Groundwater

The main hydrostratigraphic units in the vicinity of the mine are described below, from the shallowest to the deepest/oldest:

- Alluvium – up to 30m thick in the north associated with the floodplain / channel deposits of the Mackenzie River. Thinner (up to 12 m), near extension Pit X and comprises clay, sand and gravel units. At Curragh Main and southern extension Pits up to 10 m thick but generally much thinner and predominantly clay and silt. The alluvium is dry in many areas. Unconfined water bearing sand and gravel may occur at the base of the alluvial sequence around Curragh North near proposed Pit X, but it is considered unlikely to be significantly water bearing where it occurs in the south of the mine.
- Regolith - unconsolidated surface layer of weathered rock which may provide a preferential flow pathway for groundwater. Occurs across the Project area at thicknesses between 5 and 15 m. Includes weathered residual rocks of the Duaringa and Emerald formations, Rewan Formation, Rangal Coal Measures and Burngrove Formation in areas of outcrop and sub-cropping alluvium. Variable permeability.
- Cenozoic (Tertiary Duaringa and Emerald formations) - Occurs around Curragh Main extension Pits X and D. Comprises cemented sands and gravels and sandstones, siltstones and mudstones. Water bearing zones may occur in more permeable layers, unconfined to semi-confined.
- Rewan Group - is a regional aquitard comprising mudstones interbedded with siltstone and fine to medium grained labile sandstone.
- Rangal Coal Measures - Occurs along the strike of the mine and is overlain to the east by the Rewan. Groundwater flow is primarily within the coal seams (via interconnected cleats and fractures), which are confined by low permeability overburden and interburden. The coal measures are highly faulted resulting in “compartmentalisation” with coal seams juxtaposed against lower permeability interburden limiting the lateral continuity of flow. Faults themselves may form barriers to flow or provide conduits.
- Burngrove Formation – outcrops/subcrops to the west of the mine dipping east below the Rangal Coal Measures. Groundwater flow occurs primarily via the coal seams and fractured sandstone units with low permeability siltstone and claystone forming aquitards. As with the RCM sequence it is considered to be highly faulted with coal seams juxtaposed against lower permeability interburden limiting the lateral continuity of groundwater flow. This Formation is considered the basement for the purposes of this assessment.

Groundwater quality data is generally available from late 2015 onward with limited data provided from before this time. Historically, groundwater quality monitoring was undertaken infrequently from 1997 to 2012 with the frequency increasing thereafter. Samples were analysed for electrical conductivity (EC), pH, major ions, nutrients, dissolved metals and hydrocarbons and water quality statistics for selected analytes are shown in **Table 4**.

Table 4 Currently available groundwater quality data

Screened Formation	Bore ID	Data availability	
		From	To
Alluvium	1309MB	28-10-2015	01-04-2020
Alluvium	1312MB	03-10-2019	03-10-2019
Alluvium	1426MB	30-10-2015	10-11-2020
Alluvium	1531MB	28-10-2015	13-05-2020
Alluvium	1410MB	03-03-2016	29-06-2018
Alluvium	1411MB	28-04-2016	11-06-2019
Tertiary (weathered)	1301aMB	30-01-2020	06-01-2021
Tertiary (weathered)	1302MB	03-10-2019	07-01-2021
Tertiary (weathered)	1303MB	03-10-2019	07-01-2021
Tertiary (weathered)	1304aMB	18-09-2013	13-06-2016
Tertiary (weathered Duaringa Fm.)	1419MB	06-08-2015	28-06-2018
Tertiary (weathered Duaringa Fm.)	1420MB	30-12-2016	20-06-2017
RCM	BH1	26-06-2000	09-11-2020
RCM	BH2	09-02-2000	16-11-2020
RCM	BH3	09-02-2000	11-11-2020
RCM (weathered)	1301bMB	03-10-2019	06-01-2021
RCM (weathered)	1304bMB	04-09-2013	06-01-2021
RCM	1529MB	06-08-2015	10-11-2020
RCM	1534MB	06-08-2015	09-12-2020
RCM	1536MB	16-04-2018	14-05-2020
RCM	1538MB	19-08-2015	11-11-2020
RCM	1539MB	29-10-2015	20-08-2018
Burngrove Fm.	BH4	09-02-2000	09-12-2020
Burngrove Fm. (weathered)	1323MB	07-01-2014	09-11-2020
Burngrove Fm. (weathered)	1417MB	05-08-2015	09-11-2020
Burngrove Fm. (weathered)	1418MB	22-06-2015	11-11-2020
Burngrove Fm. (coal seam)	1537MB	30-10-2015	10-11-2020

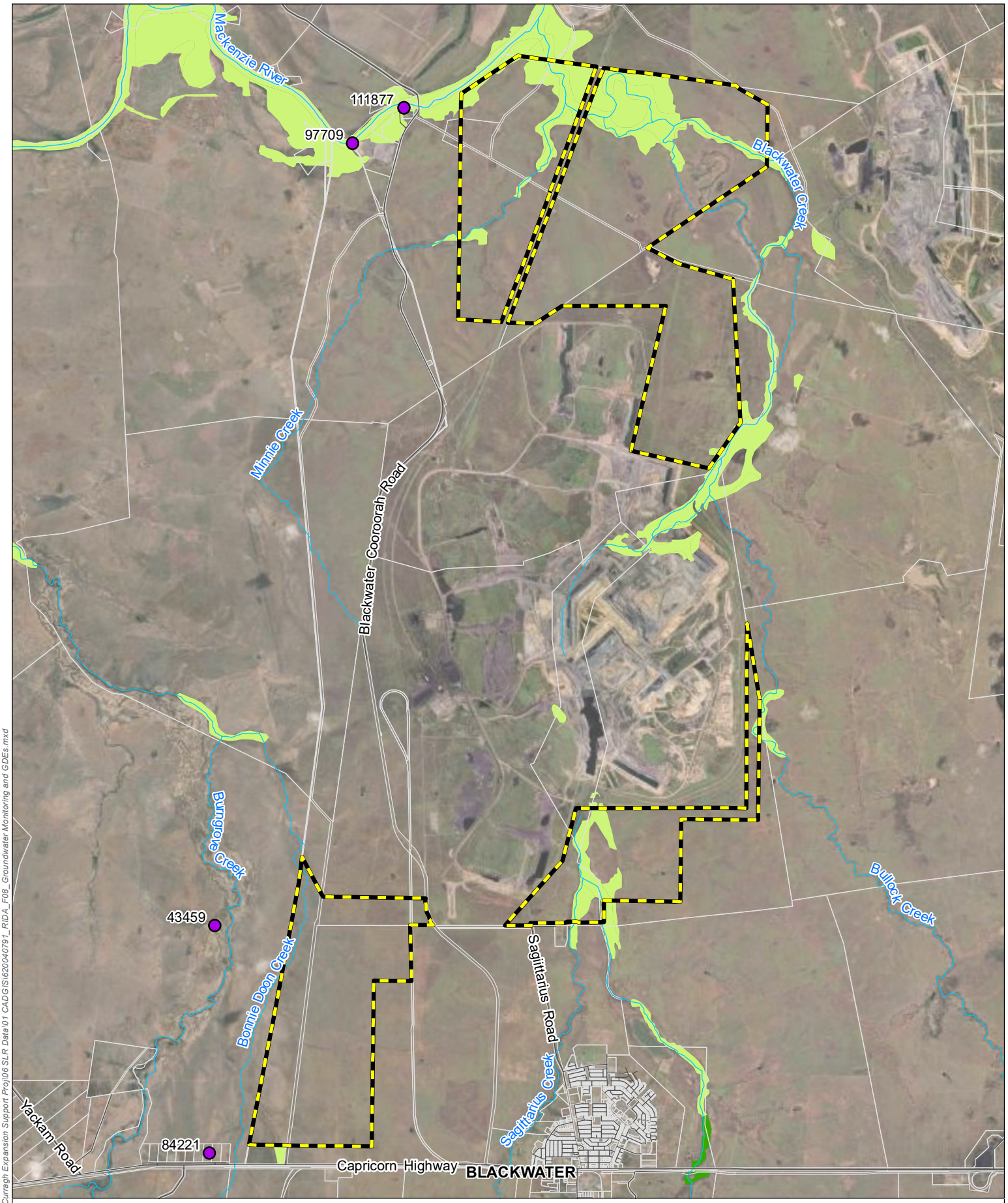
A Groundwater Dependent Ecosystem (GDE) is one in which the plant and/ or animal community is dependent on the availability of groundwater to maintain its structure and function. The BoM Groundwater Atlas (BoM, 2021) indicates areas of primarily low potential terrestrial GDEs / IDEs (inflow dependent ecosystems) associated with the riparian corridor of the Mackenzie River and, to a lesser extent, Blackwater Creek (**Figure 8**). These terrestrial GDEs are vegetation ecosystems that rely on the subsurface presence of groundwater.

The 2016 Parsons Brinckerhoff assessment (due to its objective of assessing impacts associated with expansion), considered the potential for impacts on GDEs in considerable detail. The area of potential subsurface GDEs was assumed to be restricted to areas of saturated alluvium based on the results from the numerical groundwater modelling. It was also assumed that within the areas of saturated alluvium that groundwater dependence was related to the depth to the water table and vegetation rooting depth. The following criteria were used to refine the areas of likely and potential subsurface GDEs in the vicinity of the site:

Where field verified and Queensland Herbarium mapped regional ecosystems associated with likely and potential GDEs intersected with modelled areas of saturated alluvium depth to groundwater within the area of saturated alluvium:

- High – depth to groundwater within saturated alluvium <10 m.
- Possible – depth to groundwater within saturated alluvium between 10 and 20 m.
- Unlikely – depth to groundwater within saturated alluvium >20 m.

The assessment (Parsons Brinckerhoff, 2016) identified that much of the reach of the Mackenzie River and Cooroora Creek (tributary of the Mackenzie), within the model domain, and the northern reaches of Blackwater Creek, had a high potential to host terrestrial GDEs along the riparian corridor with a likely depth to groundwater of < 10m.



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

- Landholder Bore
- Watercourse
- Road
- Curragh Extension Project Mining Lease Boundary
- Property Boundary

Terrestrial Groundwater Dependent Ecosystem

- Moderate Confidence
- Low Confidence

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Groundwater Monitoring Network and GDEs

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (November 2024)

FIGURE 8

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CAD\GIS\620040791_RIDA_F08_Groundwater Monitoring and GDEs.mxd

There are four registered bores within 3 km of Curragh mining operations (existing or proposed); details are presented in **Table 5**.

Table 5 Registered bores within 3km of Curragh mining operations

RN	Aquifer	Depth (m)	SWL (mbgl)	Water quality	Yield (L/s)	Installed
43459	-	-	-	-	-	-
84221	Burngrove Formation	31	30	salty	0.12	1988
97709	-	57	13	Fresh	3.2	1998
111877	Mackenzie River Alluvium	23	15			2002

RN111877 is owned by Central Highlands Regional Council and located at the campground approximately 150 m south of Bedford Weir on the Mackenzie River. The Council have indicated the bore is used to irrigate grass near and in the toilet block at the campground and that the groundwater is relatively saline. The bore is used to fill a 45,000 L tank 2 to 3 times each week (Parsons Brinckerhoff, 2016).

COMMON NAME	BOTANICAL NAME	DECLARED STATUS*
Parthenium weed	*Parthenium hysterophorus*	Class 2
Parkinsonia	*Parkinsonia aculata*	Class 2
Prickly Pear	*Opuntia* sp	Class 2
Mother of Millions	*Bryophyllum tubiflorum*	Class 2
Harrisia Cactus	*Eriocerus* sp	Class 2
Rubber Vine	*Cryptostegia grandiflora*	Class 2

4.4 Current Land Use

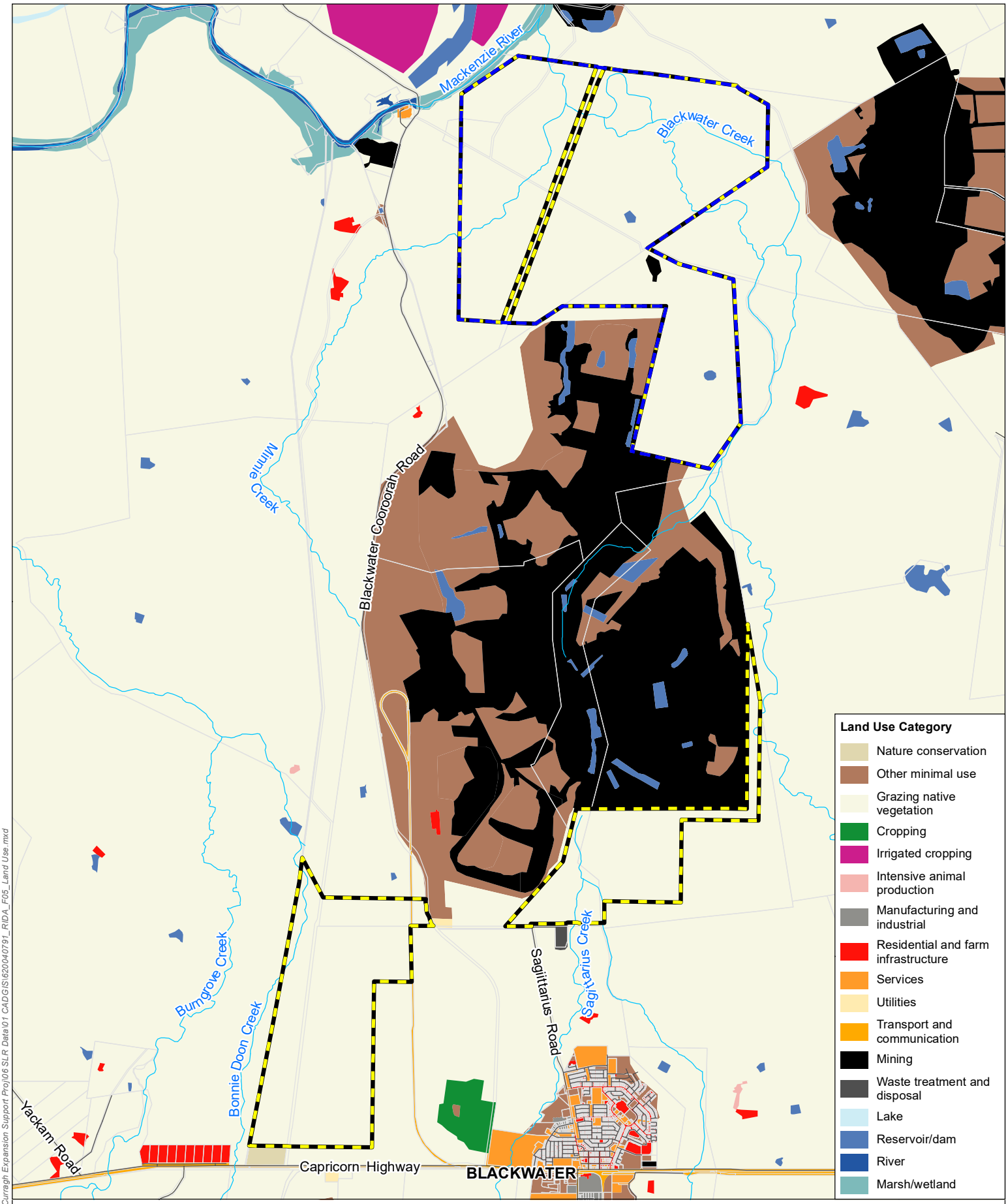
The primary land use within the study area is low intensity cattle grazing on thinned natural vegetation with some small areas used for dryland cropping. Historically, vegetation was largely cleared for agricultural purposes with the exception of some remnant vegetation located along Mackenzie River, Blackwater Creek and their tributaries.

The use of the surrounding area includes coal mining and low intensity cattle grazing and is presented in **Figure 9**.

4.5 Property

Appendix C identifies the land that is the subject of this RIDA Requested Amendment (i.e., those lots or parts of lots on which mining activities are proposed that are shown as SCL on the SCL trigger map). It includes real property descriptions, maps and areas of disturbance.

Non-mining activities proposed to be undertaken outside the ML areas, including the proposed relocation of powerlines within the proposed easement, have not been included in this Requested Amendment as they are not regulated by the RPI Act.



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

Watercourse

Road

Curragh Extension Project Mining Lease Boundary

Combined Study Area

Property Boundary

SLR

Data Sources:
QLD DoR Spatial Catalogue

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Land Use

FIGURE 9

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F05_Land Use.mxd

5.0 Land Resources Assessment

5.1 Desktop Review

A brief data gap analysis was undertaken based on a desktop review of available historical soils data at the Project Area. The timeline presented in **Table 6** and below summarises the key activities and dates leading to the RIDA Amendment request.

- October 2014 – SLR was engaged to undertake a soil assessment suitable to fulfill the requirements of an Environmental Impact Statement and SCL assessment for the Curragh Extension Project. SLR representatives undertook the fieldwork in October 2014, including sampling and sending samples for laboratory analysis to ALS Brisbane and Scone Research Centre, which are both NATA accredited laboratories. SLR originally surveyed the soils within the Project Area in October 2014 and mapped the dominant soil type as Self Mulching Brown Vertosol located throughout the majority of the Study Area. Two other sub dominant soil types were observed as Self Mulching Black Vertosol and Eutrophic Brown Dermosol.
- April 2015 – Notification from Queensland Department of Environment and Heritage Protection (DEHP) that the EA amendment application will be assessed as a Major Amendment.
- May 2015 – Notification from DEHP that the Project does not require an EIS under the *Environment Protection Act 1994*.
- July 2015 – Final version of the SCL Assessment Report was sent to the Department of Natural Resources and Mines (DNRM) for pre-lodgement review and comment.
- August 2015 – DNRM responds with Pre-lodgement comments. SLR reviewed comments and provide initial responses to the DNRM and requested a meeting to discuss details of both comments and responses.
- September 2015 – DNRM provides further comments prior to the phone meeting to discuss the SCL Assessment Report and associated issues raised to date in the pre-lodgement review process. Meeting is held between DNRM (Peter Binns), SLR (Clayton Richards), Department of Infrastructure, Local Government, and Planning (DILPN) (Mitzi Venn) and Wesfarmers (Amanda O'Kane).
- November 2015 – SLR was engaged to undertake further desktop mapping and sample analysis, from stored samples taken in the October 2014 fieldwork, and provide a supplementary report in relation to the issues raised during the pre-lodgement review process.
- December 2015 – SCL Supplementary Report aimed at addressing the comments raised by DNRM, and is to be read as an addendum to the July 2015 SCL report. Further desktop mapping work and laboratory analysis of samples obtained and stored from the SLR 2014 fieldwork, were undertaken to provide additional data on the assessment findings.
- December 2015 – Original RIDA application presented 855.84 ha of mapped SCL impacted by the Project, with the entire area mapped as non-SCL.
- December 2015 – DILCP requirement notice states provisional non-SCL is 523 ha and additional field verification is required for other areas to confirm SCL status.

- August 2016 – An amended RIDA application was submitted where 278.42 ha was identified as provisional SCL (to be verified as SCL or non-SCL.
- November 2016 – Approval of the RIDA was received (**Appendix A**) was received with approval conditions. Condition 5 states: "*The maximum area of permanent impact on SCA that may occur as a result of this development approval is to be no greater than 630.05 ha.* Condition 7 states: *Mitigation measures must be in place for the 630.05 ha of approved permanently impacted strategic cropping land".*
- November 2019 – A pre-application meeting was held between the Department, WSP and Coronado outlining the requirements for the RIDA programs, required under various approvals. During the application process for the RIDA (RPI15/009), Curragh indicated that they would be undertaking additional field validation in due course to determine the status of what was considered (during the application process) as provisional Strategic Cropping Land. This fieldwork could not be undertaken at the time due to field access restrictions. Coronado Curragh are now in a position to undertake these additional field studies and are wanting to meet with the Department to discuss field program requirements as well as approach to amending the RIDA.
- December 2019 – Pre -lodgement presentation to DSDMIP in which the inclusion of the Curragh North ML80110 transport corridor exemption, proposed field program and process for amending the RIDA was discussed. WSP subsequently provided a proposed plan for future test pit locations for SCL verification.
- November 2022 – Pre-lodgement discussion with DSDILGP, Coronado and SLR to provide an outline of approach to the RIDA and discuss SCL supplementary information, proposed field program and the process for amending the RIDA. Confirmation that SCL intercepted by Project disturbance footprint is now around 500 ha based on latest SCL mapping.
- February 2024 – Re-classification of observation sites and development of soil map units. The Study Area was classified as one soil map unit, Brown Vertosol, with subdominant Black Vertosols and Brown Vertosols. Further and re-classification was completed and identified the dominant soil map units as Black Vertosols, Brown Vertosols, Dermosols and Chromosols. Where the Project disturbance footprint intercept SCL soils were classified as Black and Brown Vertosols.
- July 2024 – Pre-application meeting with Department of Housing, Local Government, Planning and Public Works (DHLGPPW), DoW, Coronado and SLR to discuss basis of proposed field program. Items raised during the Pre-application meeting are addressed in **Section 7.0**.

Table 6 Timeline of Key Activities

Date	Activity	Assessment
22 July 2015	SLR SCL Assessment	Conclusions: "The land within the SCL Study Area is therefore assessed as being non-SCL"
August and September 2015	DNRM Response(s)	SCL assessment requires further desktop mapping and sample analysis from the stored samples, supplementary report required to respond to issues raised
8 December 2015	SLR SCL Supplementary Assessment	The dominant soil map unit, including the subdominant soil types, all showed consistent result from the additional analysis work, with soil water storage being the consistent SCL limitation
10 December 2015	Original RIDA application	855.84 ha of mapped SCL impacted by the Project. All assessed as non-SCL.
21 December 2015	DILGP Requirement Notice	Provisional non-SCL = 523 ha. Additional field verification required for other areas.
11 February 2016	Response to Requirement Notice	Fieldwork delayed due to establishment of CHMP for CEP.
29 August 2016	Amended RIDA application	278.42 ha identified as provisional-SCL (to be verified as SCL or non-SCL).
21 November 2016	RPI Act assessing agency – Response to Application	The permanent impact on SCL because of this application is 630.05 ha.
23 November 2016	Regional Interests Development Approval (RPI15/009)	Maximum area of permanent impact on SCA is 630.05 ha. Mitigation measures must be in place for the 630.05 ha of approved permanently impacted SCL.
27 November 2019	Pre-application Discussions – Meeting Form	Pre-RIDA application discussion meeting with WSP and Coronado outlining requirements for RIDA.
16 December 2019	Curragh Extension Project Strategic Cropping Land Assessment - Presentation to DSDMIP	Pre-lodgement meeting with the department for RIDA application.
16 December 2019	Minutes of Presentation to DSDMIP	Pre-lodgement meeting minutes. Transport corridor exemption. Proposed field program discussion.
19 December 2019	Proposed test locations for ML700007 and ML700006	WSP outlining plan for future test pit locations on areas for SCL verification.

Date	Activity	Assessment
22 November 2022	Pre-application Discussion – Meeting Summary DSDILGP	Area of impact based on current SCL mapping is around 500 ha. Recommendation for desktop review to re-evaluate soil mapping, presence of gilgai and need for further field investigation.
February 2024	Draft memorandum re-classification of soil map units	Further and re-classification was completed and identified the dominant soil map units as Black Vertosols, Brown Vertosols, Dermosols and Chromosols. Where the Project disturbance footprint intercept SCL soils were classified as Black and Brown Vertosols
31 July 2024	Pre-application Discussion – Meeting Summary DSDILGP	Confirmation that activities on impacted SCL has not commenced.

5.2 2024 Field SCL Assessment

A Land Resource Assessment for the Study Area (Minesoils, 2024) has been undertaken (**Appendix B**). The technical report presented in **Appendix B** has been prepared in accordance with the following documentation:

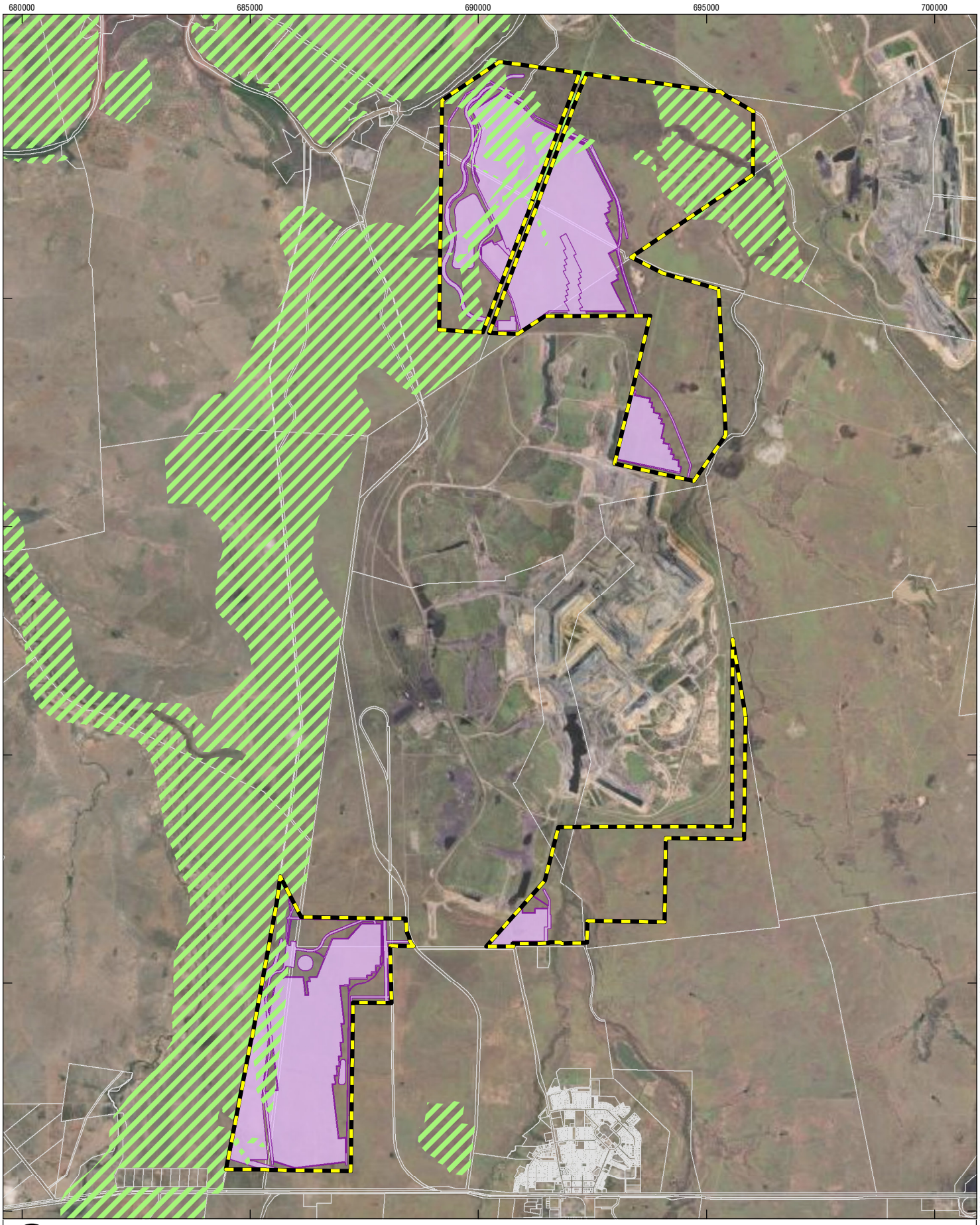
- RPI Act.
- RPI Regulation.
- *RPI Act Guideline 08/14: How to demonstrate that land in the strategic cropping area does not meet the criteria for strategic cropping land.*

The purpose of this document is to provide sufficient evidence that demonstrates that the land mapped as SCL on the SCL trigger map which overlies the Project disturbance footprint is or is not SCL.

This investigation builds on the 2014, SLR study. SLR assessed a total of 73 soil survey observation sites within the Project Area, of which 11 sites were within the Study Area (SLR, 2015). Two sites referenced within the SLR report and shown to occur within the Study Area have been removed based on insufficient data or undesirable site selection (i.e., placement of site within a drainage line). A total of 9 remaining sites from the SLR assessment were determined to be relevant to this assessment and are referenced in the 2024 report.

The key factors of this SCL Assessment are summarised below:

- **Figure 10** shows proposed mining disturbance areas underlain by SCL mapped areas.
- The Study Area is defined as the 490 ha area where the Project disturbance footprint overlaps Trigger Mapped SCL (**Figure 11**).
- A total of 37 survey field observations (12 analysed, 25 detailed) have been completed within the Study Area and result in a survey scale of 1 site per approximately 13 ha, exceeding the required survey density required by the *RPI Act Guideline 08/14* (**Figure 12**).
- Within the Study Area, one soil map unit was identified and is described as Soil Map Unit 1: Endohypersodic Self-mulching Black and Brown Vertosols. All soil profiles assessed were determined to be Vertosols, however, subtle variations within this unit occur, and have been aggregated with the dominant soil characteristics in accordance with the RPI Guideline (**Figure 13**).
- The majority of representative analysed SCL sites within Soil Map Unit 1 failed Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and/or Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm (**Figure 14**).
- The land within the Study Area is therefore assessed as being 'non-SCL' (**Figure 15**).



0 1 2 km

Curragh Extension Project Mining Lease Boundary

Disturbance Footprint

SCL Trigger

Property Boundary

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	AS

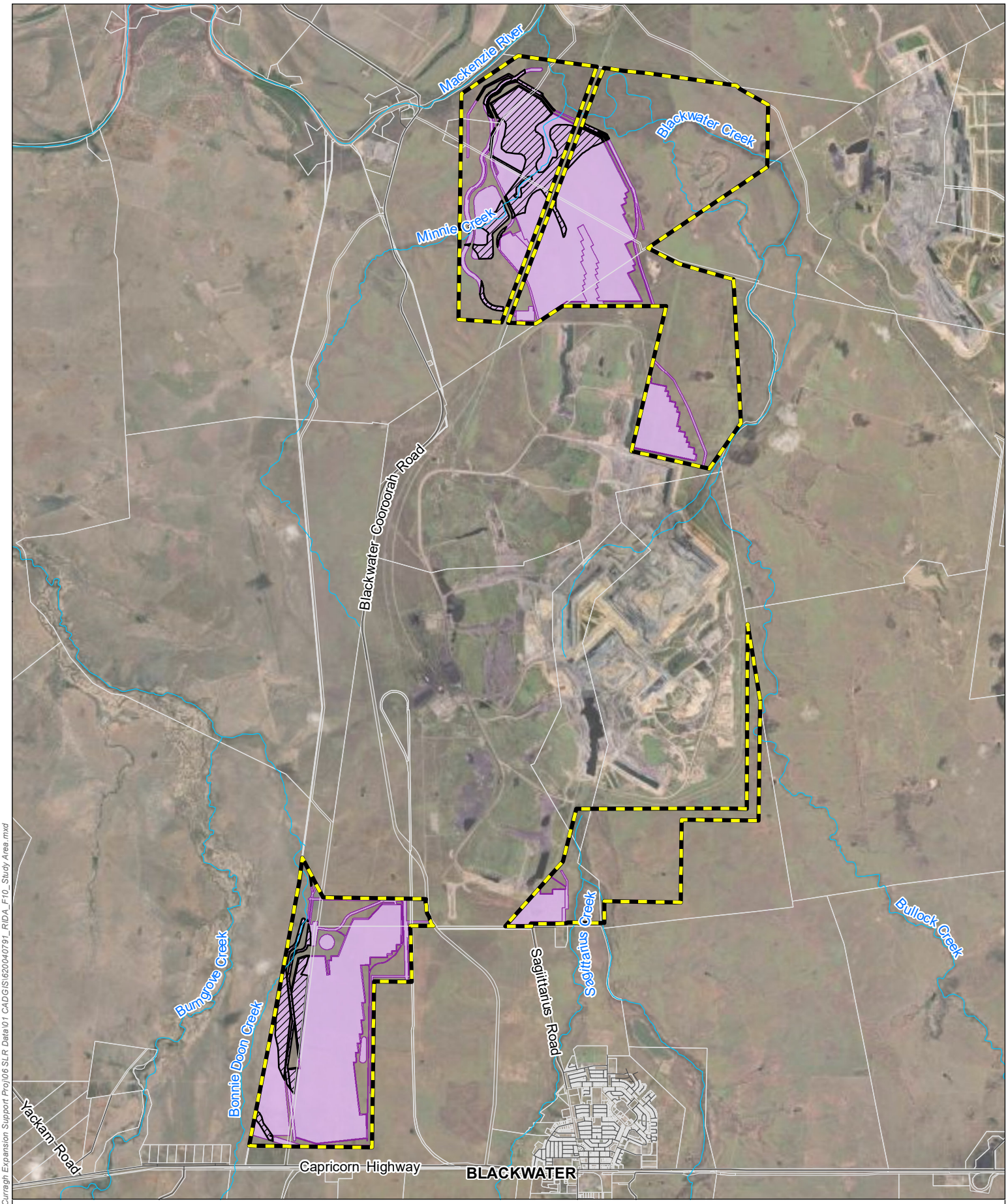
SLR

CURRAGH EXPANSION PROJECT

STRATEGIC CROPPING LAND AREAS AND MINING DISTURBANCE AREAS

FIGURE 10

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F09_SCL and Mining Disturbance Areas.mxd



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	12-Nov-2024
Drawn by:	JG

- Watercourse
- Road
- Property Boundary
- Curragh Extension Project Mining Lease Boundary
- Study Area
- Disturbance Footprint

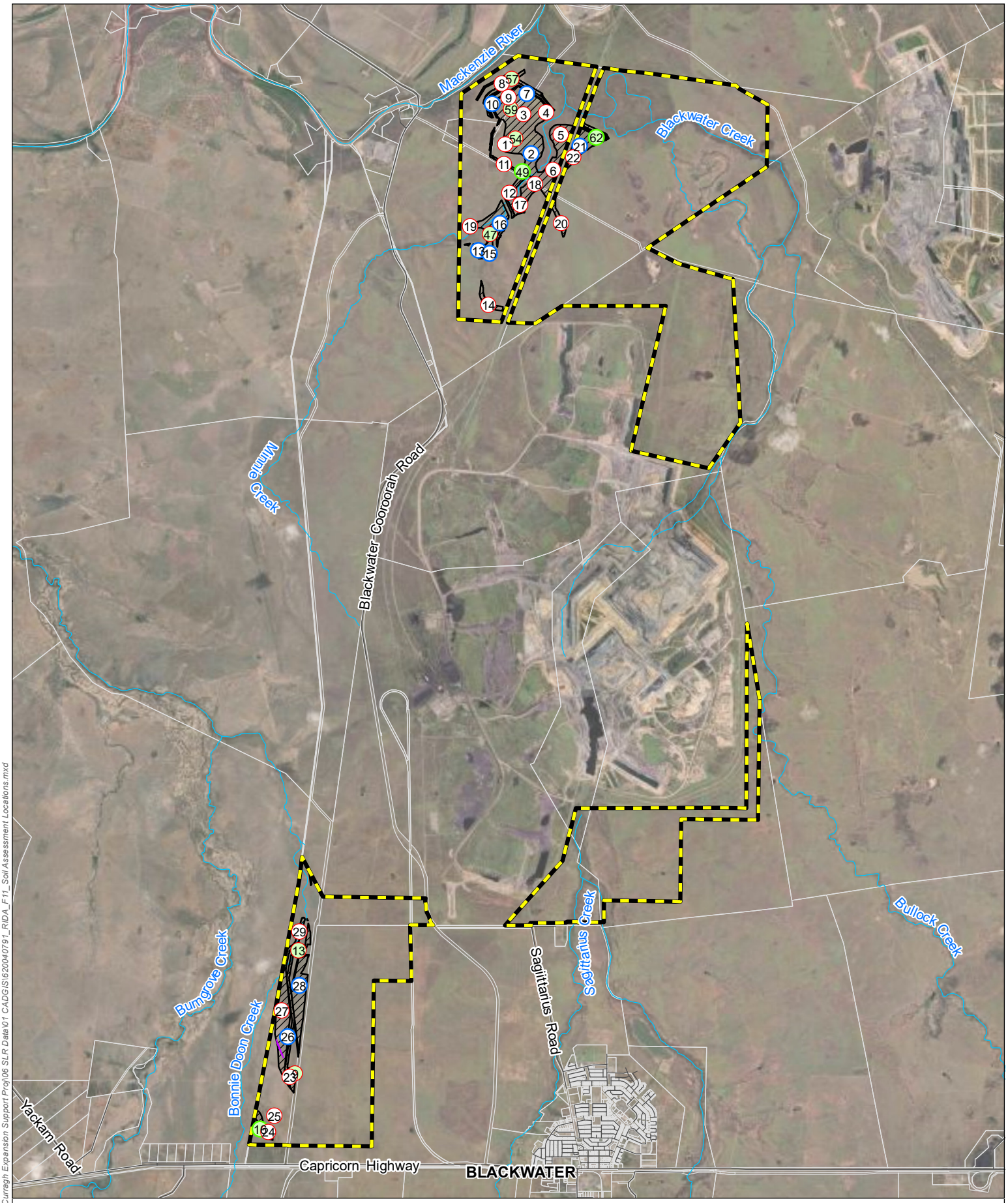
CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Study Area

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

FIGURE 11

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F10_Study Area.mxd



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	11-Nov-2024
Drawn by:	JG

SLR

- Watercourse
- Road
- Property Boundary
- Curragh Extension Project Mining Lease Boundary
- Study Area
- Slope Limitation

- Minesoils 2024 Soil Survey Locations
- Minesoils 2024 Soil Survey Locations - Analysed
- SLR 2014 Soil Survey Locations
- SLR 2014 Soil Survey Locations - Analysed

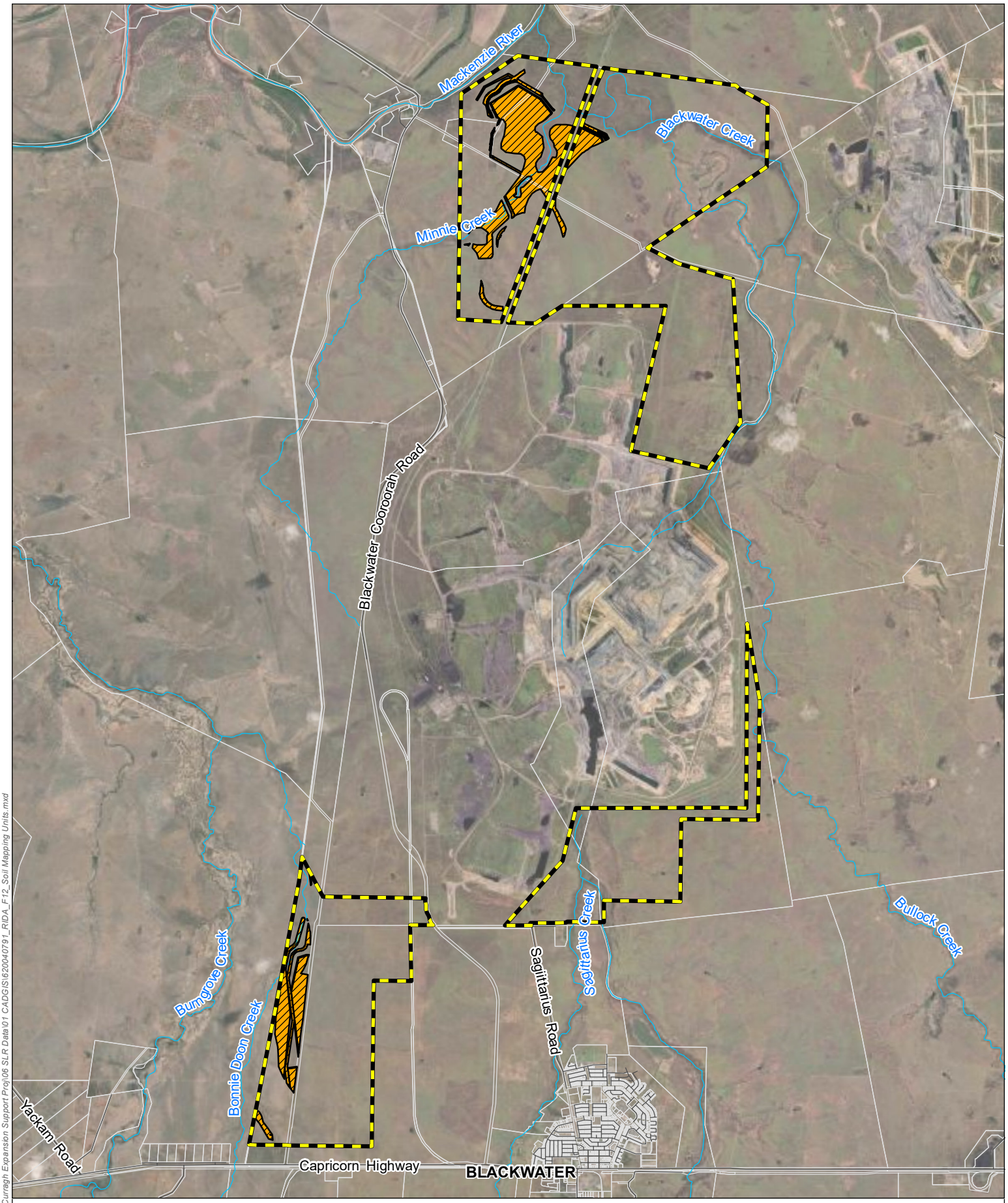
Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Soil Assessment Locations

FIGURE 12

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CAD\GIS\620040791_RIDA_F11_Soil Assessment Locations.mxd



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	11-Nov-2024
Drawn by:	JG

SLR

- Watercourse
- Road
- Property Boundary
- Curragh Extension Project Mining Lease Boundary
- Study Area
- Soil Mapping Unit 1 - Endohypersodic Self-mulching Black and Brown Vertosols

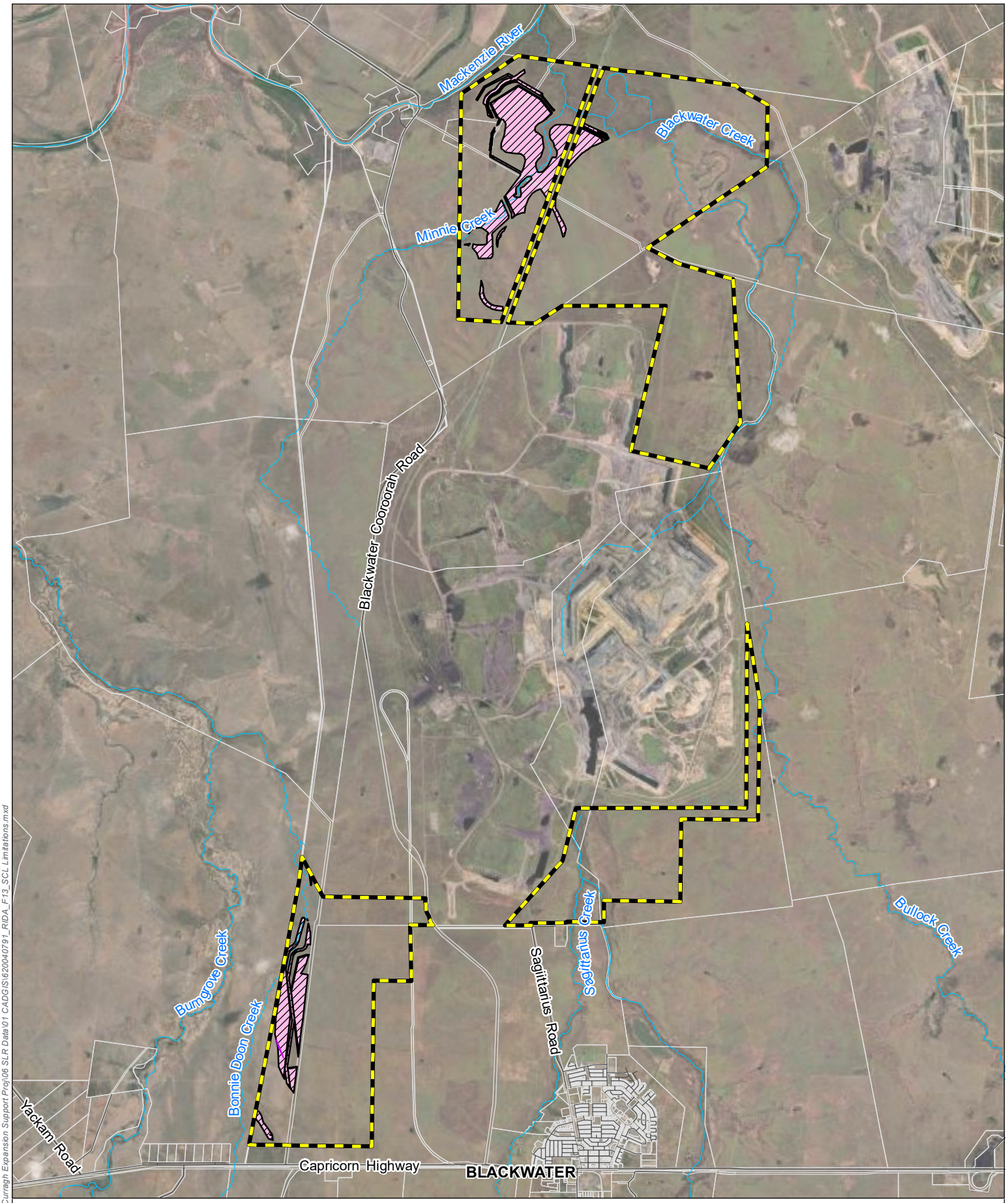
Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

Soil Mapping Units

FIGURE 13

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F12_Soil Mapping Units.mxd



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	11-Nov-2024
Drawn by:	JG

SLR

- Watercourse
- Road
- Property Boundary
- Curragh Extension Project Mining Lease Boundary
- Study Area
- Slope Limitation
- Salinity and Soil Water Storage Limitation

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

SCL Limitations

FIGURE 14

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F13_SCL Limitations.mxd

5.3 Review of ARIs

As outlined in **Sections 3.1** and **5.0**, of the ARIs protected by the RPI Act, only SCA are mapped within the Study Area.

A key part of the RIDA application is demonstrating whether the Project's activities will be carried out on SCL. The mapped SCA in the vicinity of the Project Site is shown in **Figure 3** and an assessment of the Project against the requirements of *RPI Act guideline 03/14 - Carrying out activities in the strategic cropping area* has been completed.

The assessment of the detailed and analysed sites within Soil Map Unit 1 against the SCL criteria is presented in **Appendix B**. An area of 1 ha of the Study Area was determined to be non-SCL and excluded from the soil survey based on having >3% slope. Within the remaining soil survey inclusion area of 489 ha, the majority of representative analysed sites exhibited SCL constraints for Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and/or Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm).

All observation sites failed to meet the SCL criteria with the exception of one site (SLR 62), a Self-Mulching Brown Vertosol considered a limited, sub-dominant occurrence within Soil Unit 1 which displays subtly different chemical characteristics to the Soil Unit it is mapped within.

Based on the evidence provided which highlights that the majority of analysed sites representative of Soil Unit 1 fail to meet the SCL criteria, Soil Map Unit 1 has been assessed as being 'non-SCL'.

The land within the Study Area is therefore assessed as being 'non-SCL'.

6.0 Potential Impacts to the Existing Environment

As stated in section 5.0 above, the 2024 field surveys have built upon the data obtained in 2014 and found that the land within the Study Area is 'non-SCL'. The original 2015 RIDA application proposed that all land impacted by the CEP was non-SCL but the finding at the time was that there was insufficient data to support non-SCL for a portion of the land. Additional field surveys have been undertaken in this area to provide further evidence that the land is non-SCL.

This Requested Amendment application does not change the activities already approved under the current RIDA approval or EA. The only change is the reclassification of provisional SCL land to non-SCL. Therefore, there is no impact to assess.

The CEP activities are approved in the EA and will be undertaken in a manner to reduce environmental harm and disturbance in accordance with the EA Conditions. The Curragh site is currently in the process of having their Progressive Rehabilitation and Closure Plan (PRC Plan) approved. The proposed PRC Plan has the predominant post-mining land use as Open Woodland.

7.0 Items Raised During Pre-application meeting

A pre-application meeting was undertaken on 24 June 2024. Items raised by attendees and responses are summarised below:

- There may be more soil complexity to be described than the anticipated due to the complexity of the area.

  Response: A total of 37 survey field observations (12 analysed, 25 detailed) have been completed within the Study Area and result in a survey scale of 1 site per approximately 13 ha, exceeding the required survey density. Within the Study Area, one soil map unit was identified and is described as Soil Map Unit 1: Endohypersodic Self-mulching Black and Brown Vertosols. All soil profiles assessed were determined to be Vertosols, however, subtle variations within this unit occur, and have been aggregated with the dominant soil characteristics in accordance with the *RPI Guideline*.

- Some original SLR sample sites may not be overly useful for the present purpose. Some of SLR sites were not truly representative (sampling undertaken in drainage lines and along fence lines instead of middle of paddocks – which produced a 'skewed' result.

  Response: Sites within the Study Area were evaluated by Minesoils. Two sites referenced within the SLR report and shown to occur within the Study Area have been removed based on insufficient data or undesirable site selection (i.e., placement of site within a drainage line).

- Sampling of mounds and depressions in Gilgai areas as the chemistry is often different in mounds and depressions.

  Response: Observation sites 4, 5 and 10 were located where Gilgai were present. Both the mound and depression was sampled and analysed.

- Mapping following the guidelines equate more to 1:10,000 scale and not a 1:25,000 scale.

  Response: The *RPI Act Guideline 08/14* indicated a minimum density of sites in a map unit as 1 site per 50 ha for the Western Cropping zone. A total of 37 survey field

observations (12 analysed, 25 detailed) have been completed within the Study Area and result in a survey scale of 1 site per approximately 13 ha, exceeding the required survey density required by the *RPI Act Guideline 08/14.* The number of observation survey sites required is shown in **Table 7**.

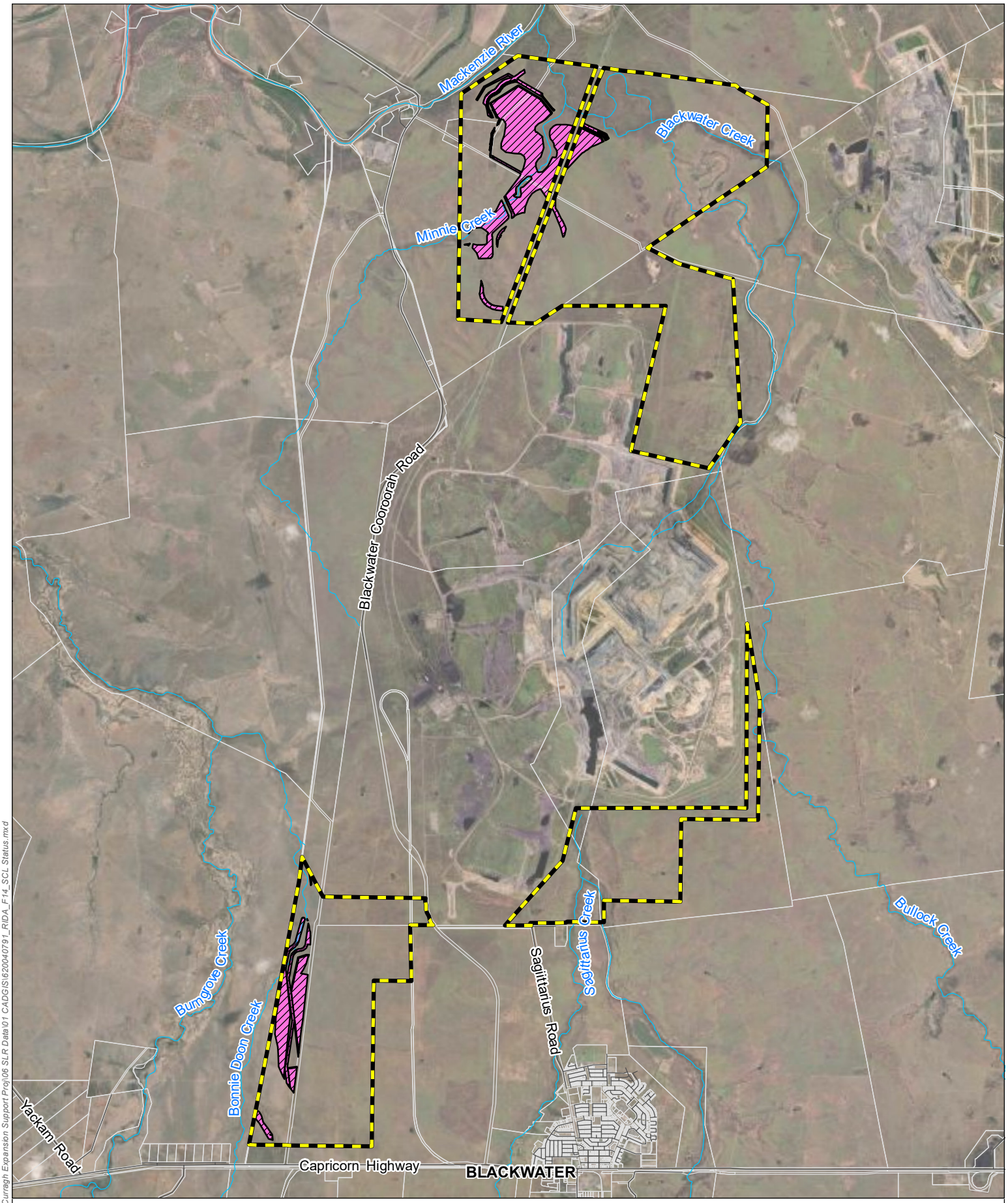
All observation sites were Detailed Sites or Analysed Sites as per the RPI Guideline. There were no SCL Exclusion Sites based on rockiness or gilgai. Further, due to the high density of Detailed Sites or Analysed Sites within the Study Area, no Check Sites were completed (**Table 8**).

Table 7 Required Observation Sites

Study Area	Area (ha)	Survey Scale	Minimum Sites Required
Inclusion zone subject to field assessment	489	1 site per 50 ha	10
Exclusion zone (>3% slope)	1	N/A	0
Total	490	*	

Table 8 Soil Survey Observations

Soil Survey	Observation sites				
	Detailed	Analysed	Exclusion	Check	Total
Minesoils (2024)	19	9	0	0	28
SLR (2014)	6	3	0	0	9
Total	25	12	0	0	37



0 0.5 1 km

Coordinate System:	GDA 1994 MGA Zone 55
Scale:	1:110,000 at A4
Project Number:	620.040791
Date:	11-Nov-2024
Drawn by:	JG

Watercourse
Road
Property Boundary
Curragh Extension Project Mining Lease Boundary
Study Area
Non-SCL

Data Sources:
QLD DoR Spatial Catalogue, ESRI Basemap World Imagery (Sept 2024)

CURRAGH EXPANSION SUPPORT RIDA APPLICATION

SCL Status

FIGURE 15

H:\Projects-SLR\620-BNE\620.040791.00001 Curragh Expansion Support Proj\06 SLR Data\01 CADGIS\620040791_RIDA_F14_SCL Status.mxd

8.0 Assessment Against Required Outcomes

The following section provides an assessment of the Project against the ROs for SCA as detailed in Schedule 2, Part 4 of the RPI Regulations.

Required Outcome 1

As outlined in **Table 9**, RO1 states that the activity will not result in any impact on SCL in the strategic cropping area. RO1 is relevant to the Project.

Table 9 Prescribed Solutions for RO1 – SCA

Prescribed Solutions for RO1 *(Schedule 2, Part 4, Section 9 – RPI Regulation)*	Response
The application demonstrates the activity will not be carried out on strategic cropping land that meets the criteria stated in schedule 3, part 2.	As described in **Section 5.0**, based on the results from the August 2024 detailed soil sampling program (as detailed in **Appendix B**), it is considered that the Project will not result in any impact on SCL in the SCA, as land in the study area does not meet the criteria for SCL.

Required Outcome 2

RO2 is not relevant to the Project.

Required Outcome 3

RO3 is not relevant to the Project.

9.0 Assessment Against RPI15/009 Approved Condition

Based on the 2024 field validation program for the CEP project, it is proposed to amend condition 5 and condition 7 of approved RIDA application 15/009.

Table 10 outlines the proposed changes.

Table 10 Proposed Changes to RPI15/009 Approved Condition

Section Of Decision Notice Rida15/009 Approved 23/11/2016	Description	Proposed Change With 2024 Application
Description of land	Real property description: Within ML700006 (Curragh South), ML 700007 (Curragh Central), ML700008 (Curragh Central Extended) and part of ML80110 (conveyor that currently traverses through ML700007 and ML700008): Parts of the following lots: Lot 12 on Plan HT493, Lot 1 on Plan RP613729, Lot 2 on Plan SP223677, Lot 35 on Plan SP247242, Lot 2 on Plan HT606 and Lot 46 on Plan HT610. Parts of the following roads and road reserves: Unnamed road on Lot 1 on Plan RP613729 (parcel #39832/037), unnamed road reserve on Lot 12 on Plan HT493 and Lot 35 on Plan SP247242 (parcel #37480/064), temporarily closed road on Lot 35 on Plan SP247242 (parcel #37480/071), temporarily closed road on Lot 35 on Plan SP247242 (parcel #37480/070), temporarily closed road in Lot 35 on Plan SP247242 (parcel #37480/133), unnamed road reserve on Lot 2 on Plan SP223677 and temporarily closed road on Lot 2 on Plan SP223677	No change to mining leases. No change to Lot/plan as listed No change to roads/ road reserves as listed
	Local Government Area: Central Highlands Regional Council	No change
Approved activities	Table 1: Approved activities	No change
General advice	Noted.	
Regional Interests conditions	Condition 1	No change
	Condition 2	No change
	Condition 3	No change
	Condition 4	No change
	Condition 5	**Amendment proposed. Recommend condition to be deleted.**
	Condition 6	No change

Section Of Decision Notice Rida15/009 Approved 23/11/2016	Description	Proposed Change With 2024 Application
	Condition 7	**Amendment proposed.** **Recommend condition to be deleted.**

10.0 Conclusion

This 2024 RIDA requested amendment to RPI15/009, seeks a formal reassessment by the Department to confirm the Strategic Cropping Land (SCL) status within the project area. Supported by detailed soil characterisation and comprehensive evidence, the requested amendment demonstrates the majority of representative laboratory analysed observation sites do not meet the criteria for SCL. As such, the requested amendment specifically aims to reduce the previously determined SCL area based on these new results, which indicates that significant portions of the land do not align with the SCL criteria under the *Regional Planning Interests Act 2014*. This amendment ensures the SCL designation accurately reflects the land's actual suitability for cropping.

Based on the results from the August 2024 detailed soil sampling program (as detailed in **Appendix B**), it is considered that the Project will not result in any impact on SCL in the SCA, as land in the study area does not meet the criteria for SCL.

The Project therefore satisfies the Prescribed Solutions for RO1 under Schedule 2, Part 4 of the RPI Regulation and will not result in material impact on the use of the property as SCA.

This application therefore requests that land within the Project's study area relevant to this application, that is, ML700006 plus the combined study area (i.e., the area within ML700007 and ML700008 combined plus part of ML80110 (conveyor corridor ML80110 that traverses through ML700007 and ML700008)) be assessed as being 'non-SCL' and that the Project be assessed as being compliant with RO1.

As described in **Section 3.4**, the Project may be required to be publicly notified subject to advice being received by the chief executive. As outlined in **Table 10**, the proposed changes to the approved RIDA application 15/009 relate to the reclassification of SCL as non-SCL within the study area, with no proposed changes to the Project. The RIDA Requested Amendment therefore proposes that no public notification is required.

11.0 References

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SLR, 2015. Strategic Cropping Land Assessment Curragh Extension Project. Report Number 626.10135. SLR Consulting Australia (Pty) Ltd: Newcastle NSW

SLR (2021a), *Voids in Floodplain Modelling*

Appendix A RIDA Approval RPI15/009

Regional Interest Development Approval – Supporting Document

Curragh Extension Project Regional Interest Development Approval RPI15/009 Requested Amendment

Coronado Curragh Pty Ltd

SLR Project No.: 620.040791.00001

14 November 2024

Queensland Government

Department of Infrastructure, Local Government and Planning

REGIONAL INTERESTS DEVELOPMENT APPROVAL (RIDA)

RPI15/009 WESFARMERS – Curragh Expansion Project (CEP)

(Given under the *Regional Planning Interests Act 2014* section 53)

Description of the land

Real property description: Within ML700006 (Curragh South), ML 700007 (Curragh Central), ML700008 (Curragh Central Extended) and part of ML80110 (conveyor that currently traverses through ML700007 and ML700008):

Parts of the following lots: Lot 12 on Plan HT493, Lot 1 on Plan RP613729, Lot 2 on Plan SP223677, Lot 35 on Plan SP247242, Lot 2 on Plan HT606 and Lot 46 on Plan HT610.

Parts of the following roads and road reserves: Unnamed road on Lot 1 on Plan RP613729 (*parcel #39832/037*), unnamed road reserve on Lot 12 on Plan HT493 and Lot 35 on Plan SP247242 (*parcel #37480/064*), temporarily closed road on Lot 35 on Plan SP247242 (*parcel #37480/071*), temporarily closed road on Lot 35 on Plan SP247242 (*parcel #37480/070*), temporarily closed road in Lot 35 on Plan SP247242 (*parcel #37480/133),* unnamed road reserve on Lot 2 on Plan SP223677 and temporarily closed road on Lot 2 on Plan SP223677.

Local Government Area: Central Highlands Regional Council

Approved activities

Resource activities (open cut coal mine and other resource activities (coal)) as follows. Definitions of the resource activities are included in **Attachment 1**.

Table 1: Approved activities

Area of regional interest	Resource activity	Location	ML	Total area of SCA disturbance (ha)
Strategic cropping area (SCA)	• spoil dump • open cut mining pit • associated infrastructure	Lot 1 on Plan RP613729	ML700006	181.60
	• open cut mining pit • sediment dam • associated infrastructure • protection levee/creek diversion	Lot 35 on Plan SP247242	ML700007 ML80110	403.55
	• open cut mining pit • associated infrastructure • protection levee/creek diversion	Lot 12 on Plan HT493	ML700007	0.0
	• open cut mining	Lot 2 on Plan SP223677	ML700007	41.47
	Not applicable	Lot 2 on Plan HT606	ML700008	0.0
	Not applicable	Lot 46 on Plan HT610	ML700008	0.0
	• open cut mining pit • associated infrastructure	Unnamed road on Lot 1 on Plan RP613729 (*parcel # 39832/037*)	ML700006	3.43
	• protection levee/creek diversion	unnamed road reserve on Lot 12 on Plan HT493 and Lot 35 on Plan SP247242 (*parcel # 37480/064*)	ML700007	0.0
	• open cut mining pit • associated	temporarily closed road on	ML700007	0.0

Area of regional interest	Resource activity	Location	ML	Total area of SCA disturbance (ha)
	infrastructure	Lot 35 on Plan SP247242 (*parcel #37480/071*)		
	• associated infrastructure	temporarily closed road on Lot 35 on Plan SP247242 (*parcel #37480/070*)	ML700007	0.0
	• open cut mining pit • associated • infrastructure • protection levee/creek diversion	temporarily closed road in Lot 35 on Plan SP247242 (*parcel #37480/133)*	ML700007	0.0
	Not applicable	unnamed road reserve on Lot 2 on Plan SP223677	ML700008	0.0
	Not applicable	temporarily closed road on Lot 2 on Plan SP223677	ML700008	0.0
	Total			**630.05**

General Advice

This approval does not relieve the applicant of the obligation to obtain all approvals and licenses from all relevant authorities required under any Act.

Regional interests conditions

A person who is the holder of, or is acting under, this RIDA must not contravene a condition of this approval.

Condition number	Condition	Timing for condition
1.	a) Carry out the approved activities and disturbance of	At all times

Condition number	Condition	Timing for condition
	land generally in accordance with the approved plan: *Figure 1: Proposed Activities, MXD Number: 2172652H_GIS_SCL_A2,Date: 26/08/2016, Author: GL, Wesfarmers – as amended in red* **(See Attachment 2);** and b) Carry out the approved activities and disturbance of land generally in accordance with Table 1: Approved activities and the definitions of activities **(see Attachment 1)**.	
2.	Maintain approved activities generally in accordance with the approved drawing and Table 1: Approved activities.	At all times
3.	Any disturbance of land in accordance with this RIDA is not to impact adversely on other strategic cropping land in the SCA.	At all times
4.	A full copy of the regional interests development approval is to be on-site and available to any person(s) contracted to undertake the approved activity, throughout the construction, operation and restoration period.	At all times
5.	The maximum area of permanent impact on SCA that may occur as a result of this development approval is to be no greater than 630.05ha.	At all times
6.	a) All complaints received, and resulting actions taken, about the impact of the approved activities on the strategic cropping land in the SCA must be recorded. The record must include: i) name, address and contact number of the complainant ii) time and date of complaint iii) reasons for the complaint iv) investigations undertaken v) conclusions formed vi) actions taken to resolve the complaint vii) any abatement measures implemented viii) details of the person responsible for resolving the complaint. b) The records of any complaints received and recorded in accordance with this condition must be provided to the chief executive within 3 business days of receipt of the complaint.	At all times
7.	Mitigation measures must be in place for the 630.05ha of approved permanently impacted strategic cropping land (*'the mitigated SCL land'*).	Prior to commencing any approved activities upon

Condition number	Condition	Timing for condition
	Note: The mitigation value is determined by multiplying each hectare of the mitigated SCL land by the prescribed mitigation value, where: a) The number of hectares is rounded up to the nearest whole hectare; and b) For the purposes of this condition, the mitigation value for the Central Highlands Isaac sub-zone is described in section 16(1)(a)(ii), Part 6 of the Regional Planning Interests Regulation 2014.	the area of approved permanently impacted SCL.

If you require any further information, please contact Mitzi Venn, Manager, Development Assessment Advisory Team on 1300 967 433 or RPIAct@dilgp.qld.gov.au, who will be pleased to assist you.

Yours sincerely

Steve Conner
Executive Director
Development Assessment Division

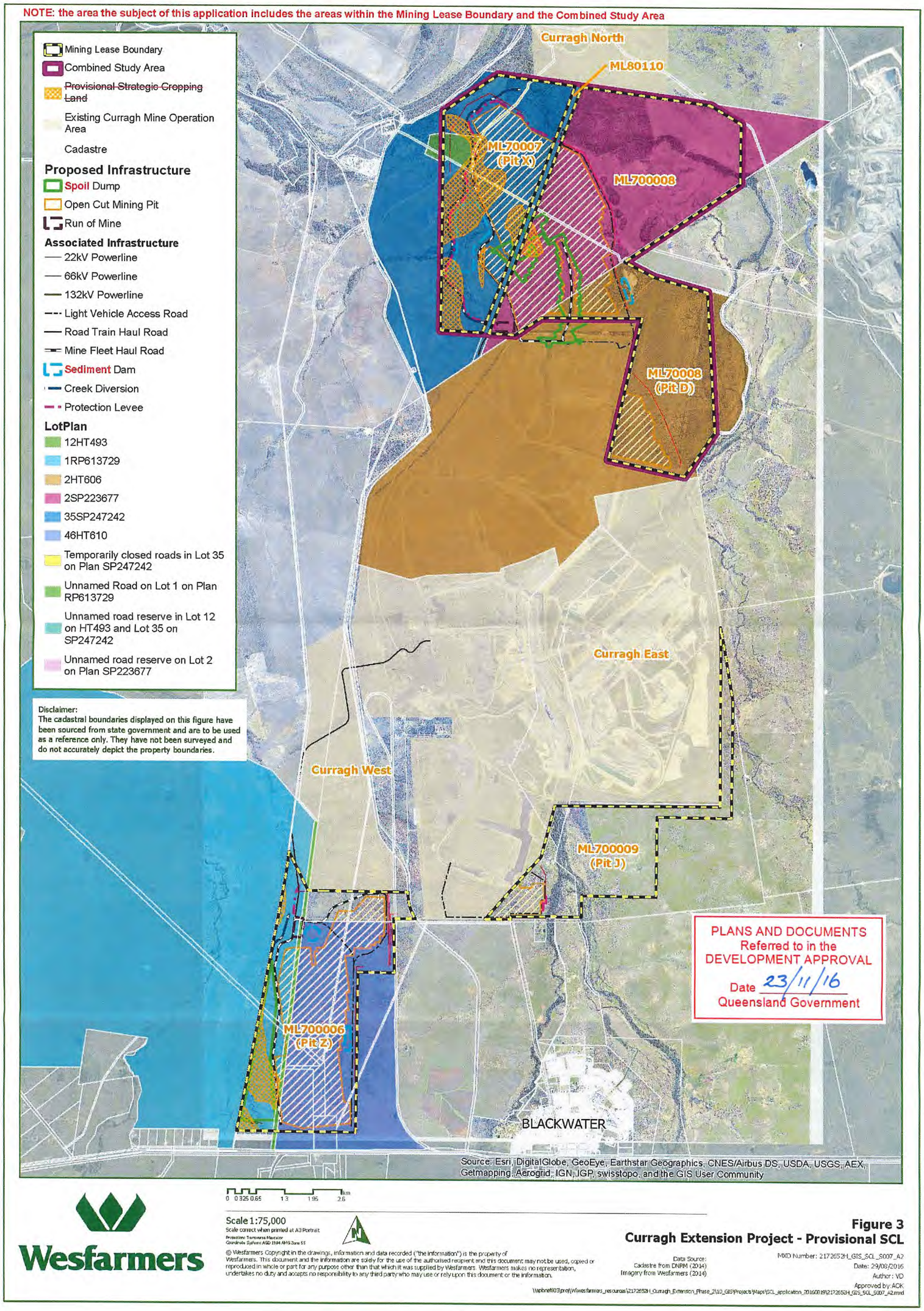
Attachment 1

Definitions of resource activities proposed within the area the subject of the application

Resource activity	Definition of terms
Spoil dump	A pile built of accumulated overburden or other waste as it is removed during mining.
Open cut mining pit	An open pit or trench at the surface from which rock or minerals is extracted. Includes supporting infrastructure such as haul roads, bunding, soil stockpiles, hardstands and water management structures.
Run of mine	Stockpiles of raw coal and product removed from the pit and includes associated infrastructure required to deposit and transport the product.
Sediment dam	The banking of sediment to create and hold an area for water to manage erosion and sediment runoff.
Associated infrastructure	Includes plant and equipment, access roads.
Protection levee	Manmade embankment to provide immunity during a 1:1000 ARP flood event.
Creek diversion	Permanent watercourse diversion is a man-made structure that incorporates the geomorphologic, hydraulic, hydrologic and ecological components of a local watercourse and is designed, constructed, operated and maintained according to an engineering standard that ultimately achieves a self-sustaining watercourse able to function without features or characteristics that rely on ongoing maintenance or that impose a financial or other burden on the proponent, government or the community.

Attachment 2

Figure 1: Proposed Activities, MXD Number: 2172652H_GIS_SCL_A2, Date: 26/08/2016, Author: GL, Wesfarmers



Appendix B Strategic Cropping Land Assessment, SLR 2024

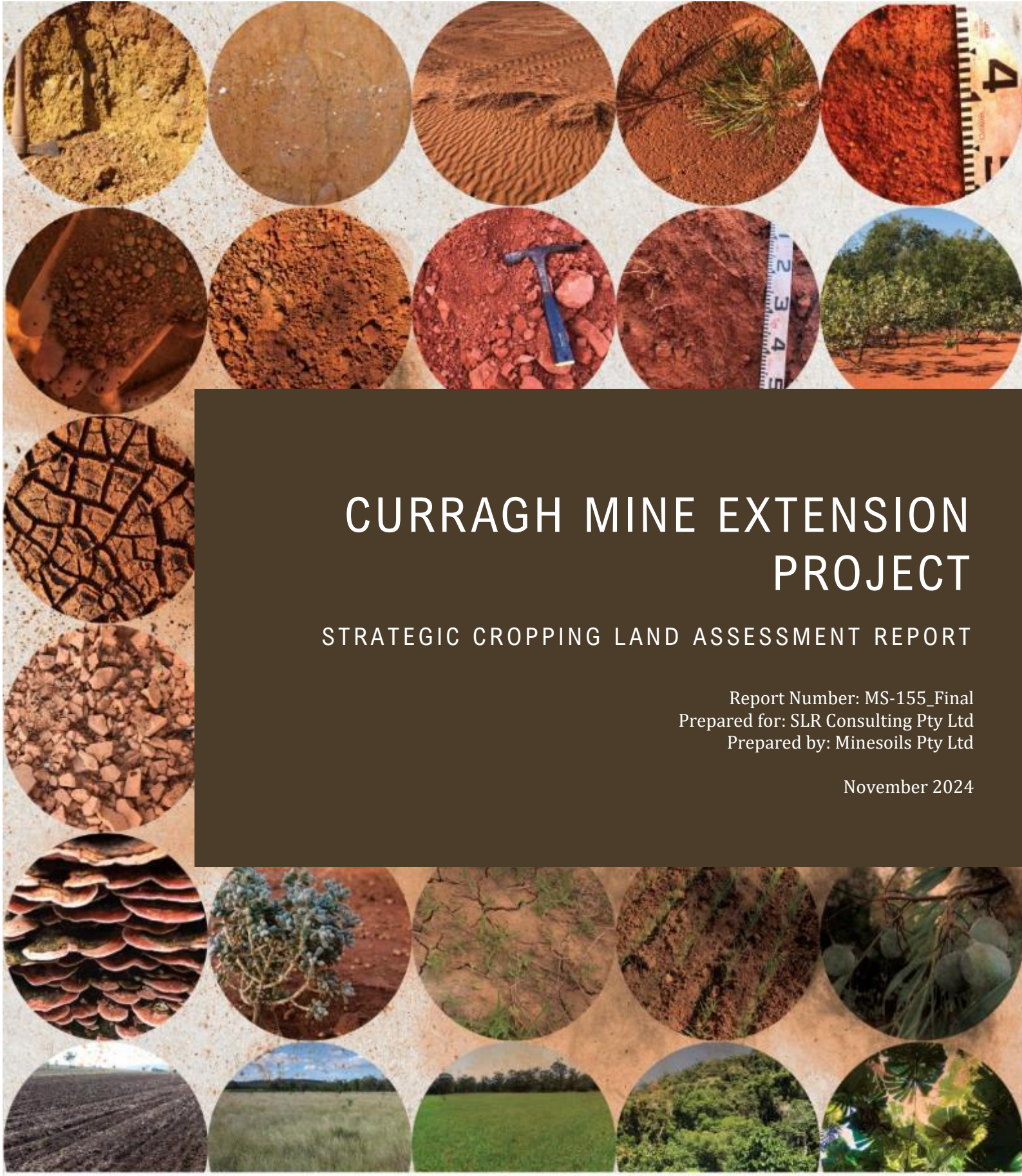
Regional Interest Development Approval – Supporting Document

Curragh Extension Project Regional Interest Development Approval RPI15/009 Requested Amendment

Coronado Curragh Pty Ltd

SLR Project No.: 620.040791.00001

14 November 2024



CURRAGH MINE EXTENSION PROJECT

STRATEGIC CROPPING LAND ASSESSMENT REPORT

Report Number: MS-155_Final
Prepared for: SLR Consulting Pty Ltd
Prepared by: Minesoils Pty Ltd

November 2024

MINESOILS
LAND & REHABILITATION SPECIALISTS

PREPARED BY

Minesoils Pty Ltd
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DISCLAIMER

This report has been prepared by Minesoils Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of SLR Consulting Pty Ltd. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from Minesoils. Minesoils disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared by	Approved
MS-155 Draft V1	27 September 2024	Matt Hemingway and Clayton Richards	Clayton Richards
MS-155 Final	11 November 2024	Matt Hemingway and Clayton Richards	Clayton Richards

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Appendices

1. INTRODUCTION

1.1. OVERVIEW

Minesoils was engaged by SLR Consulting Pty Ltd (SLR) on behalf of Coronado Global Resources (Coronado) to undertake a Strategic Cropping Land (SCL) Assessment for the Curragh Extension Project (the Project). The Project is located north of Blackwater in Central Western Queensland (**Figure 1**).

SCL is land that is suitable and available for current and potential future cropping with limitations to production that range from moderate to none. A preliminary map of candidate areas for strategic cropping land, also known as Trigger mapped SCL, has been developed by the QLD Government using the best available agricultural soil and land use data. Trigger mapped SCL occurs over a portion of the Project disturbance footprint.

1.2. STUDY AREA

The Project Area, covering 6,023 ha, represents the area subject to a mining lease application for the Project. The Project disturbance footprint, covering 2,575 ha, represents the area subject to direct surface disturbance as a result of the Project. Trigger mapped SCL covers an area of 1,160 ha within the Project Area. Project disturbance footprint and Trigger Mapped SCL relevant to the Project are shown on **Figure 2**.

The Study Area subject to this SCL Assessment covers 490 ha and represents the area where the Project disturbance footprint and Trigger Mapped SCL overlap, and is shown on **Figure 3**.

1.3. PURPOSE

The purpose of this document is to provide sufficient evidence that demonstrates whether land mapped as SCL on the SCL trigger map, which occurs within the Project Disturbance footprint , is verified SCL. This includes a summary of the fieldwork that has been conducted in relation to this SCL Assessment and contains evidence and advice regarding the on-ground assessment of SCL.

This assessment builds upon, and makes reference to, earlier SCL assessment works relating to the Project and the Study Area undertaken by SLR (SLR Consulting, 2015).

1.4. RELEVANT LEGISLATION

This SCL Assessment has been prepared generally in accordance with the requirements of the following relevant strategic land use planning documents:

- *Regional Planning Interests Act 2014 (RPI Act);*
- *Regional Planning Interests Regulation 2014 (RPI Regulation); and*
- *RPI Act Guideline 08114: How to demonstrate that land in the strategic cropping area does not meet the criteria for strategic cropping land (State of Queensland, 2014) (RPI Guideline).*

The operative provisions of the RPI Act commenced on 13 June 2014 and replaced the repealed SCL Act. The RPI Act is designed to manage the impact of resource activities and other regulated activities on areas of the State that contribute, or are likely to contribute, to Queensland's economics, social and environmental prosperity. The relevant aspects of the RPI Act, as with regard to this report, are as follows:

- *The RPI Act and Regulations incorporates the current SCL zonal criteria and on-ground guideline for assessing whether a property (or part of a property) is SCL; and*

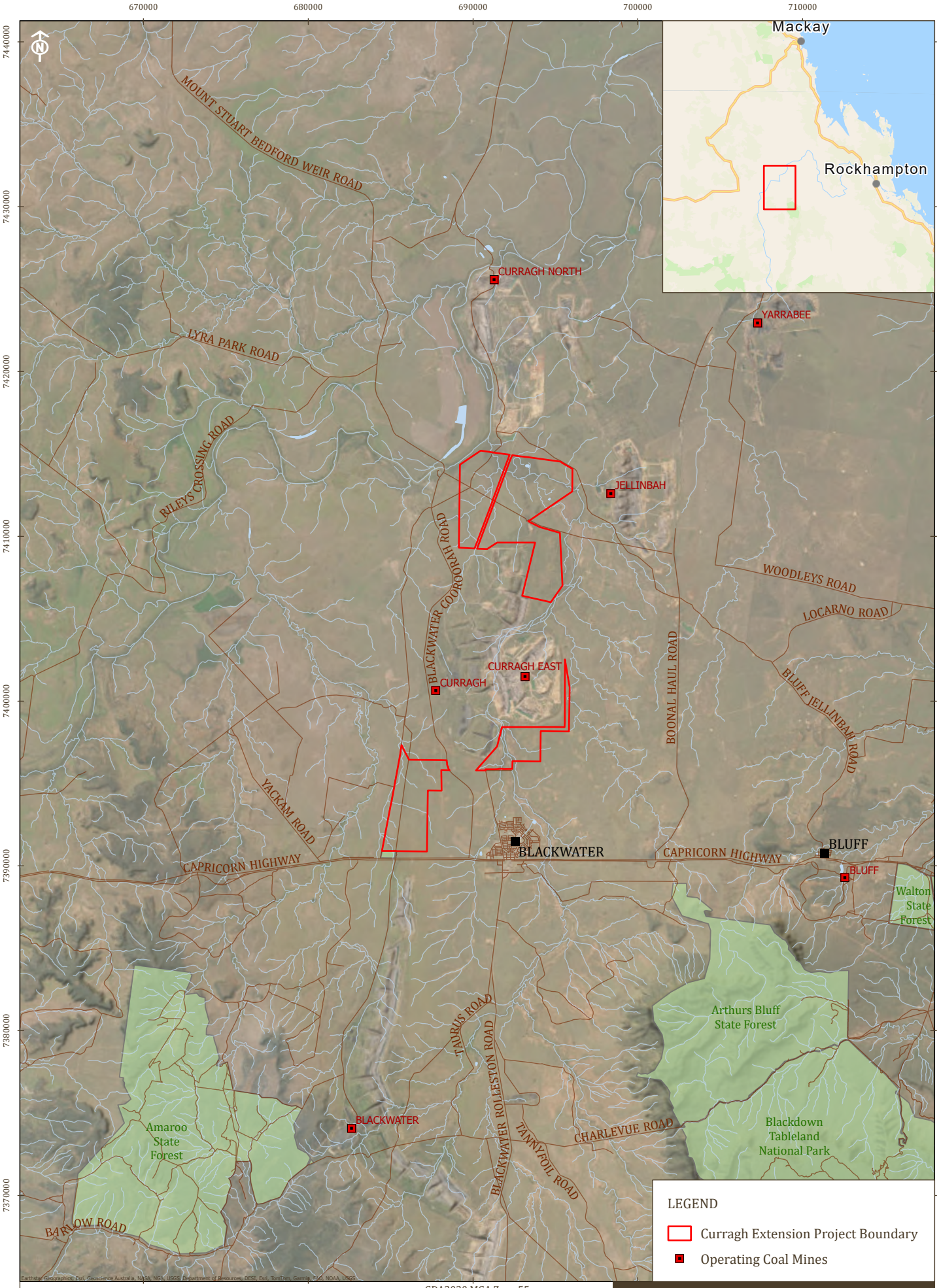
- *The RPI Act and Regulations does not allow the mapping of an Area of Regional Interest (ARI) to be challenged by proponents or third parties. However, through the process of a Regional Impact Development Approval (RIDA) application this will in essence determine if land is SCL or not according to the Assessment Criteria contained in the RPI Guideline. These criteria detailed are generally equivalent to those in the repealed SCL Act.*

1.5. SCL ASSESSMENT CHECKLIST

The RPI Guideline provides a summary of required information. This information is shown in **Table 1** with reference to the sections of this report where the information is presented.

Table 1: SCL Assessment Checklist

Required information	Where provided in this document
Appropriate map unit area	Section 1.2, Figure 3
Appropriate site density per map unit	Section 3, Table 7
Location and identification of each observation site	Section 2.1.4, Figure 6
Location of the map units	Section 3, Figure 7
Extent of mapped SCL which does not meet criteria	Section 4, Figure 9
Certificates of Analysis for all laboratory data	Appendix 2
All soil profile site observations with appropriate information	Appendix 1
GPS coordinates of all site observations	Appendix 1



MINESOILS
LAND & REHABILITATION SPECIALISTS

Proposed Soil Assessment Locations

FIGURE 1

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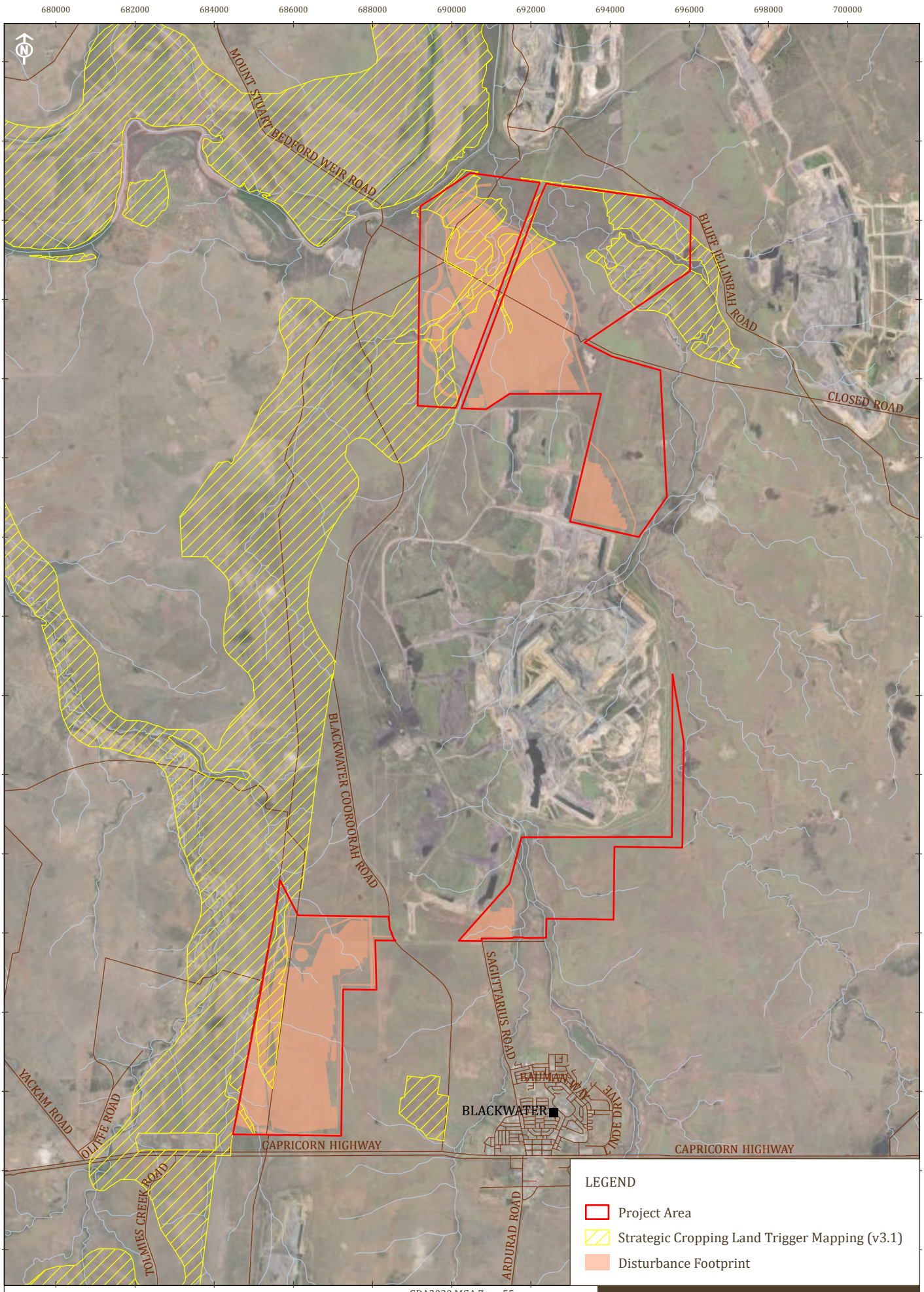

GDA2020 MGA Zone 55

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0 1000 2000 3000 Meters

Project Disturbance Footprint

FIGURE 2

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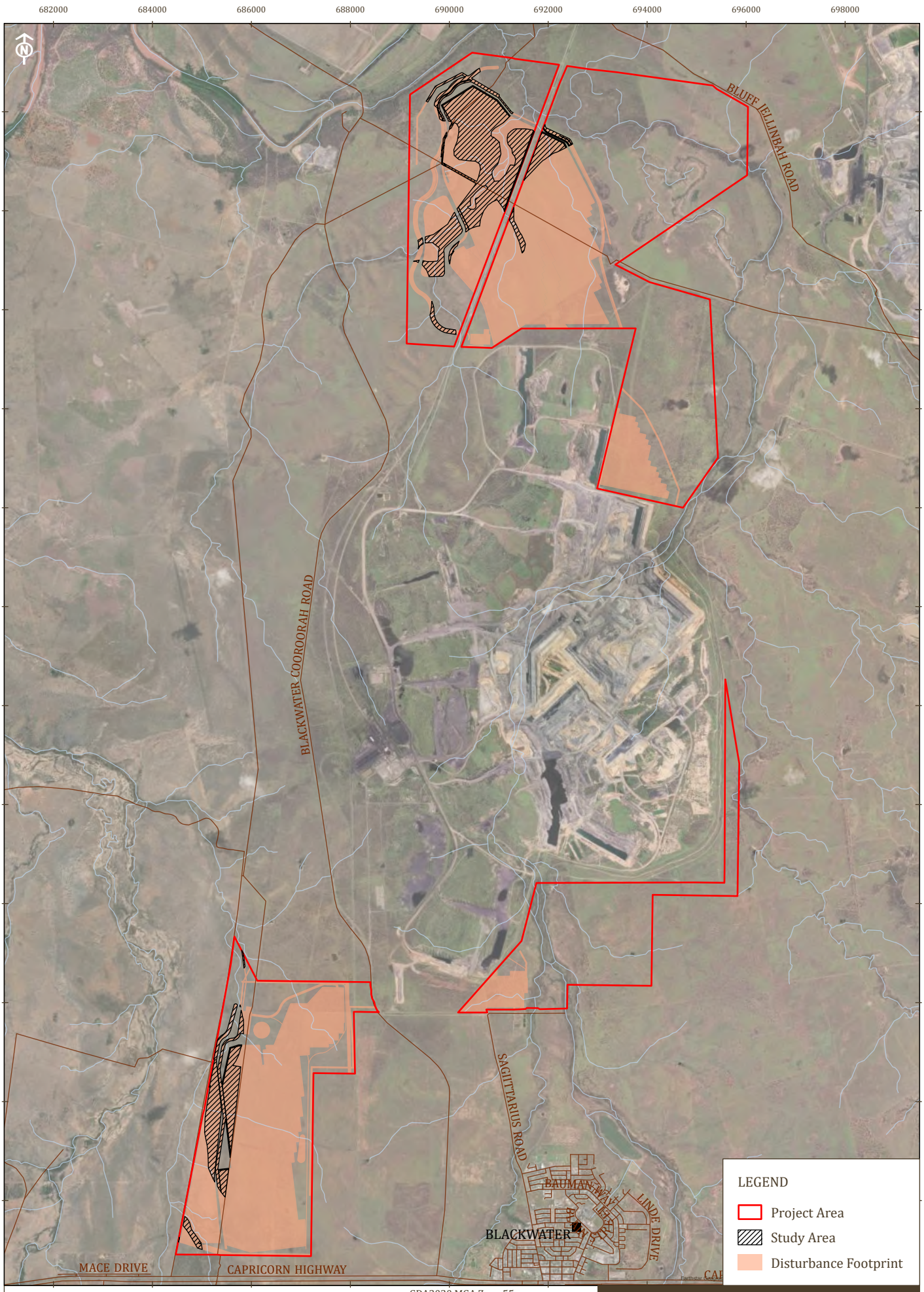

GDA2020 MGA Zone 55

MINESOILS
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0 1000 2000 3000 Meters

Study Area

FIGURE 3

D:\RST002_MineSoils\MS155_Curragh\MS155_Curragh_QLD7855.aprx\MS155_F03_StudyArea 16/09/2024 10:00 PM

2. METHODOLOGY

2.1. SOIL SURVEY METHODOLOGY

2.1.1. DESKTOP STUDIES AND REFERENCE MAPPING

The following resources and techniques were used as an initial examination of the Study Area:

- Satellite imagery and topographic maps;

Satellite imagery and topographic map interpretation was used as a remote sensing technique allowing detailed analysis of the landscape and mapping of features expected to be related to the distribution of soils within the Study Area.

- Reference information;

Source materials, including cadastral data, prior and current physiographic, geological, vegetation, and water resources studies were used to obtain correlations between pattern elements and soil properties that may be observable in the field.

An existing soil report for the area, titled *Lands of the Isaac-Comet Area, Queensland* (Story et al., 1967) shows the Study Area contains three land systems, as described below and shown on **Figure 4**, all of which share common brigalow and cracking clay features:

- Blackwater Land System: Brigalow plains and cracking clay soils on weathered Tertiary clay and older rocks along the central axis of the area.
- Comet Land System: Alluvial plains with brigalow and cracking clay soils, often flooded, along major streams
- Girrah Land system: Lowlands with downs and brigalow and cracking clay soils on unweathered Permian shale and lithic sandstone in the north and centre.

In addition, dominant soil types mapping has been published on the Queensland Globe (State of Queensland, 2024) which indicates the Study Area is dominated by Vertosols with a limited extent of Sodosols (refer **Figure 5**).

2.1.2. FIELD SURVEY

Minesoils undertook a field survey to ground truth the Study Area. The soil survey type was in accordance with the *Guidelines for Surveying Soil and Land Resources* (McKenzie et al., 2008). The field survey undertaken was an integrated free survey which assumes that many land characteristics are interdependent and tend to occur in correlated sets (NSCT, 2008). Survey points were irregularly located according to the survey teams' judgement to enable the delineation of soil and SCL boundaries. Soil and SCL boundaries can be abrupt or gradual, and catena and toposequences are used to aid the description of gradual variation.

2.1.3. SURVEY OBSERVATION TYPES

There are four types of observations that can be used for the SCL Assessment:

- Detailed Sites – Field observation sites that allows for the identification of any physiographic factors or vegetation associations that characterise the site and associated map unit, the major pedological and structural features of the soil that are of relevance to SCL assessment.
- Analysed Sites – Detailed Sites from which soil samples are collected and sent to NATA accredited laboratory for chemical and or physical analyses;

- Exclusion Sites – Observation sites from which land can quickly and easily be determined as meeting or not meeting criteria relating to slope, rockiness or gilgai; and
- Check Sites – Field observation sites that are examined in sufficient detail to allocate the site to a specific soil type and map unit. Commonly referred to as mapping observations.

Soil profile descriptions of all observation sites from the Minesoils 2024 soil survey are included in **Appendix 1**.

Laboratory certificates of analysis for the analysed sites of the Minesoils 2024 soil survey are contained in **Appendix 2**.

2.1.4. SLR ASSESSMENT

In October 2014, SLR assessed a total of 73 soil survey observation sites within the Project Area, of which 11 sites were within the Study Area (SLR, 2015). The full assessment report is presented in **Appendix 3**.

Minesoils has reviewed this information and selected all relevant sites to be incorporated into this assessment.

Two sites referenced within the SLR report and shown to occur within the Study Area have been removed based on insufficient data or undesirable site selection (i.e., placement of site within a drainage line).

A total of 9 remaining sites from the SLR assessment were determined to be relevant to this assessment and are referenced in this report.

2.1.5. FIELD SURVEY OBSERVATION SITES

Desktop site assessment of slope gradients was undertaken using LiDAR, confirming a total of 1 ha of land within the Study Area had slope gradients of greater than 3%. Land with slopes greater than 3% is considered non-SCL in the Western Cropping SCL Zone. While this area is smaller than the minimum 10 ha SCL mapping unit within the Study Area, it is shown to extend outside the Study Area and be contiguous with an area of >3% slope outside of the Study Area.

This area is listed as an SCL Exclusion Zone and not subject to soil survey.

In October 2014, SLR sufficiently assessed 9 sites within the Study Area. An additional 28 sites were assessed as part of a second stage of assessment in August 2024 by Minesoils. The Minesoils observation sites, as well as the relevant SLR soil survey observation sites, are presented in **Figure 6**, noting only observation sites within the Study Area and therefore relevant to this SCL Assessment are presented and discussed within this document.

In accordance with the *RPI Guideline*, validating SCL trigger mapping requires a minimum of one site observation every 50 ha. The number of observation survey sites required is shown in **Table 2.**

Table 2: Required Observation Sites

Study Area	Area (ha)	Survey Scale	Minimum Sites Required
Inclusion Zone subject to field assessment	489	1 site per 50 ha	10
Exclusion zone (>3% slope)	1	N/A	0
Total	490	-	10

Table 3 presents the total number of field survey observation sites by type relevant to the Study Area and this assessment. With a total of 37 sites, the soil surveys undertaken exceed the minimum amount of sites required by the *RPI Guideline* (10, as per Table 2), and result in a survey scale of 1 site per approximately 13 ha.

All observation sites were Detailed Sites or Analysed Sites as per the *RPI Guideline*. There were no SCL Exclusion Sites based on rockiness or gilgai. Further, due to the high density of Detailed Sites or Analysed Sites within the Study Area, no Check Sites were completed.

Table 3: Soil Survey Observations

Soil Survey	Observation Sites				
	Detailed	Analysed	Exclusion	Check	Total
Minesoils (2024)	19	9	0	0	28
SLR (2014)	6	3	0	0	9
Total	25	12	0	0	37

2.1.6. ASSESSMENT OF DETAILED SITES

Soil profiles within the Study Area were assessed in accordance with the Australian Soil and Land Survey Field Handbook soil classification procedures (NCST, 2009). Detailed site soil profiles were accessed via backhoe dug excavation pits for the Minesoils 2024 soil survey, and using a non-rotating hydraulic ram soil corer for the SLR 2014 soil survey. Each profile was assessed to a minimum depth of 1 m.

Following assessment, soil samples were taken for analysis optionality, and the excavated pits/ cores were backfilled after the profile was assessed.

Detailed soil profile descriptions recorded the following information:

- Unique ID Number
- GPS coordinates
- Date
- Landform pattern and element
- Current land use
- Horizon depth including distinctiveness and shape
- Field texture grade
- Field colour (Munsell Colour Chart)
- Pedality structure, grade and consistence
- Stones including abundance and size
- Mottles including amount, size and distinctiveness
- Segregations including abundance, nature, form and size
- Pan presence and form
- Roots including amount and size
- Permeability and drainage
- Field pH

The soil taxonomic classification system utilised to classify each Detailed Site was the Australian Soil Classification System, Third Edition (Isbell, 2021).

2.1.7.ASSESSMENT OF ANALYSED SITES

Soil was collected at 10 cm increments throughout the profile. Samples representative of soil horizons were also collected at depths representative of each respective horizon. A total of 12 survey sites were considered

representative and subject to laboratory analysis (as per **Table 3**). The laboratory testing suites for the analysed sites is provided in **Table 4**.

Laboratory certificates of analysis for the Minesoils 2024 soil survey are contained in **Appendix 2**. Laboratory certificates of analysis for relevant SLR 2014 survey are contained in **Appendix 3**.

Table 4: Detailed Site Assessment Parameters

Laboratory Suite	Sampling Frequency	Laboratory Analysis
Basic Suite	Every 10cm	pH (1:5 water & CaCl)
		Electrical Conductivity (EC) and Chloride
Major Suite	Every major soil horizon	Exchangeable Cations
		Cation Exchange Capacity (CEC) & ESP and Ca:Mg Ratio
		Particle Size Analysis (PSA)
		Munsell Colour

2.2. SCL ASSESSMENT METHODOLOGY

In accordance with the RPI Guideline, the SCL criteria assessment relevant for the Western Cropping Zone, within which the Study Area lies, is shown in **Table 5**.

Table 5: Detailed Site Assessment Parameters

Criteria		Description
1	Slope	Slope is less than or equal to 3%
2	Rockiness	The average density of rocks of greater than 60 mm diameter in the soil surface is less than or equal to 20%
3	Gilgai microrelief	The average density of gilgai microrelief of greater than 500 mm depth is less than 50 per cent of the land surface
4	Soil depth	The soil depth is greater than or equal to 600 mm
5	Soil wetness	The site has favourable drainage
6	Soil pH	For non-rigid soils, the soil at 300 mm and 600 mm soil depth must be greater that pH 5.0.
		For rigid soils, the soil at 300 mm and 600 mm soil depth must be greater that pH 5.1 to pH 8.9 inclusive.
7	Salinity	Chloride < 800 mg/kg within 600 mm of the soil surface
8	Soil water storage (SWS)	≥100 mm to a soil depth or soil physio-chemical limitation of ≤ 1000 mm

Criterion 8 of the SCL guideline, soil water storage (SWS), is expressed as mm of water over a specified depth of soil. Soil depth is calculated according to its effective rooting depth (ERD) or to a maximum depth of 1,000 mm. **Table 6** shows the ERD thresholds for the Western Cropping Zone in accordance with the *RPI Guideline*.

Table 6: Effective Rooting Depth Criteria for Western Cropping Zone

Descriptor		ERD occurs where:
Chloride Levels	Cl 1:5	>800 mg/kg
Sodicity	Exchangeable sodium percentage (ESP)	>15%
Cation	Exchange Balance	≤ 0.1 Ca:Mg ratio
pH	Rigid soils	<5.0 and >9.0
	Non-rigid soils	<5.0
Bedrock	Depth to bedrock	Depth to C horizons

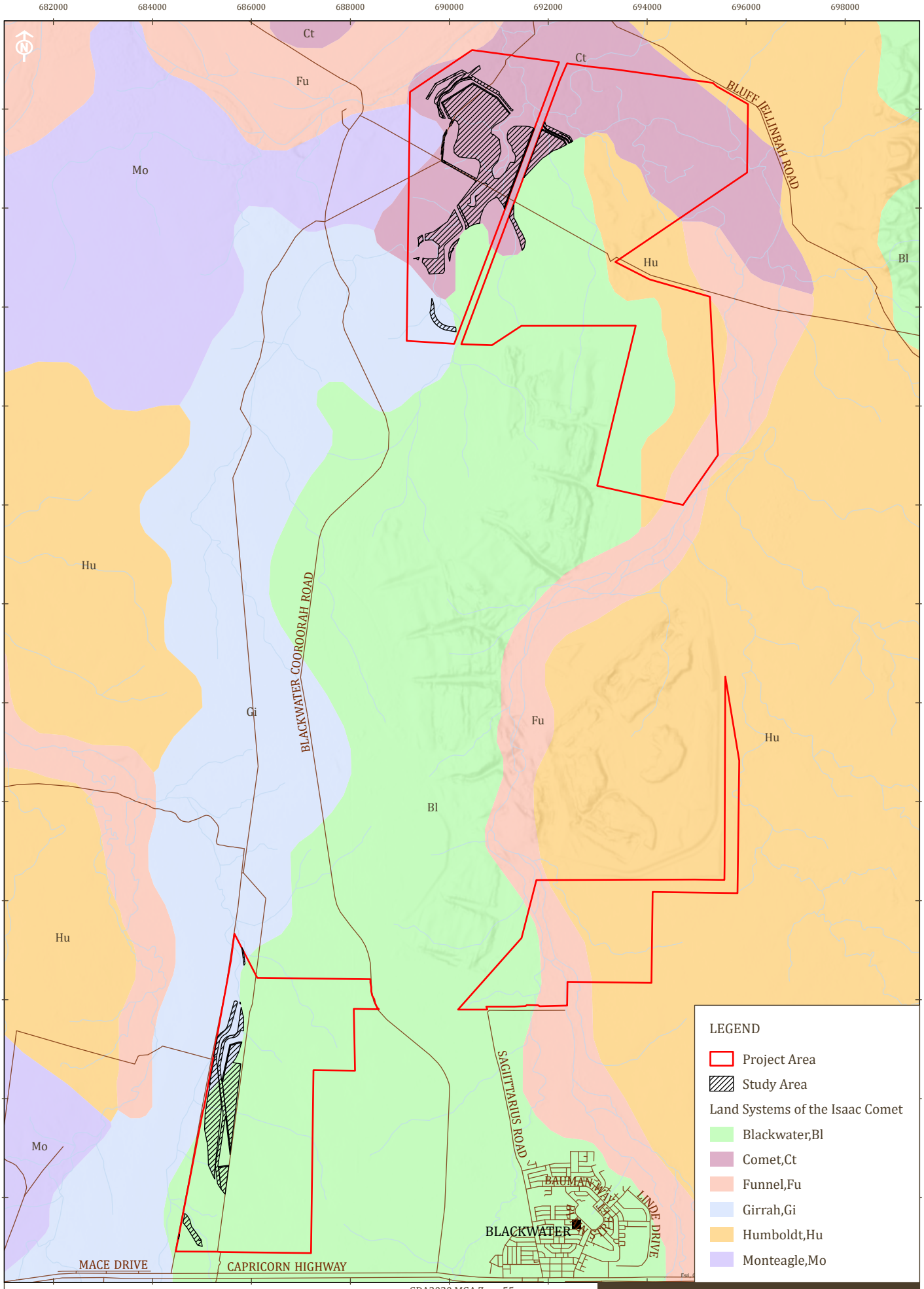
For this assessment, SWS of the soil profile was calculated using the soil texture lookup table method in accordance with the *RPI Guideline*. For analysed sites, soil textures are determined for each soil horizon via laboratory PSA and SWS value for each layer is applied as per the following look up table.

Table 6: Effective Rooting Depth Criteria for Western Cropping Zone

Soil Texture	Soil Water Storage
Sand; clayey sand; loamy sand	4 mm / 100 mm
Sandy loam	5 mm / 100 mm
Loam; silty loam; sandy clay loam	6 mm / 100 mm
Clay loam; clay loam, sandy; silty clay loam	8 mm / 100 mm
Silty clay; clays with <45% clay fraction	10 mm / 100 mm
Clays with >45% clay fraction	12 mm / 100 mm

Where the SWS estimate for a soil profile is within 15% of the criterion 8 threshold, a more robust estimate of SWS is required to be calculated using the PAWCER Pedotransfer method including laboratory analysed gravimetric water content at 1.5 MPa, as per the RPI Guideline.

Within this assessment, only one site failed solely on SWS and was within 15% of the threshold (Site 10B with 96mm/ 1000mm). However, as the site was within a gilgai depression adjacent to a gilgai 'flat' site (10A) which failed to meet the SCL criteria on both salinity and SWS and represented 80% of the overall area, further laboratory analysis using the PAWCER Pedotransfer method was considered unnecessary.



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Regional Land Systems

FIGURE 4

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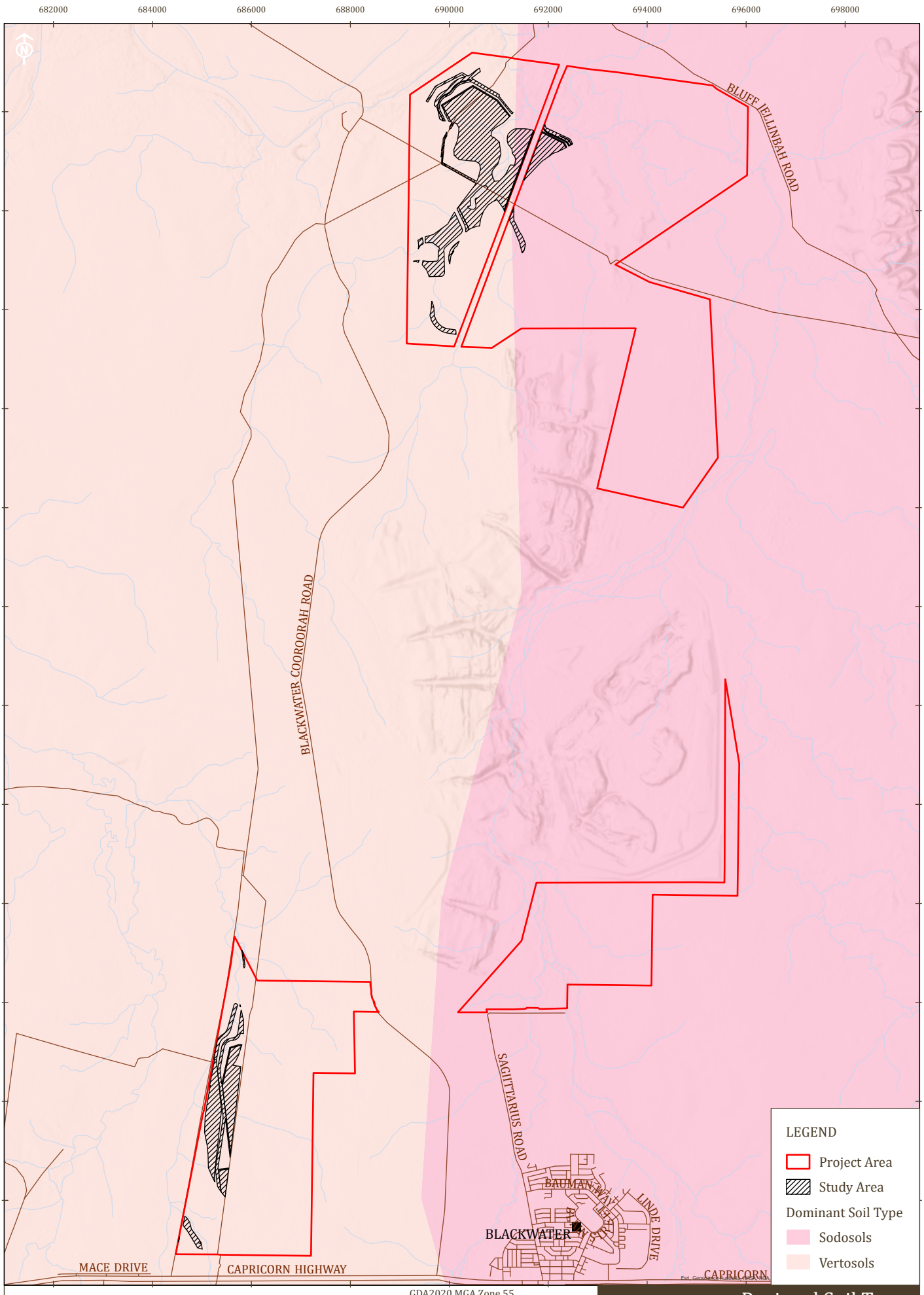

GDA2020 MGA Zone 55

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0 1000 2000 3000 Meters

Regional Soil Types

FIGURE 5

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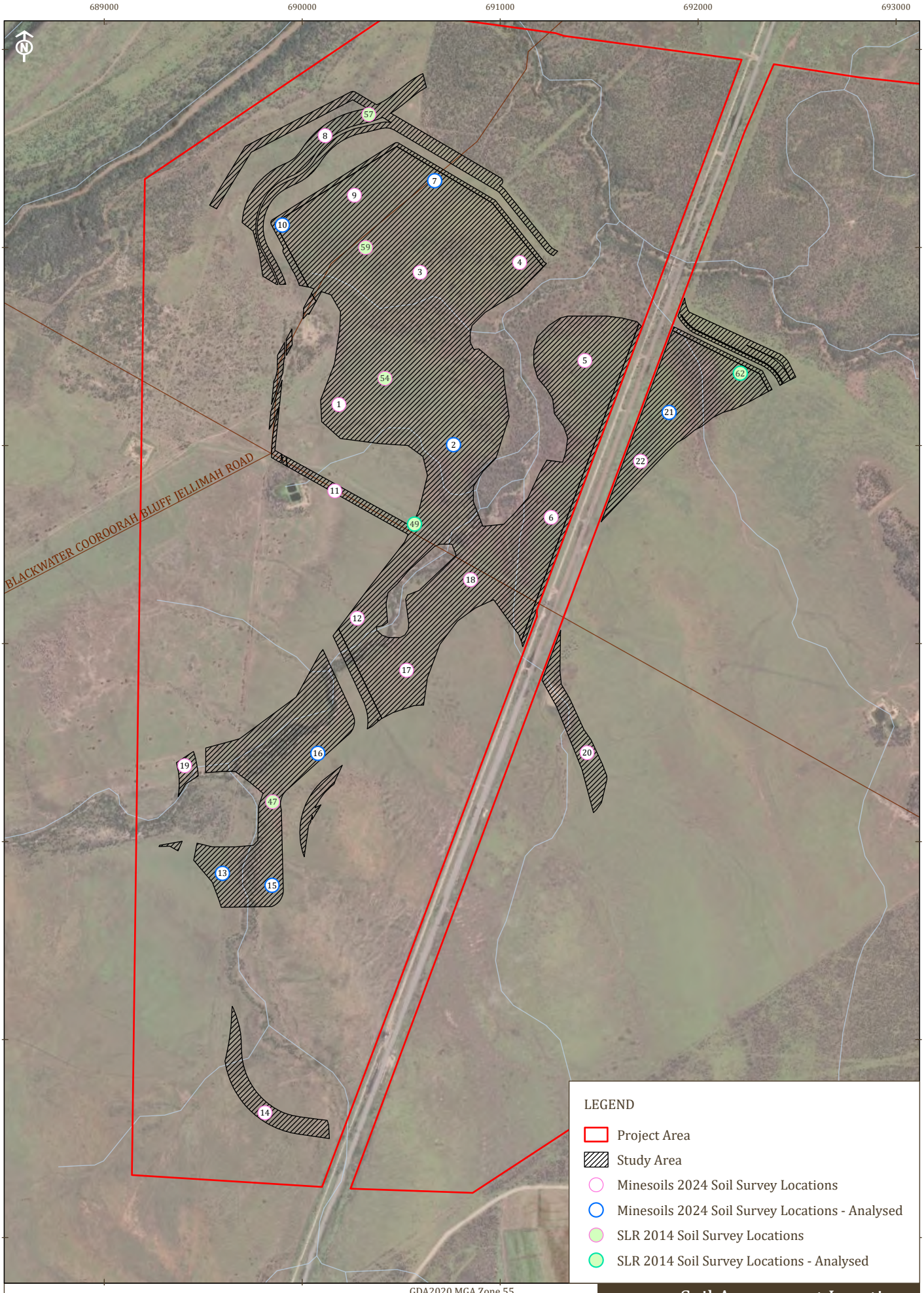

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Soil Assessment Locations

FIGURE 6a

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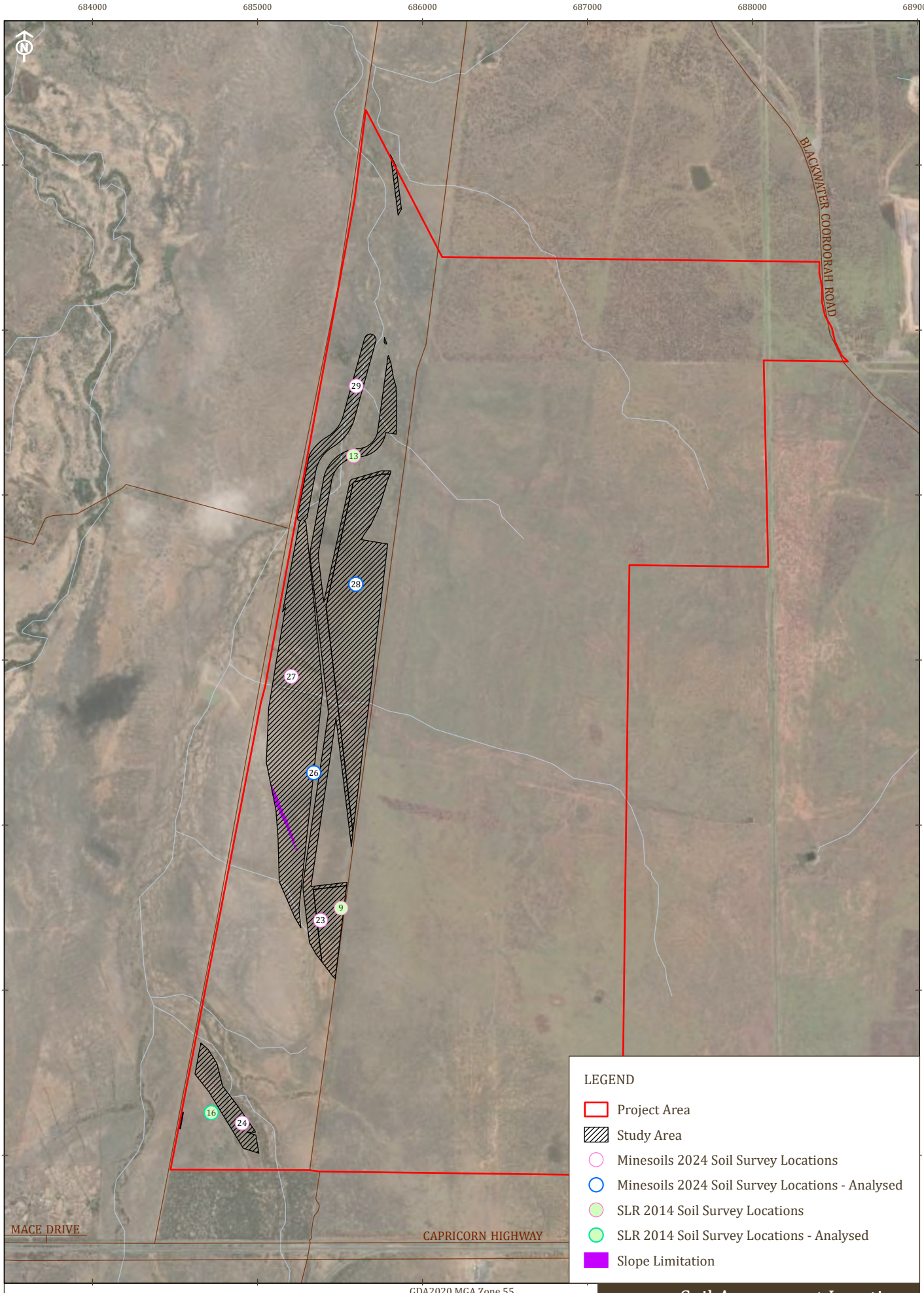

GDA2020 MGA Zone 55

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0 200 400 600 Meters

Soil Assessment Locations

FIGURE 6b

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3. SOIL SURVEY RESULTS

Within the Study Area, one soil mapping unit (Soil Map Unit 1) was identified (refer **Figure 7**). This Soil Map Unit is described as Endohypersodic Self-mulching Black and Brown Vertosols.

Vertosols are defined as soils with the following:

1. A clay field texture or 35% or more clay throughout the solum except for thin, surface crusty horizons 30 mm or less thick and
2. When dry, open cracks occur at some time in most years. These are at least 5 mm wide and extend upward to the surface or to the base of any plough layer, peaty horizon, self-mulching horizon, or thin, surface crusty horizon; and
3. Slickensides and/or lenticular peds occur at some depth in the solum.

This soil unit has generally uniform, well-structured clay profiles that contain slickensides and surface cracking. This soil unit is alkaline throughout the profile and exhibits increasing concentrations of chloride with depth, consistently reaching extreme soil salinity levels. The profiles are generally non-sodic in the topsoil trending to strongly sodic in the subsoil. This soil unit is deep, and moderately well to imperfectly drained, with sporadic minor occurrence of mostly faint mottling and coarse fragment presence.

In accordance with the *RPI Guideline*, a Soil Map Unit may consist of one or more soil types, but will typically only contain a single dominant soil type. Therefore, in a Soil Map Unit there may contain a dominant soil type and a subdominant and/or soil variant that are part of the soil landscape continuum but do not represent the major soil type present. The sub-dominant and/or variant typically occur when the soil type is too small to map as a Soil Map Unit or their presence is minor and part of the typical soil variance expected in a landscape.

Soil Map Unit 1 contains a single soil type – Vertosols. However, in addition to the Endohypersodic Self-mulching Black and Brown Vertosols, Soil Unit 1 contains a sub-dominant presence of Endohypersodic Self-mulching Black and Brown Vertosols in which the major part of the solum below 0.5m is calcareous. These are classed as endocalcareous.

Further, there is a minor presence of Endohypersodic Self-mulching Vertosols in which the dominant colour class in the major part of the upper 0.5 m of the solum is Grey, rendering them Grey Vertosols within a unit of otherwise Black and Brown Vertosols.

All profiles assessed within the Study Area were generally very similar in the context of SCL assessment characteristics. Due to the presence of the sub-dominant soil characteristics (such as calcareous subsoils and a grey dominant colour class) being intermixed with the Endohypersodic Self-mulching Black and Brown Vertosols there are no distinguishing features of spatial distribution which could inform boundary mapping of more than the one soil mapping unit presented. That is, variations are subtle and sporadic, and have therefore been aggregated with the dominant soil characteristics in accordance with the *RPI Guideline*.

Likewise, the Brown and Black Vertosols within the Study Area are too similar and spatially intermixed to delineate accurate boundaries between them. As noted in the *RPI Guideline*, unsubstantiated polygon boundaries are effectively nothing more than an arbitrary line on a map.

A summary of the required versus actual number of survey sites within the Soil Map Unit is presented in **Table 7**. A full summary of soil types within the Study Area is provided in **Table 8**.

Table 7: Representative Soil types within Soil Unit

Soil Map Unit	Inclusion Zone Area (ha)	Site Type	Sites required per RPR Guideline	No. of Sites
1	489	Analysed	3	12
		Detailed	3	25
		Check	2	0*
Total			8	37
Site Density			1 site/50 ha	1 site/ 13 ha

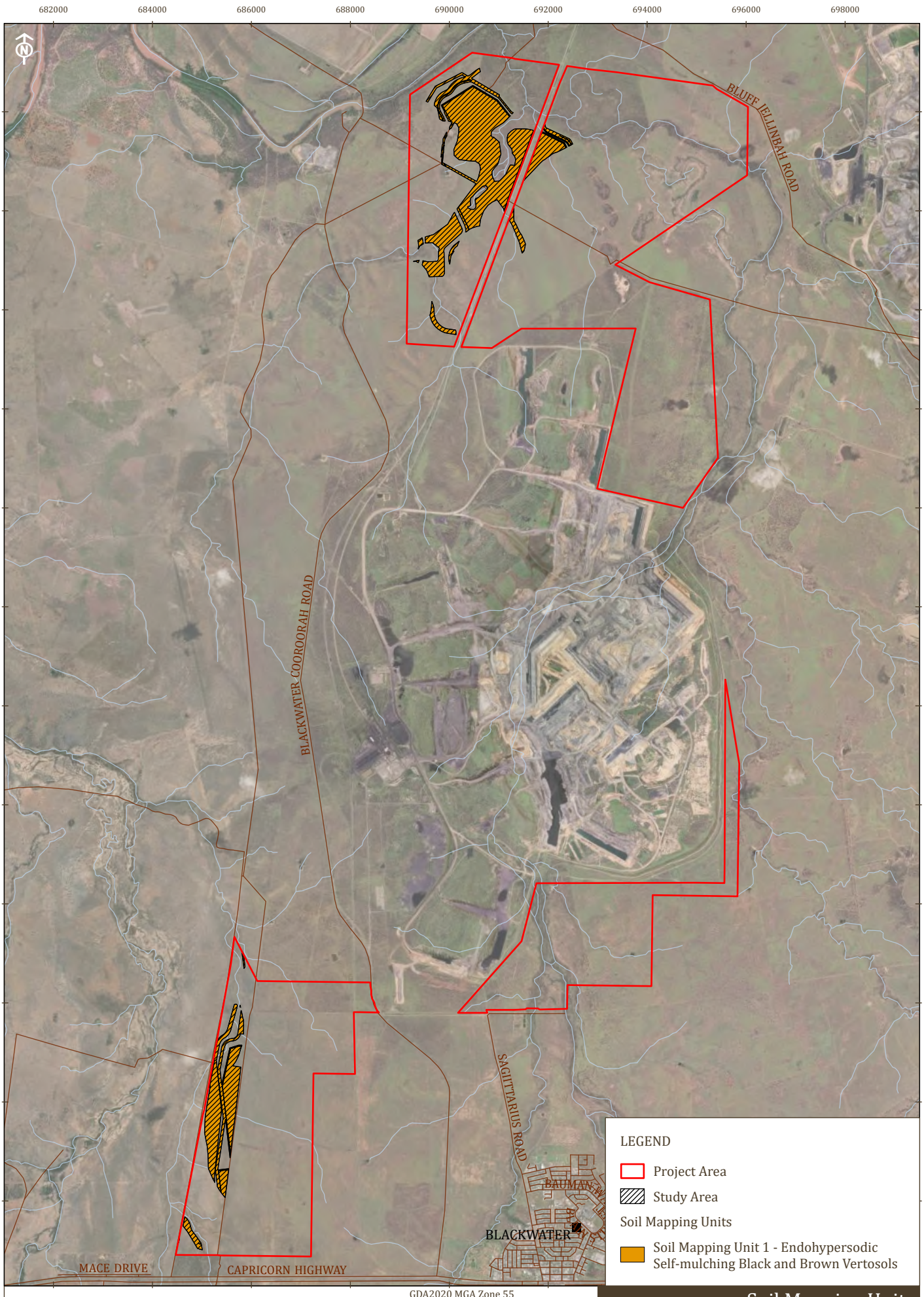
* Check sites have been directly substituted for additional detailed sites.

Table 8: Soil Types Summary

Site #	Survey	Site Type	Soil Profile - Australian Soil Classification	ASC Family Criteria
1	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
2	**Minesoils, 2024**	**Analysed**	**Endohypersodic Self-mulching Black Vertosol**	**ESSX**
3	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
4a	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
4b	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
5a	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
5b	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
6	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
7	**Minesoils, 2024**	**Analysed**	**Episodic-Endocalcareous Self-mulching Black Vertosol**	**FSSX**
8	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
9	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
10a	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Black Vertosol**	**FQRX**
10b	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Grey Vertosol**	**EQQX**
11	Minesoils, 2024	Detailed	Self-mulching Grey Vertosol	-
12	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-

Site #	Survey	Site Type	Soil Profile - Australian Soil Classification	ASC Family Criteria
13a	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Brown Vertosol**	**ERRX**
13b	**Minesoils, 2024**	**Analysed**	**Endohypersodic Self-mulching Black Vertosol**	**ERRX**
14	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
15	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Black Vertosol**	**FRSX**
16	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Black Vertosol**	**GRSX**
17	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
18	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
19	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
20a	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
20b	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
21	**Minesoils, 2024**	**Analysed**	**Endohypersodic Self-mulching Grey Vertosol**	**ESSX**
22a	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
22b	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
23a	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
23b	Minesoils, 2024	Detailed	Self-mulching Black Vertosol	-
24	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
26a	**Minesoils, 2024**	**Analysed**	**Endocalcareous-Endohypersodic Self-mulching Brown Vertosol**	**FRRX**
26b	**Minesoils, 2024**	**Analysed**	**Endohypersodic Self-mulching Brown Vertosol**	**FRRX**
27	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
28	**Minesoils, 2024**	**Analysed**	**Endohypersodic Self-mulching Black Vertosol**	**FRSX**
29a	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
29b	Minesoils, 2024	Detailed	Self-mulching Brown Vertosol	-
SLR 47	SLR, 2014	Detailed	Self-mulching Brown Vertosol	-
SLR 49	**SLR, 2014**	**Analysed**	**Self-mulching Brown Vertosol**	**-**

Site #	Survey	Site Type	Soil Profile - Australian Soil Classification	ASC Family Criteria
SLR 54	SLR, 2014	Detailed	Self-mulching Brown Vertosol	-
SLR 57	SLR, 2014	Detailed	Self-mulching Brown Vertosol	-
SLR 59	SLR, 2014	Detailed	Self-mulching Brown Vertosol	-
SLR 62	**SLR, 2014**	**Analysed**	**Self-mulching Brown Vertosol**	**-**



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Soil Mapping Units

FIGURE 7

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4. STRATEGIC CROPPING LAND ASSESSMENT

The assessment of the detailed and analysed sites within Soil Map Unit 1 against the SCL criteria is presented in **Table 9.** Soil physical and chemical characteristics relating to the SCL criteria are presented in **Appendix 1**.

An area of 1 ha of the Study Area was determined to be non-SCL and excluded from the soil survey based on having >3% slope. Within the remaining soil survey inclusion area of 489 ha, the majority of representative analysed sites exhibited SCL constraints for Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and/or Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm) (**Figure 8**).

All failed to meet the SCL criteria with the exception of one site (SLR 62), a Self-Mulching Brown Vertosol considered a limited, sub-dominant occurrence within Soil Unit 1 which displays subtly different chemical characteristics to the Soil Unit it is mapped within.

Based on the evidence provided which highlights that the majority of analysed sites representative of Soil Unit 1 fail to meet the SCL criteria, Soil Map Unit 1 has been assessed as being 'non-SCL' (refer **Figure 9**).

Table 9: SCL Assessment Summary

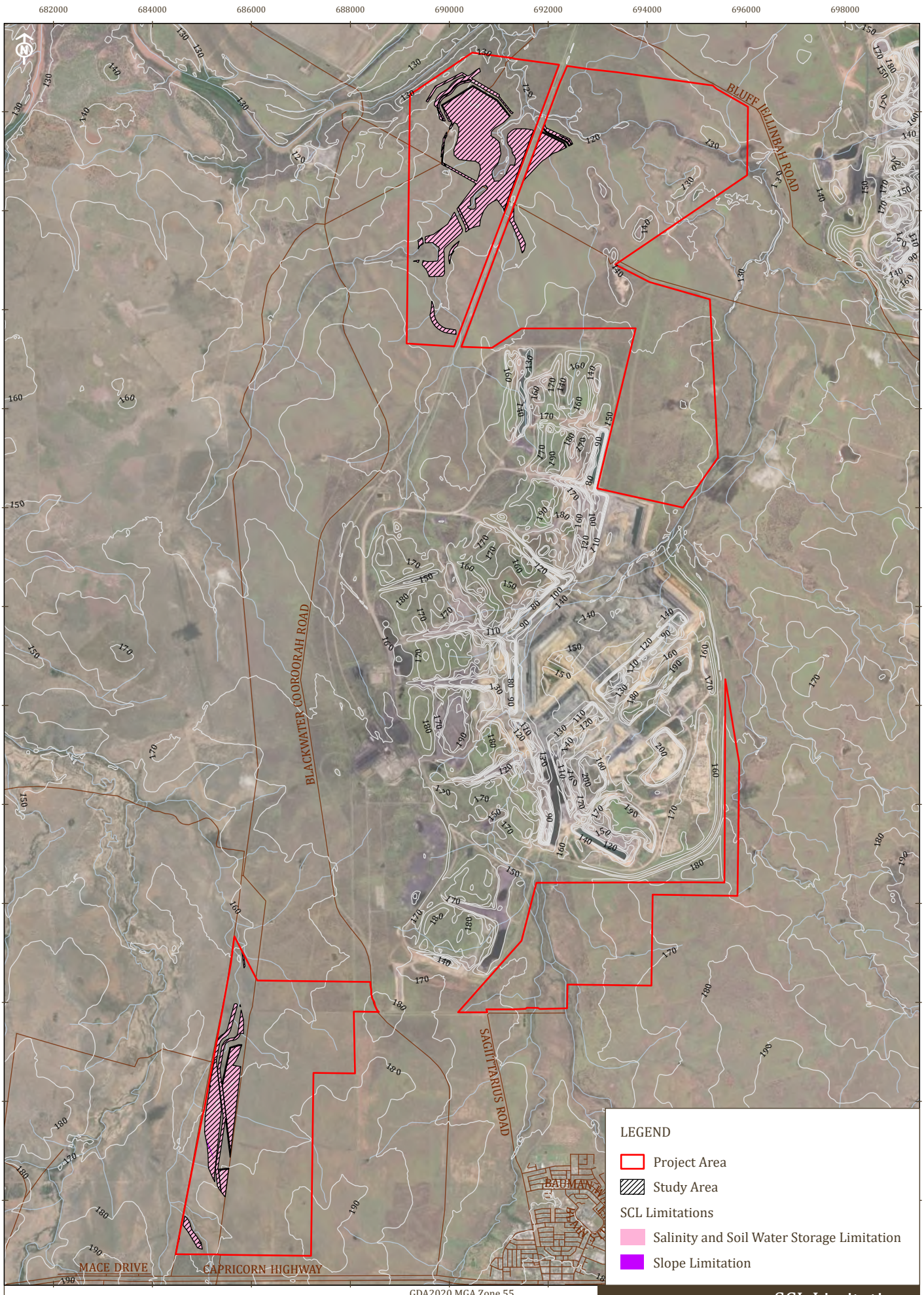
Soil Map Unit	Site #	Site Type	1. Slope	2. Rockiness	3. Gilgai	4. Soil Depth	5. Soil Wetness	6. pH	7. Salinity	8. SWS	Does the Soil Map Unit meet BSAL Criteria?
1: Endohypersodic Self-mulching Black and Brown Vertosols	1	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	✗
	2	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	3	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	4a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	4b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	5a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	5b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	6	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	7	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	8	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	9	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	10a	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	10b	Analysed	✓	✓	✓	✓	✓	✓	✓	✗*	
	11	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	12	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	13a	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	13b	Analysed	✓	✓	✓	✓	✓	✓	✓	✗	
	14	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	15	Analysed	✓	✓	✓	✓	✓	✓	✓	✗	
	16	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	

Soil Map Unit	Site #	Site Type	1. Slope	2. Rockiness	3. Gilgai	4. Soil Depth	5. Soil Wetness	6. pH	7. Salinity	8. SWS	Does the Soil Map Unit meet BSAL Criteria?
1: Endohypersodic Self-mulching Black and Brown Vertosols	17	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	✗
	18	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	19	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	20a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	20b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	21	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	22a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	22b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	23a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	23b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	24	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	26a	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	26b	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	
	27	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	28	Analysed	✓	✓	✓	✓	✓	✓	✓	✗	
	29a	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	29b	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 9	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 13	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 16	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 47	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	

Minesoils

Soil Map Unit	Site #	Site Type	1. Slope	2. Rockiness	3. Gilgai	4. Soil Depth	5. Soil Wetness	6. pH	7. Salinity	8. SWS	Does the Soil Map Unit meet BSAL Criteria?
1: Endohypersodic Self-mulching Black and Brown Vertosols	SLR 49	Analysed	✓	✓	✓	✓	✓	✓	✗	✗	✗
	SLR 54	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 57	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 59	Detailed	✓	✓	✓	✓	✓	N/A	N/A	N/A	
	SLR 62	Analysed	✓	✓	✓	✓	✓	✓	✓	✓	

*Site 10B failed solely on SWS but was within 15% of the threshold (96mm/ 1000mm). However, as the site was within a gilgai depression adjacent to a gilgai 'flat' site (10A) which failed to meet the SCL criteria on both salinity and SWS and represented 80% of the overall area, further laboratory analysis using the PAWCER Pedotransfer method was considered unnecessary.



GDA2020 MGA Zone 55

MINESOILS
LAND & REHABILITATION SPECIALISTS

0 1000 2000 3000 Meters

SCL Limitations

FIGURE 8

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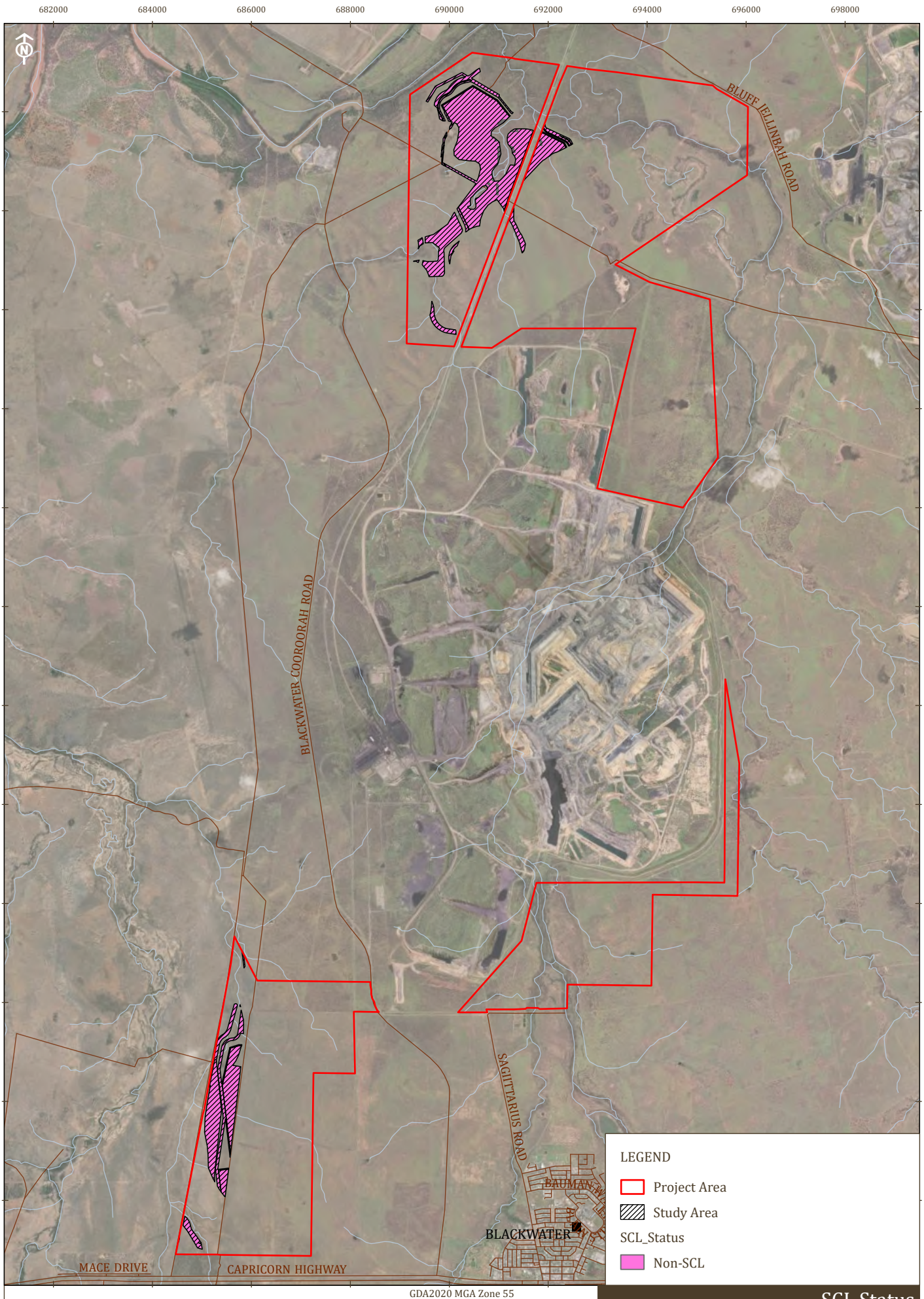

GDA2020 MGA Zone 55

MINESOILS
LAND & REHABILITATION SPECIALISTS

0 1000 2000 3000 Meters

SCL Status

FIGURE 8

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5. CONCLUSION

Minesoils was commissioned by SLR on behalf of Coronado on behalf of Curragh to undertake a SCL Assessment for the Curragh Mine Extension Project. The purpose of this document is to provide sufficient evidence that demonstrates that the land mapped as SCL on the SCL trigger map which overlies the Project disturbance footprint is or is not SCL.

The key factors of this SCL Assessment are summarised below:

- The Study Area is defined as the 490 ha area where the Project disturbance footprint overlaps Trigger Mapped SCL.
- A total of 41 survey field observations have been completed within the Study Area, 12 of which are analysed sites, exceeding the required survey density.
- Within the Study Area, one soil mapping unit was identified and is described as Soil Map Unit 1: Endohypersodic Self-mulching Black and Brown Vertosols. All soil profiles assessed were determined to be Vertosols, however, subtle variations within this unit occur, and have been aggregated with the dominant soil characteristics in accordance with the *RPI Guideline*.
- The majority of representative analysed SCL sites within Soil Map Unit 1 failed Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and/or Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm.

The land within the Study Area is therefore assessed as being 'non-SCL'.

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Appendix 1
Minesoils 2024 Soil Survey
Soil Profile Descriptions

MS1 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690186
Surface Rock	5%, 5 - 30mm	**Microrelief**	Nil	Y: 7413207

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 10YR 3/1) Heavy Clay with a strong pedality grade of 5 – 20mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 – 30mm. Abundant course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.60**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. 2 – 5% coarse fragments 5 – 30mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 1.00**	Dark greyish brown (Munsell 10 YR 4/2) Heavy Clay with a moderate pedality grade of 30 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. 2% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Well drained.

MS2 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Endohypersodic Self-mulching Black Vertosol (ESSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690764
Surface Rock	Nil	**Microrelief**	Nil	Y: 7413004

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 2 – 5mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Very dark grayish brown (Munsell 10YR 3/2) Silty Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 0.80**	Black (Munsell 10YR 2/1) Heavy Clay with a moderate pedality grade of 30 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. Well drained.
B23	**0.80 – 1.10**	Dark Yellowish-brown (Munsell 10YR 3/4) Heavy Clay with a moderate pedality grade of 30 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. Well drained.

MS2 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.8	73	0.2	52	5	2.6	HC	12
	10 – 20	8.9	31	0.2					12
B21	20 – 30	9.0	111	0.3	55	7	2.2	SC	12
	30 – 40	9.0	307	0.4					12
	40 – 50	8.9	665	0.6					12
B22	50 – 60	8.8	**1,231**	1.2	59	19	1.6	HC	-
	60 – 70	8.7	**1,467**	1.5					-
	70 – 80	8.7	**1,488**	1.5					-
B23	80 – 90	8.7	**1,456**	1.6	60	22	1.5		-
	90 – 100	8.6	**1,941**	1.9					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	60mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS3 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690595
Surface Rock	Nil	**Microrelief**	Nil	Y: 7413874

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.30**	Very dark grey (Munsell 7.5YR 3/1) Heavy Clay with a strong pedality grade of 10 – 50mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.30 – 0.60**	Very dark grey (Munsell 7.5YR 3/1) Medium Clay with a strong pedality grade of 50 – 100 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 0.90**	Very dark greyish brown (Munsell 10YR 3/2) Heavy Clay with a moderate pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Very few course roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Well drained.
B22	**0.90 – 1.00**	Dark greyish brown (Munsell 10YR 4/2) Medium Clay with a moderate pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Very few course roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Well drained.

MS4a – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691099
Surface Rock	5%, 5 - 10mm	**Microrelief**	10% presence, 400mm depth	Y: 7413924

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark grey (Munsell 7.5YR 3/1) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.70**	Very dark brown (Munsell 7.5YR 2.5/2) Heavy Clay with a strong pedality grade of 20 – 100 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.70 – 1.00**	Very dark brown (Munsell 7.5YR 2.5/2) Heavy Clay with a moderate pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Very few course roots. Nil mottling. Nil pan presence. Nil course fragments. Well drained.

MS4b – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691099
Surface Rock	5%, 5 - 10mm	**Microrelief**	10% presence, 400mm depth	Y: 7413924

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.25**	Very dark grayish brown (Munsell 10YR 3/2) Medium Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.23 – 0.70**	Very dark grayish brown (Munsell 10YR 3/2) Medium Clay with a strong pedality grade of 30 – 100 mm platy peds, moderately moist with strong consistence. 5% coarse fragments - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.70 – 1.00**	Dark olive brown (Munsell 2.5Y 3/3) Medium Clay with a weak pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. 5% faint light grey (Munsell 10YR 7/1) mottling. Nil course fragments. Nil pan presence. Moderately well drained.

MS5a – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691428
Surface Rock	5%, 2 - 10mm	**Microrelief**	10% presence, 30mm depth	Y: 7413429

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 7.5YR 3/4) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 2 - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Brown (Munsell 10YR 5/3) Heavy Clay with a strong pedality grade of >100 mm + prismatic peds, moderately moist with strong consistence. 5% coarse fragments - 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 1.00**	Brown (Munsell 10YR 4/3) Heavy Clay with a moderate pedality grade of > 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. Nil course fragments. Well drained.

MS5b – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691428
Surface Rock	Nil	**Microrelief**	10% presence, 30mm depth	Y: 7413429

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Dark grey (Munsell 7.5YR 4/1) Light Clay with a strong pedality grade of 5 – 20mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments . Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.15 – 0.60**	Brown (Munsell 7.5YR 5/3) Heavy Clay with a strong pedality grade of 20 – 100 mm sub subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 0.90**	Brown (Munsell 10YR 4/3) Heavy Clay with a moderate pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. Nil course fragments. Well drained.
B22	**0.90 – 1.00**	Dark Yellowish-brown (Munsell 10YR 3/4) with a moderate pedality grade of 20 - 50mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. Nil course fragments. Well drained.

MS6 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691258
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7412637

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 10YR 3/3) Heavy Clay with a strong pedality grade of 10 – 20mm polyhedral peds, dry with weak consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.20– 0.60**	Brown (Munsell 7.5YR 5/3) Heavy Clay with a strong pedality grade of 50 – >100 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 +**	Brown (Munsell 7.5YR 4/4) Heavy Clay with a moderate pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace fine roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Well drained.

MS7 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Episodic-Endocalcareous Self-mulching Black Vertosol (FSSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690669
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7414337

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 10 – 50mm polyhedral peds, dry with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20– 0.60**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 50 – 80 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. 2% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.60 – 0.90**	Brown (Munsell 10YR 4/3) Light-medium Clay with a moderate pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Well drained. Gradual boundary
B23	**0.90 – 1.00**	Dark Yellowish-brown (Munsell 10YR 4/4) Clay Loam with a moderate pedality grade of 50 – 100mm subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 5 - 10% calcium carbonate concretions 2 – 5mm. Well drained.

MS7 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	9.1	68	0.2	45	7	2.1	HC	12
	10 – 20	8.8	66	0.2					12
B21	20 – 30	9.0	303	0.4	46	13	1.8	HC	12
	30 – 40	9.0	619	0.6					12
	40 – 50	9.0	708	0.7					12
	50 – 60	8.8	**878**	1.0					-
B22	60 – 70	8.8	**870**	1.0	46	15	1.8	LMC	-
	70 – 80	8.8	**827**	1.0					-
	80 – 90	8.8	723	0.9					-
B23	90 – 100	8.8	**942**	0.9	35	17	1.4	CL	-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	60mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS8 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690116
Surface Rock	Nil	**Microrelief**	Nil	Y: 7414565

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Very dark grey (Munsell 7.5YR 3/1) Heavy Clay with a strong pedality grade of 10 – 50mm polyhedral peds, dry with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.15 – 0.60**	Black (Munsell 7.5YR 2.5/1) Heavy Clay with a strong pedality grade of 30 – 50 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common fine roots. Nil mottling. Nil pan presence. Well drained. 2% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.60 – 1.00**	Dark grey (Munsell 7.5YR 4/1) Heavy Clay with a moderate pedality grade of 30 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Well drained.

MS9 – Site and Profile Description				
Date	06.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690264
Surface Rock	Nil	**Microrelief**	Nil	Y: 7414264

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark grey (Munsell 7.5YR 3/1) Heavy Clay with a strong pedality grade of 10 – 30mm polyhedral peds, dry with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Very dark grey (Munsell 10YR 3/1) Heavy Clay with a strong pedality grade of 30 – 100 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common fine roots. Nil mottling. Nil pan presence. Well drained. 2% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.50 – 1.00**	Brown (Munsell 10YR 4/3) Heavy Clay with a moderate pedality grade of 30 – 100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Well drained.

MS10a – Site and Profile Description				
Date	06.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Black Vertosol (FQRX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 689900
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7414113

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Black (Munsell 10YR 2/1) Light-medium Clay with a strong pedality grade of 10 – 50mm polyhedral peds, dry with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Very dark brown (Munsell 10YR 2/2) Medium Clay with a strong pedality grade of 20 – 100 mm prismatic peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. 2% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.50 – 1.00**	Dark brown to Dark Yellowish-brown (Munsell 10YR 3/3 to 10YR 4/4) Light Clay with a moderate pedality grade of 50 – >100mm prismatic peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Well drained.

MS10a – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.3	42	0.1	34	3	2.0	LMC	10
	10 – 20	9.0	44	0.2					10
B21	20 – 30	9.3	126	0.3	43	10	1.7	MC	12
	30 – 40	9.3	224	0.4					12
	40 – 50	9.2	387	0.7					12
B22	50 – 60	9.0	**1,181**	1.0	46	15	2.1	LC	-
	60 – 70	8.4	**1,116**	2.6					-
	70 – 80	8.5	**1,541**	2.3					-
	80 – 90	8.7	**1,670**	1.6	43	19	1.6		-
	90 – 100	8.9	**1,452**	1.4					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	56mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS10b – Site and Profile Description				
Date	06.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Grey Vertosol (EQQX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Imperfect	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 689900
Surface Rock	Nil	**Microrelief**	Nil	Y: 7414113

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark gray (Munsell 10YR 4/1) Light-medium Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, dry with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Dark gray (Munsell 10YR 4/1) Light-medium Clay with a strong pedality grade of 50 – 80 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 +**	Brown (Munsell 10YR 4/3) Light-medium Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. 15% distinct, light grey (Munsell 10YR 7/1) mottling. Imperfectly drained.

MS10b – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.7	27	0.1	38	2	4.2	LMC	10
	10 – 20	8.8	42	0.1					10
B21	20 – 30	9.1	14	0.1	39	4	2.9	LMC	10
	30 – 40	9.1	8.9	0.2					10
	40 – 50	9.3	18	0.2					10
B22	50 – 60	9.6	104	0.3	41	13	1.9	LMC	10
	60 – 70	9.5	305	0.5					10
	70 – 80	9.3	993	0.7					-
	80 – 90	9.1	**1,116**	1.1	44	22	1.6		-
	90 – 100	9.0	**1,457**	1.2					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 70cm
Total Soil Water Storage	70mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	Yes
Criterion 8 (SWS) compliance	**No**

MS11 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Grey Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Wet	**Permeability**	High	X: 690165
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7412771

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark grayish brown (Munsell 10YR 3/2) Medium Clay with a strong pedality grade of 10 – 50mm polyhedral peds, wet with moderate consistence. 10% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.60**	Dark greyish brown (Munsell 10YR 4/2) Heavy Clay with a strong pedality grade of 20 – 100 mm polyhedral peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Trace fine roots. Nil mottling. Nil pan presence. Well drained. 5% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.60 – 1.00**	Dark yellowish brown (Munsell 10YR 3/4) Medium Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 10% calcium carbonate concretions 2 – 5mm. Well drained.

MS12 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690278
Surface Rock	Nil	**Microrelief**	Nil	Y: 7412128

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.15 – 0.40**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 50 – 80 mm prismatic peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. Few fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.40 – 0.70**	Dark brown (Munsell 10YR 3/3) Heavy Clay with a moderate pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Moderately well drained. Gradual.
B23	**0.70 – 1.00**	Dark brown (Munsell 10YR 3/3) Medium Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. 10% faint, light grey (Munsell 10YR 7/1) mottling. Moderately well drained.

MS13a – Site and Profile Description				
Date	07.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Brown Vertosol (ERRX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 689597
Surface Rock	Nil	**Microrelief**	30% presence, 500mm depth	Y: 7410840

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Yellowish-brown (Munsell 10YR 5/4) Heavy Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.20 – 0.40**	Brown (Munsell 10YR 4/3) Heavy Clay with a strong pedality grade of 20 – 100 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.40 +**	Dark Yellowish-brown to Brown (Munsell 10YR 4/4 to 10YR 4/3) Medium Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Moderately well rained.

MS13a – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	9.0	43	0.2	43	4	2.6	HC	12
	10 – 20	9.2	216	0.4					12
B21	20 – 30	9.2	645	0.6	45	15	1.7	HC	12
	30 – 40	8.9	**1,068**	1.3					-
B22	40 – 50	8.3	**1,143**	4.0	65	21	2.4	MC	-
	50 – 60	8.3	**1,543**	4.6					-
	60 – 70	8.7	**1,655**	2.6					-
	70 – 80	8.5	**1,569**	3.0	47	33	1.1		-
	80 – 90	8.9	**1,686**	2.1					-
	90 – 100	8.9	**1,537**	2.1					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 30cm
Total Soil Water Storage	36mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS13b – Site and Profile Description				
Date	07.08.24	**ASC Name**	Endohypersodic Self-mulching Black Vertosol (ERRX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Imperfect	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 689597
Surface Rock	5%, 5 - 10mm	**Microrelief**	20% presence, 500mm depth	Y: 7410840

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark grayish-brown (Munsell 10YR 4/2) Heavy Clay with a moderate pedality grade of 10 – 20mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 20 – 80 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. Common fine roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Gradual boundary.
B22	**0.50 – 0.70**	Brown (Munsell 10YR 4/3) Medium Clay to Heavy Clay with a weak pedality grade of >10mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 2% manganese nodules of 2mm. 15% distinct, dark grey (Munsell 10YR 4/1) mottling. 10% faint yellowish red (5YR 5/6) mottling. Imperfectly drained.
B23	**0.70 – 1.20**	Olive Brown (Munsell 2.5Y 4/3) Heavy Clay with a weak pedality grade of >10mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 2% manganese nodules of 2mm. 10% distinct, dark grey (Munsell 10YR 4/1) mottling. 15% faint yellowish red (5YR 5/6) mottling. Imperfectly drained.

MS13b – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.4	37	0.1	33	4	2.2	HC	12
	10 – 20	8.8	43	0.2					12
B21	20 – 30	9.0	18	0.2	34	7	2.0	HC	12
	30 – 40	9.2	15	0.2					12
	40 – 50	9.2	43	0.2					12
B22	50 – 60	9.3	159	0.4	34	16	1.4	MC	12
	60 – 70	9.2	306	0.4					12
B23	70 – 80	9.1	553	0.8	35	26	1.1	HC	12
	80 – 90	9.0	**914**	0.8					0
	90 – 100	9.0	771	1.0					0

SCL Criteria Compliance	
Effective Rooting Depth	0 – 80cm
Total Soil Water Storage	96mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	Yes
Criterion 8 (SWS) compliance	**No**

MS14 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Wet	**Permeability**	High	X: 689812
Surface Rock	5%, 5 -10mm	**Microrelief**	Nil	Y: 7409631

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.10**	Very dark brown (Munsell 10YR 2/2) Heavy Clay with a strong pedality grade of 5 – 20mm polyhedral peds, moderately moist with strong consistence. 5% coarse fragments 5 -10 mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.10 – 0.80**	Black (Munsell 5YR 2.5/1) Heavy Clay with a strong pedality grade of 50 – 100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.80 – 1.00**	Strong brown (Munsell 7.5YR 4/6) Heavy Clay with a weak pedality grade of 50 -100mm subangular blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. 2% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Well drained.

MS15 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Black Vertosol (FRSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 689848
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7410779

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Very dark brown (Munsell 10YR 2/2) Heavy Clay with a strong pedality grade of 5 – 20mm polyhedral peds, moderately moist with strong consistence. 5% coarse fragments 5 -10 mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20– 0.40**	Black (Munsell 5YR 2.5/1) Heavy Clay with a strong pedality grade of 30 – 50mm subangular blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.40 – 0.70**	Black (Munsell 7.5YR 2.5/1) Heavy Clay with a strong pedality grade of 50 -100mm prismatic blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. 2% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B23	**0.70 – 1.00**	Dark reddish-gray (Munsell 10R 3/1) Heavy Clay with a moderate pedality grade of 50 -100mm subangular blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. 5% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Moderately well drained.

MS15 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.9	68	0.2	48	5	2.8	HC	12
	10 – 20	9.0	70	0.2					12
B21	20 – 30	9.1	75	0.2	49	6	2.7	HC	12
	30 – 40	9.2	39	0.2					12
B22	40 – 50	9.3	149	0.3	53	14	1.8	HC	12
	50 – 60	9.2	378	0.5					12
	60 – 70	9.1	777	0.8					12
B23	70 – 80	9.0	**1,233**	1.1	56	25	1.6	HC	-
	80 – 90	9.0	**1,508**	1.5					-
	90 – 100	8.8	**1,912**	1.8					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 70cm
Total Soil Water Storage	84mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	Yes
Criterion 8 (SWS) compliance	**No**

MS16 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Black Vertosol (GRSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690079
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7411446

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 7.5YR 3/2) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. 10% coarse fragments 5 -10 mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.80**	Dark reddish grey to Dark greyish brown (Munsell 10R 3/1 to 10YR 4/2) Heavy Clay with a strong pedality grade of 20 – 50mm subangular blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.80 +**	Brown (Munsell 10YR 4/3) Heavy Clay with a strong pedality grade of 20 – 50mm prismatic blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. 5% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Well drained.

MS16 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.9	59	0.2	52	3	3.1	HC	12
	10 – 20	9.0	20	0.2					12
B21	20 – 30	9.2	70	0.2	53	10	1.8	HC	12
	30 – 40	9.4	119	0.3					12
	40 – 50	9.2	258	0.5					12
	50 – 60	9.2	**853**	0.7	60	21	1.4		-
	60 – 70	9.2	**955**	1.0					-
	70 – 80	9.0	**1,445**	1.3					-
B22	80 – 90	9.1	**1,302**	1.2	61	27	1.2	HC	-
	90 – 100	8.9	**1,579**	1.8					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	60mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS17 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690527
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7411865

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 7.5YR 3/4) Medium Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. 5% coarse fragments 5 -10 mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.40**	Brown (Munsell 7.5YR 4/3) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.40 – 0.70**	Brown (Munsell 7.5YR 4/2) Heavy Clay with a strong pedality grade of 20 – 100mm platy peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B23	**0.70 – 1.00**	Brown (Munsell 7.5YR 4/3) Light Clay with a strong pedality grade of >100mm prismatic blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. No roots. 5% calcium carbonate concretions 2 – 5mm. Nil mottling. Nil pan presence. Well drained.

MS18 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 690850
Surface Rock	Nil	**Microrelief**	Nil	Y: 7412323

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 7.5YR 3/4) Medium Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.50**	Dark brown (Munsell 7.5YR 3/4) Medium Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 1.00**	Brown (Munsell 7.5YR 4/3) Heavy Clay with a strong pedality grade of 50 – 100 mm prismatic blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS19 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Wet, Soft	**Permeability**	High	X: 689406
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7411383

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.25**	Dark brown (Munsell 7.5YR 3/4) Light Clay with a strong pedality grade of 5 – 30mm angular blocky peds, moist with moderate consistence. 5% coarse fragments 5 -10 mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.25 – 0.50**	Brown (Munsell 7.5YR 4/2) Medium Clay with a strong pedality grade of 20 – 50mm angular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 1.00**	Yellowish brown (Munsell 10YR 5/4) Light-medium Clay with a weak pedality grade of 20 – 50mm subangular blocky peds, moderately moist with strong consistence. 2% coarse fragments 5 – 10mm. Trace fine roots. 20% calcium carbonate concretions 2 – 10mm. Nil mottling. Nil pan presence. Well drained.

MS20a – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691439
Surface Rock	Nil	**Microrelief**	30% presence, 300mm	Y: 7411449

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.25**	Dark brown (Munsell 7.5YR 3/4) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.25 – 0.60**	Dark olive brown (Munsell 2.5Y 3/3) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 1.00**	Brown (Munsell 10YR 4/3) Heavy Clay with a weak pedality grade of 50 – 100 subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS20b – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691439
Surface Rock	Nil	**Microrelief**	30% presence, 300mm	Y: 7411449

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.10**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.10 – 0.50**	Brown (Munsell 10YR 4/2) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 1.00**	Dark yellowish brown (Munsell 10YR 3/4) Heavy Clay with a moderate pedality grade of 30 – 80 mm subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS21 – Site and Profile Description				
Date	07.08.24	**ASC Name**	Endohypersodic Self-mulching Grey Vertosol (ESSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691854
Surface Rock	Nil	**Microrelief**	Nil	Y: 7413167

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark Yellowish-brown (Munsell 10YR 3/6) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.60**	Dark gray (Munsell 10YR 4/1) Heavy Clay with a strong pedality grade of 30 – 100mm prismatic peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 +**	Dark gray (Munsell 10YR 4/1) Heavy Clay with a weak pedality grade of >100 subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS21 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.8	50	0.1	55	2	3.0	HC	12
	10 – 20	8.8	30	0.2					12
B21	20 – 30	9.0	69	0.2	56	5	2.6	HC	12
	30 – 40	9.0	226	0.4					12
	40 – 50	8.9	285	0.4	55	11	2.0		12
	50 – 60	8.9	**989**	0.6					-
B22	60 – 70	8.8	**1,327**	0.9	62	18	1.7	HC	-
	70 – 80	8.6	**1,240**	1.2					-
	80 – 90	8.6	**1,677**	1.3					-
	90 – 100	8.5	**1,710**	1.5					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	60mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS22a – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691709
Surface Rock	Nil	**Microrelief**	20% presence, 300mm	Y: 7412921

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Dark brown (Munsell 7.5YR 3/4) Medium Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.15 – 0.55**	Brown (Munsell 7.5YR 4/3) Medium Clay with a strong pedality grade of 20 – 50mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.55 – 1.00**	Brown (Munsell 7.5YR 4/4) Medium Clay with a weak pedality grade of 50 – 100 subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS22b – Site and Profile Description				
Date	07.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 691709
Surface Rock	5%, 5 - 10mm	**Microrelief**	20% presence, 300mm	Y: 7412921

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Dark brown (Munsell 7.5YR 3/4) Medium Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with strong consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.15 – 0.70**	Brown (Munsell 7.5YR 4/3) Heavy Clay with a strong pedality grade of 20 – 50mm sub angular blocky peds, moderately moist with strong consistence. No coarse fragments. Trace course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.55 +**	Brown (Munsell 7.5YR 4/4) Heavy Clay with a moderate pedality grade of 30 – 80 mm subangular blocky peds, moderately moist with moderate consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. Well drained.

MS23a – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685382
Surface Rock	Nil	**Microrelief**	20% presence, 400mm depth	Y: 7392423

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Dark brown (Munsell 7.5YR 3/4) Light-medium Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.15 – 0.60**	Very dark grey (Munsell 10YR 3/1) Heavy Clay with a strong pedality grade of 20 – 50 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 1.00**	Dark brown (Munsell 7.5YR 3/4) Heavy Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 2 – 5mm. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. Well drained.

MS23b – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Black Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685382
Surface Rock	Nil	**Microrelief**	20% presence, 400mm depth	Y: 7392423

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Dark brown (Munsell 7.5YR 3/4) Heavy Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.15 – 0.50**	Very dark grey (Munsell 10YR 3/1) Heavy Clay with a strong pedality grade of 20 – 100 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 – 1.00**	Olive brown (Munsell 2.5Y 4/3) Medium Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. 15% distinct very dark grey (Munsell 10YR 3/1) Moderately well drained.

MS24 – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 684907
Surface Rock	Nil	**Microrelief**	Nil	Y: 7391194

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.15**	Very dark grayish brown (Munsell 10YR 3/2) Medium Clay with a moderate pedality grade of 10 – 30mm polyhedral peds, moderately moist with moderate consistence. No coarse fragments. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.15 – 0.55**	Olive brown (Munsell 2.5Y 4/3) Heavy Clay with a strong pedality grade of 20 –50 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Common fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.55 +**	Brown (Munsell 7.5YR 4/3) Heavy Clay with a weak pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. 10% faint very dark grey (Munsell 10YR 3/1) Moderately well drained.

MS26a – Site and Profile Description				
Date	08.08.24	**ASC Name**	Endocalcareous-Endohypersodic Self-mulching Brown Vertosol (FRRX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/ Mound	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685341
Surface Rock	5% 5 – 10mm	**Microrelief**	30% presence, 600mm depth	Y: 7393317

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark grayish-brown (Munsell 10YR 4/2) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.20 – 0.60**	Dark Yellowish-brown (Munsell 10YR 4/4) Medium Clay with a strong pedality grade of 100 – 200 mm prismatic peds, moderately moist with strong consistence. No coarse fragments. Few fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 0.90**	Brown (Munsell 10YR 5/3) Heavy Clay with a moderate pedality grade of 50 – >100mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Nil mottling. Moderately well drained. Gradual boundary.
B23	**0.90 – 1.00**	Brown (Munsell 10YR 5/3) Heavy Clay with a weak pedality grade of 50 – >100mm blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil pan presence. 5% calcium carbonate concretions 2 – 5mm. 5% faint very dark grey (Munsell 10YR 3/1) mottling. Moderately well drained.

MS26a – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.7	31	0.1	31	6	1.5	HC	12
	10 – 20	9.3	52	0.3					12
B21	20 – 30	9.3	128	0.3	30	15	1.2	MC	12
	30 – 40	9.1	321	0.4					12
	40 – 50	8.9	318	0.6					12
	50 – 60	8.8	**912**	0.9					-
B22	60 – 70	8.8	651	0.9	33	32	0.8	HC	-
	70 – 80	8.7	**851**	1.1					-
	80 – 90	8.6	**976**	1.2					-
B23	90 – 100	8.5	**1,410**	1.3	36	36	0.7	HC	-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 50cm
Total Soil Water Storage	60mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS26b – Site and Profile Description				
Date	08.08.24	**ASC Name**	Endohypersodic Self-mulching Brown Vertosol (FRRX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685341
Surface Rock	5% 5 – 30mm	**Microrelief**	30% presence, 600mm depth	Y: 7393317

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Yellowish-brown (Munsell 10YR 5/4) Medium Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 - 30mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Clear boundary.
B21	**0.20 – 0.50**	Dark Yellowish-brown (Munsell 10YR 4/4) Heavy Clay with a strong pedality grade of 100 – 200 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 - 20mm. Few fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.50 +**	Brown to Dark Yellowish-brown(Munsell 10YR 5/3 to 10YR 4/4) Heavy Clay with a moderate pedality grade of 50 – >100mm blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. <2% calcium carbonate concretions 2 – 5mm. 10% faint dark grey (Munsell 10YR 4/1) mottling. Moderately well drained.

MS26b – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	9.1	186	0.3	40	9	2.1	MC	12
	10 – 20	8.8	**1,425**	1.6					-
B21	20 – 30	8.7	**2,166**	2.2	49	27	1.6	HC	-
	30 – 40	8.5	**2,317**	2.4					-
	40 – 50	8.3	**2,484**	3.5					-
B22	50 – 60	8.4	**2,292**	2.9	49	26	1.6	HC	-
	60 – 70	8.2	**2,353**	3.4					-
	70 – 80	8.5	**2,615**	2.6					-
	80 – 90	8.5	**2,356**	2.4	45	28	1.3		-
	90 – 100	8.6	**2,691**	2.5					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 10cm
Total Soil Water Storage	12mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	**No**
Criterion 8 (SWS) compliance	**No**

MS27 – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	2%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685205
Surface Rock	5%, 5 - 10mm	**Microrelief**	Nil	Y: 7393901

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.25**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 5 – 30mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.25 – 0.70**	Olive brown (Munsell 2.5Y 4/3) Heavy Clay with a strong pedality grade of 50 – 100 mm prismatic peds, moderately moist with strong consistence. No coarse fragments. Few fine roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.70 – 1.00**	Dark yellowish brown (Munsell 10YR 4/6) Heavy Clay with a weak pedality grade of 50 – >100mm blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm. Nil mottling. Well drained.

MS28 – Site and Profile Description				
Date	08.08.24	**ASC Name**	Endohypersodic Self-mulching Black Vertosol (FRSX)	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	1%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat	**Drainage**	Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685596
Surface Rock	2%, 5 - 10mm	**Microrelief**	Nil	Y: 7394460

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark brown (Munsell 10YR 3/1) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with moderate consistence. 2% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.70**	Very dark gray to dark grayish-brown (Munsell 10YR 3/1 to 10YR 4/2) Heavy Clay with a strong pedality grade of 30 – 80 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Few course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.70 – 1.00**	Dark Yellowish-brown (Munsell 7.5YR 4/3) Heavy Clay with a weak pedality grade of 50 – >100mm blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil pan presence. <2% calcium carbonate concretions 2 – 5mm. 10% faint dark grey (Munsell 10YR 4/1) mottling. Well drained.

MS28 – Analytical Results									
Horizon	Sample Depth	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	cm	Value	Mg/kg	dS/m	Cmol+/kg	%	Ratio		
A1	0 – 10	8.3	71	0.1	41	3	2.4	HC	12
	10 – 20	8.9	38	0.2					12
B22	20 – 30	9.0	35	0.2	47	7	2.2	HC	12
	30 – 40	8.9	289	0.5					12
	40 – 50	8.7	**873**	0.6					-
	50 – 60	8.7	675	0.8	48	17	1.4		-
	60 – 70	8.5	**1,247**	1.3					-
	70 – 80	8.2	**1,309**	1.9					-
B23	80 – 90	7.6	**1,293**	1.6	45	25	0.9	HC	-
	90 – 100	6.1	**1,781**	2.0					-

SCL Criteria Compliance	
Effective Rooting Depth	0 – 40cm
Total Soil Water Storage	48mm
Criterion 6 (pH) compliance	Yes
Criterion 7 (Salinity) compliance	Yes
Criterion 8 (SWS) compliance	**No**

MS29a – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Flat/Mound	**Drainage**	Moderately Well Drained	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685598
Surface Rock	5%, 5 - 10mm	**Microrelief**	20% presence, 800mm depth	Y: 7395661

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.20**	Dark yellowish brown (Munsell 10YR 4/4) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.20 – 0.60**	Dark brown (Munsell 7.5YR 3/3) Heavy Clay with a strong pedality grade of 30 – 100 mm subangular blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. Few course roots. Nil mottling. Nil pan presence. 2% calcium carbonate concretions 2 – 5mm Well drained. Gradual boundary.
B22	**0.60 – 1.00**	Dark yellowish brown (Munsell 10YR 4/6) Heavy Clay with a weak pedality grade of >100mm blocky peds, moderately moist with strong consistence. 5% coarse fragments 5 – 10mm. No roots. Nil pan presence. 10% calcium carbonate concretions 2 – 5mm. 5% faint, dark reddish grey (Munsell 5YR 4/2) mottling. Moderately well drained.

MS29b – Site and Profile Description				
Date	08.08.24	**ASC Name**	Self-mulching Brown Vertosol	
Exposure	Pit	**Disturbance**	Land Clearing	
Slope Gradient	0%	**Land Use**	Grazing	
Landform Pattern	Plain	**Soil Fertility**	Moderately High	**Coordinates**
Landform Element	Depression	**Drainage**	Imperfect	MGA 55
Surface Condition	Cracked	**Permeability**	High	X: 685598
Surface Rock	5%, 5 - 10mm	**Microrelief**	20% presence, 800mm depth	Y: 7395661

Plate 1 – Soil Profile

Plate 2 – Landscape

Plate 3 – Surface

Horizon	Depth (m)	Description
A1	**0.00 – 0.10**	Very dark grayish brown (Munsell 10YR 3/2) Heavy Clay with a strong pedality grade of 20 – 50mm polyhedral peds, moderately moist with moderate consistence. 5% coarse fragments 5 – 10mm. Common course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B21	**0.10 – 0.60**	Brown (Munsell 10YR 5/3) Heavy Clay with a strong pedality grade of 30 – 100 mm subangular blocky peds, moderately moist with strong consistence. No coarse fragments. Few course roots. Nil mottling. Nil pan presence. Well drained. Gradual boundary.
B22	**0.60 – 1.00**	Olive brown (Munsell 2.5Y 4/3) Heavy Clay with a weak pedality grade of >100mm blocky peds, moderately moist with strong consistence. No coarse fragments. No roots. Nil pan presence. 15% faint yellowish red (Munsell 5YR 4/5) mottling. Imperfectly drained.

Appendix 2
Minesoils 2024 Soil Survey
Laboratory Certificates of Analysis

GRAIN SIZE ANALYSIS (hydrometer and sieving techniques)

52 of 130 soil samples supplied by Minesoils Pty. Ltd. on 13th August, 2024 - Lab Job No. R7615
Analysis requested by Matt Hemingway. Job ref: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

SAMPLE ID	Lab Code	MOISTURE CONTENT (% of water in sample)	TOTAL GRAVEL > 2 mm (% of total oven-dry equivalent)	GRAVEL > 4.75 mm (% of total oven-dry equivalent)	GRAVEL 2.00-4.75 mm (% of total oven-dry equivalent)	COARSE SAND 200-2000 µm (0.2-2.0 mm) (% of total oven-dry equivalent)	FINE SAND 20-200 µm (0.02-0.2 mm) (% of total oven-dry equivalent)	SILT 2-20 µm (% of total oven-dry equivalent)	CLAY < 2 µm (% of total oven-dry equivalent)
2 0 -10	R7615/1	21.0%	0.0%	0.0%	0.0%	0.9%	2.2%	24.4%	72.4%
2 20 - 30	R7615/3	18.3%	0.3%	0.0%	0.3%	1.0%	9.2%	25.3%	64.2%
2 50 - 60	R7615/6	17.8%	0.0%	0.0%	0.0%	0.3%	6.8%	22.1%	70.8%
2 80 - 90	R7615/9	18.5%	0.0%	0.0%	0.0%	0.6%	7.2%	25.0%	67.3%
7 0 -10	R7615/11	12.5%	0.0%	0.0%	0.0%	1.0%	35.3%	11.5%	52.3%
7 30 - 40	R7615/14	11.5%	0.4%	0.0%	0.4%	1.5%	32.4%	15.1%	50.6%
7 60 - 70	R7615/17	11.5%	0.1%	0.0%	0.1%	0.5%	42.3%	15.3%	41.7%
7 90 - 100	R7615/20	9.6%	0.5%	0.0%	0.5%	0.7%	55.7%	16.8%	26.4%
10A 0 -10	R7615/21	15.0%	0.2%	0.0%	0.2%	12.9%	35.8%	9.0%	42.2%
10A 30 - 40	R7615/24	12.4%	0.4%	0.0%	0.4%	9.0%	39.5%	6.0%	45.1%
10A 60 - 70	R7615/27	11.1%	1.0%	0.0%	1.0%	13.3%	40.4%	7.2%	38.1%
10A 90 - 100	R7615/30	10.5%	1.4%	0.0%	1.4%	12.8%	40.8%	8.2%	36.8%
10B 0 -10	R7615/31	15.4%	0.4%	0.0%	0.4%	13.6%	34.8%	9.1%	42.1%
10B 20 - 30	R7615/33	11.5%	0.0%	0.0%	0.0%	11.8%	38.0%	7.6%	42.5%
10B 50 - 60	R7615/35	7.2%	2.3%	0.0%	2.3%	12.7%	32.6%	11.8%	40.6%
10B 80 - 90	R7615/38	11.2%	0.8%	0.0%	0.8%	11.1%	35.6%	11.2%	41.3%
13A 0 -10	R7615/40	17.0%	0.4%	0.0%	0.4%	10.6%	29.9%	8.9%	50.2%
13A 20 - 30	R7615/42	12.4%	0.0%	0.0%	0.0%	8.9%	29.0%	11.3%	50.8%
13A 50 - 60	R7615/45	11.6%	0.0%	0.0%	0.0%	7.6%	30.4%	12.2%	49.9%
13A 80 - 90	R7615/48	12.3%	0.1%	0.0%	0.1%	2.7%	33.5%	14.2%	49.5%
13B 0 -10	R7615/50	19.1%	0.2%	0.0%	0.2%	8.8%	26.2%	10.9%	53.9%
13B 20 - 30	R7615/52	15.1%	1.8%	0.0%	1.8%	11.7%	22.5%	11.5%	52.5%
13B 50 - 60	R7615/55	12.9%	1.8%	0.0%	1.8%	13.6%	24.9%	12.5%	47.2%
13B 80 - 90	R7615/58	13.6%	0.8%	0.0%	0.8%	13.6%	25.1%	8.2%	52.3%
15 0 -10	R7615/60	18.3%	1.2%	0.0%	1.2%	9.6%	23.8%	11.5%	54.0%
15 20 - 30	R7615/62	18.2%	2.4%	0.0%	2.4%	10.8%	21.2%	12.2%	53.4%
15 50 - 60	R7615/65	14.4%	6.2%	5.1%	1.1%	8.4%	20.7%	8.3%	56.4%
15 80 - 90	R7615/68	15.9%	0.7%	0.0%	0.7%	11.0%	23.1%	9.1%	56.1%
16 0 -10	R7615/70	19.2%	1.4%	0.0%	1.4%	15.9%	15.2%	8.7%	58.8%
16 30 - 40	R7615/73	15.0%	4.0%	1.7%	2.3%	15.0%	13.6%	8.0%	59.4%
16 60 - 70	R7615/76	16.2%	0.8%	0.0%	0.8%	13.8%	15.7%	6.4%	63.3%
16 90 - 100	R7615/79	17.6%	0.0%	0.0%	0.0%	9.6%	18.1%	8.8%	63.5%
21 0 -10	R7615/80	24.5%	0.3%	0.0%	0.3%	0.7%	6.0%	17.4%	75.6%
21 20 - 30	R7615/82	16.6%	0.3%	0.0%	0.3%	1.0%	5.3%	20.4%	73.1%
21 40 - 50	R7615/84	17.3%	0.3%	0.0%	0.3%	0.7%	4.5%	19.6%	74.8%
21 70 -80	R7615/87	18.9%	0.3%	0.0%	0.3%	0.8%	3.9%	17.4%	77.6%
25 0 -10	R7615/90	10.5%	2.3%	0.0%	2.3%	24.1%	35.6%	8.1%	29.9%
25 20 - 30	R7615/92	14.0%	0.6%	0.0%	0.6%	17.9%	28.0%	6.3%	47.2%
25 50 - 60	R7615/95	10.3%	1.1%	0.0%	1.1%	17.4%	28.1%	7.9%	45.5%
25 80 - 90	R7615/98	10.8%	0.6%	0.0%	0.6%	14.5%	31.0%	8.0%	45.8%
26A 0 -10	R7615/100	14.1%	3.9%	0.0%	3.9%	10.1%	28.9%	7.0%	50.2%
26A 20 - 30	R7615/102	12.4%	2.7%	0.0%	2.7%	10.0%	32.5%	6.4%	48.4%
26A 50 - 60	R7615/105	13.7%	0.7%	0.0%	0.7%	6.4%	33.5%	6.9%	52.5%
26A 90 - 100	R7615/109	14.8%	0.9%	0.0%	0.9%	6.7%	30.4%	9.1%	52.9%
26B 0 -10	R7615/110	19.0%	1.0%	0.0%	1.0%	6.2%	28.4%	15.1%	49.4%
26B 20 - 30	R7615/112	13.1%	3.3%	0.0%	3.3%	6.5%	26.6%	13.2%	50.5%
26B 50 - 60	R7615/115	13.3%	10.1%	4.9%	5.2%	8.4%	24.6%	10.8%	46.0%
26B 80 - 90	R7615/118	13.3%	6.7%	3.8%	2.9%	8.4%	28.8%	7.2%	48.9%
28 0 -10	R7615/120	19.2%	1.3%	0.0%	1.3%	3.9%	27.3%	14.0%	53.6%
28 20 - 30	R7615/122	16.5%	0.2%	0.0%	0.2%	4.2%	21.5%	15.4%	58.7%
28 50 - 60	R7615/125	14.7%	0.5%	0.0%	0.5%	3.5%	23.3%	14.2%	58.5%
28 80 - 90	R7615/128	16.0%	0.2%	0.0%	0.2%	2.6%	19.7%	14.4%	63.1%

Note:

1: The Hydrometer Analysis method was used to determine the percentage sand, silt and clay,
modified from SOP meth004 (California Dept of Pesticide Regulation), using method of Gee & Bauder (1986),
in *Methods of Soil Analysis. Part 1* Agron. Monogr. 9 (2nd Ed). Klute, A., American Soc. of Agronomy Inc., Soil Sci. Soc. America Inc., Madison WI: 383-411.

2: Australian Standard 1289.3.8.1-1997 (see attached)

3. Analysis conducted between sample arrival date and reporting date.

4. This report is not to be reproduced except in full. Results only relate to the item tested.

5. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal).

6. This report was issued on 09/09/2024.

Environmental Analysis Laboratory, Southern Cross University,
Tel. 02 6620 3678, website: scu.edu.au/eal

checked: .....
Graham Lancaster (Nata signatory)
Laboratory Manager

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
		Sample ID:	2 0 -10	2 10 --20	2 20 - 30	2 30 - 40	2 40 - 50
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/1	R7615/2	R7615/3	R7615/4	R7615/5
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.81	8.88	9.01	9.00	8.94
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.214	0.190	0.264	0.403	0.642
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	35	..	35	..	..
	Exchangeable Calcium (kg/ha)		15,633	..	15,507	..	..
	Exchangeable Calcium (mg/kg)		6,979	..	6,923	..	..
	Exchangeable Magnesium (cmol+/kg)		14	..	15	..	..
	Exchangeable Magnesium (kg/ha)		3,713	..	4,184	..	..
	Exchangeable Magnesium (mg/kg)		1,658	..	1,868	..	..
	Exchangeable Potassium (cmol+/kg)		1.0	..	0.87	..	..
	Exchangeable Potassium (kg/ha)		917	..	759	..	..
	Exchangeable Potassium (mg/kg)		409	..	339	..	..
	Exchangeable Sodium (cmol+/kg)		2.6	..	4.0	..	..
	Exchangeable Sodium (kg/ha)		1,320	..	2,079	..	..
	Exchangeable Sodium (mg/kg)		589	..	928	..	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	..	0.02	..	..
	Exchangeable Aluminium (kg/ha)		4.8	..	3.7	..	..
	Exchangeable Aluminium (mg/kg)		2.1	..	1.7	..	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	<0.01	..	..
	Exchangeable Hydrogen (kg/ha)		<1	..	<1	..	..
	Exchangeable Hydrogen (mg/kg)		<1	..	<1	..	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	52	..	55	..	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	67	..	63	..	..
	Magnesium (%)		26	..	28	..	..
	Potassium (%)		2.0	..	1.6	..	..
	Sodium - ESP (%)		4.9	..	7.4	..	..
	Aluminium (%)		0.05	..	0.03	..	..
	Hydrogen (%)		0.00	..	0.00	..	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.6	..	2.2	..	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	73	31	111	307	665
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..3/2	..	10YR..3/2	..	..
			Very Dark Grayish Brown	..	Very Dark Grayish Brown	..	..
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Sample ID:	2 0 -10	2 10 --20	2 20 - 30	2 30 - 40	2 40 - 50
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/1	R7615/2	R7615/3	R7615/4	R7615/5

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
15. This report is not to be reproduced except in full. Results only relate to the item tested.
16. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer SCU.edu.au/eal).
17. This report was issued on 2/09/2024.

Quality Checked: Kris Saville
Agricultural Co-Ordinator

NATA
WORLD RECOGNISED ACCREDITATION
Accreditation No. 14960
Accredited for compliance with ISO/IEC 17025 - Testing

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
		Sample ID:	2 50 - 60	2 60 - 70	2 70 -80	2 80 - 90	2 90 - 100
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/6	R7615/7	R7615/8	R7615/9	R7615/10
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.82	8.71	8.70	8.68	8.63
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.161	1.549	1.532	1.569	1.904
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	29	..	..	28	..
	Exchangeable Calcium (kg/ha)		12,942	..	..	12,470	..
	Exchangeable Calcium (mg/kg)		5,778	..	..	5,567	..
	Exchangeable Magnesium (cmol+/kg)		18	..	..	19	..
	Exchangeable Magnesium (kg/ha)		4,919	..	..	5,042	..
	Exchangeable Magnesium (mg/kg)		2,196	..	..	2,251	..
	Exchangeable Potassium (cmol+/kg)		0.92	..	..	0.95	..
	Exchangeable Potassium (kg/ha)		802	..	..	830	..
	Exchangeable Potassium (mg/kg)		358	..	..	371	..
	Exchangeable Sodium (cmol+/kg)		11	..	..	13	..
	Exchangeable Sodium (kg/ha)		5,825	..	..	6,674	..
	Exchangeable Sodium (mg/kg)		2,601	..	..	2,980	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	..	..	0.02	..
	Exchangeable Aluminium (kg/ha)		3.6	..	..	3.7	..
	Exchangeable Aluminium (mg/kg)		1.6	..	..	1.6	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	..	<0.01	..
	Exchangeable Hydrogen (kg/ha)		<1	..	..	<1	..
	Exchangeable Hydrogen (mg/kg)		<1	..	..	<1	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	59	..	..	60	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	49	..	..	46	..
	Magnesium (%)		31	..	..	31	..
	Potassium (%)		1.5	..	..	1.6	..
	Sodium - ESP (%)		19	..	..	22	..
	Aluminium (%)		0.03	..	..	0.03	..
	Hydrogen (%)		0.00	..	..	0.00	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.6	..	..	1.5	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,231	1,467	1,488	1,456	1,941
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..2/1	..	..	10YR..3/4	..
			Black	..	..	Dark Yellowish Brown	..
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
	Sample ID:	2 50 - 60	2 60 - 70	2 70 -80	2 80 - 90	2 90 - 100
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/6	R7615/7	R7615/8	R7615/9	R7615/10

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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17. This report was issued on 2/09/2024.

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

		Sample 11	Sample 12	Sample 13	Sample 14	Sample 15
	Sample ID:	7 0 -10	7 10 --20	7 20 - 30	7 30 - 40	7 40 - 50
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/11	R7615/12	R7615/13	R7615/14	R7615/15
pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.06	8.78	9.04	9.01	8.97
Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.209	0.179	0.379	0.599	0.741
Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	28	..	..	26	..
Exchangeable Calcium (kg/ha)		12,586	..	..	11,489	..
Exchangeable Calcium (mg/kg)		5,619	..	..	5,129	..
Exchangeable Magnesium (cmol+/kg)		13	..	..	14	..
Exchangeable Magnesium (kg/ha)		3,601	..	..	3,823	..
Exchangeable Magnesium (mg/kg)		1,608	..	..	1,707	..
Exchangeable Potassium (cmol+/kg)		0.50	..	..	0.51	..
Exchangeable Potassium (kg/ha)		438	..	..	447	..
Exchangeable Potassium (mg/kg)		196	..	..	200	..
Exchangeable Sodium (cmol+/kg)		2.9	..	..	5.8	..
Exchangeable Sodium (kg/ha)		1,505	..	..	3,012	..
Exchangeable Sodium (mg/kg)		672	..	..	1,345	..
Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.01	..	..	0.01	..
Exchangeable Aluminium (kg/ha)		2.4	..	..	2.8	..
Exchangeable Aluminium (mg/kg)		1.1	..	..	1.2	..
Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	..	<0.01	..
Exchangeable Hydrogen (kg/ha)		<1	..	..	<1	..
Exchangeable Hydrogen (mg/kg)		<1	..	..	<1	..
Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	45	..	..	46	..
Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	63	..	..	56	..
Magnesium (%)		30	..	..	31	..
Potassium (%)		1.1	..	..	1.1	..
Sodium - ESP (%)		6.5	..	..	13	..
Aluminium (%)		0.03	..	..	0.03	..
Hydrogen (%)		0.00	..	..	0.00	..
Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.1	..	..	1.8	..
Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	68	66	303	619	708
Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..3/2	..	..	10YR..3/2	..
		Very Dark Grayish Brown	..	..	Very Dark Grayish Brown	..
Mottles Munsell Colour		..	..	..	..	..
		..	..	..	..	..
Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 11	Sample 12	Sample 13	Sample 14	Sample 15
	Sample ID:	7 0 -10	7 10 --20	7 20 - 30	7 30 - 40	7 40 - 50
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/11	R7615/12	R7615/13	R7615/14	R7615/15

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

			Sample 16	Sample 17	Sample 18	Sample 19	Sample 20
		Sample ID:	7 50 - 60	7 60 - 70	7 70 -80	7 80 - 90	7 90 - 100
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/16	R7615/17	R7615/18	R7615/19	R7615/20
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.84	8.75	8.82	8.83	8.80
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.990	1.047	0.983	0.945	0.928
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	25	..	..	17
	Exchangeable Calcium (kg/ha)		..	11,041	..	..	7,665
	Exchangeable Calcium (mg/kg)		..	4,929	..	..	3,422
	Exchangeable Magnesium (cmol+/kg)		..	14	..	..	12
	Exchangeable Magnesium (kg/ha)		..	3,812	..	..	3,212
	Exchangeable Magnesium (mg/kg)		..	1,702	..	..	1,434
	Exchangeable Potassium (cmol+/kg)		..	0.53	..	..	0.41
	Exchangeable Potassium (kg/ha)		..	464	..	..	361
	Exchangeable Potassium (mg/kg)		..	207	..	..	161
	Exchangeable Sodium (cmol+/kg)		..	6.9	..	..	6.0
	Exchangeable Sodium (kg/ha)		..	3,559	..	..	3,099
	Exchangeable Sodium (mg/kg)		..	1,589	..	..	1,384
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	2.2	..	..	1.9
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	46	..	..	35
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	53	..	..	48
	Magnesium (%)		..	30	..	..	33
	Potassium (%)		..	1.1	..	..	1.2
	Sodium - ESP (%)		..	15	..	..	17
	Aluminium (%)		..	0.02	..	..	0.03
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.8	..	..	1.4
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	878	870	827	723	942
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/3	..	..	10YR..4/4
			..	Brown	..	..	Dark Yellowish Brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 16	Sample 17	Sample 18	Sample 19	Sample 20
Sample ID:	7 50 - 60	7 60 - 70	7 70 -80	7 80 - 90	7 90 - 100
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/16	R7615/17	R7615/18	R7615/19	R7615/20

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 21	Sample 22	Sample 23	Sample 24	Sample 25
		Sample ID:	10A 0 -10	10A 10 --20	10A 20 - 30	10A 30 - 40	10A 40 - 50
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/21	R7615/22	R7615/23	R7615/24	R7615/25
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.33	8.98	9.31	9.31	9.20
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.082	0.166	0.292	0.367	0.653
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	21	..	..	24	..
	Exchangeable Calcium (kg/ha)		9,488	..	..	10,877	..
	Exchangeable Calcium (mg/kg)		4,236	..	..	4,856	..
	Exchangeable Magnesium (cmol+/kg)		11	..	..	14	..
	Exchangeable Magnesium (kg/ha)		2,932	..	..	3,906	..
	Exchangeable Magnesium (mg/kg)		1,309	..	..	1,744	..
	Exchangeable Potassium (cmol+/kg)		0.62	..	..	0.42	..
	Exchangeable Potassium (kg/ha)		543	..	..	370	..
	Exchangeable Potassium (mg/kg)		242	..	..	165	..
	Exchangeable Sodium (cmol+/kg)		1.0	..	..	4.1	..
	Exchangeable Sodium (kg/ha)		521	..	..	2,127	..
	Exchangeable Sodium (mg/kg)		233	..	..	949	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	..	..	0.01	..
	Exchangeable Aluminium (kg/ha)		3.4	..	..	2.8	..
	Exchangeable Aluminium (mg/kg)		1.5	..	..	1.2	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	..	<0.01	..
	Exchangeable Hydrogen (kg/ha)		<1	..	..	<1	..
	Exchangeable Hydrogen (mg/kg)		<1	..	..	<1	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	34	..	..	43	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	63	..	..	56	..
	Magnesium (%)		32	..	..	33	..
	Potassium (%)		1.8	..	..	0.98	..
	Sodium - ESP (%)		3.0	..	..	9.6	..
	Aluminium (%)		0.05	..	..	0.03	..
	Hydrogen (%)		0.00	..	..	0.00	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	2.0	..	..	1.7	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	42	44	126	224	387
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..2/1	..	..	10YR..2/2	..
			Black	..	..	Very Dark Brown	..
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 21	Sample 22	Sample 23	Sample 24	Sample 25
	Sample ID:	10A 0 -10	10A 10 --20	10A 20 - 30	10A 30 - 40	10A 40 - 50
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/21	R7615/22	R7615/23	R7615/24	R7615/25

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
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			Sample 26	Sample 27	Sample 28	Sample 29	Sample 30
		Sample ID:	10A 50 - 60	10A 60 - 70	10A 70 -80	10A 80 - 90	10A 90 - 100
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/26	R7615/27	R7615/28	R7615/29	R7615/30
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.96	8.44	8.45	8.72	8.88
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.966	2.550	2.337	1.619	1.438
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	26	..	..	21
	Exchangeable Calcium (kg/ha)		..	11,804	..	..	9,396
	Exchangeable Calcium (mg/kg)		..	5,270	..	..	4,195
	Exchangeable Magnesium (cmol+/kg)		..	12	..	..	13
	Exchangeable Magnesium (kg/ha)		..	3,398	..	..	3,640
	Exchangeable Magnesium (mg/kg)		..	1,517	..	..	1,625
	Exchangeable Potassium (cmol+/kg)		..	0.40	..	..	0.38
	Exchangeable Potassium (kg/ha)		..	346	..	..	328
	Exchangeable Potassium (mg/kg)		..	155	..	..	147
	Exchangeable Sodium (cmol+/kg)		..	6.9	..	..	8.1
	Exchangeable Sodium (kg/ha)		..	3,570	..	..	4,179
	Exchangeable Sodium (mg/kg)		..	1,594	..	..	1,866
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	2.2	..	..	<1
	Exchangeable Aluminium (mg/kg)		..	1.0	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	46	..	..	43
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	57	..	..	49
	Magnesium (%)		..	27	..	..	31
	Potassium (%)		..	0.86	..	..	0.88
	Sodium - ESP (%)		..	15	..	..	19
	Aluminium (%)		..	0.02	..	..	0.01
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	2.1	..	..	1.6
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,181	1,116	1,541	1,670	1,452
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..3/3	..	..	10YR..4/4
			..	Dark Brown	..	..	Dark Yellowish Brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 26	Sample 27	Sample 28	Sample 29	Sample 30
	Sample ID:	10A 50 - 60	10A 60 - 70	10A 70 -80	10A 80 - 90	10A 90 - 100
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/26	R7615/27	R7615/28	R7615/29	R7615/30

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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			Sample 31	Sample 32	Sample 33	Sample 34	Sample 35
		Sample ID:	10B 0 -10	10B 10 --20	10B 20 - 30	10B 30 - 40	10B 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/31	R7615/32	R7615/33	R7615/34	R7615/35
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.70	8.81	9.14	9.10	9.55
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.113	0.133	0.144	0.157	0.325
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	30	..	28	..	23
	Exchangeable Calcium (kg/ha)		13,245	..	12,452	..	10,322
	Exchangeable Calcium (mg/kg)		5,913	..	5,559	..	4,608
	Exchangeable Magnesium (cmol+/kg)		7.0	..	9.4	..	12
	Exchangeable Magnesium (kg/ha)		1,919	..	2,560	..	3,295
	Exchangeable Magnesium (mg/kg)		857	..	1,143	..	1,471
	Exchangeable Potassium (cmol+/kg)		0.65	..	0.46	..	0.42
	Exchangeable Potassium (kg/ha)		574	..	400	..	372
	Exchangeable Potassium (mg/kg)		256	..	179	..	166
	Exchangeable Sodium (cmol+/kg)		0.58	..	1.6	..	5.1
	Exchangeable Sodium (kg/ha)		300	..	844	..	2,633
	Exchangeable Sodium (mg/kg)		134	..	377	..	1,176
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	0.02	..	0.01	..	<0.01
	Exchangeable Aluminium (kg/ha)		3.4	..	2.7	..	1.5
	Exchangeable Aluminium (mg/kg)		1.5	..	1.2	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		<1	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	38	..	39	..	41
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	78	..	71	..	57
	Magnesium (%)		19	..	24	..	30
	Potassium (%)		1.7	..	1.2	..	1.0
	Sodium - ESP (%)		1.5	..	4.2	..	13
	Aluminium (%)		0.04	..	0.03	..	0.02
	Hydrogen (%)		0.00	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	4.2	..	2.9	..	1.9
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	27	42	14	8.9	104
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..4/1	..	10YR..4/1	..	10YR..4/3
			Dark Gray	..	Dark Gray	..	Brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 31	Sample 32	Sample 33	Sample 34	Sample 35
	Sample ID:	10B 0 -10	10B 10 --20	10B 20 - 30	10B 30 - 40	10B 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/31	R7615/32	R7615/33	R7615/34	R7615/35

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 36	Sample 37	Sample 38	Sample 39	Sample 40
		Sample ID:	10B 60 - 70	10B 70 -80	10B 80 - 90	10B 90 - 100	13A 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/36	R7615/37	R7615/38	R7615/39	R7615/40
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.47	9.28	9.14	9.03	9.03
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.501	0.680	1.110	1.171	0.184
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	21	..	29
	Exchangeable Calcium (kg/ha)		..	..	9,282	..	12,915
	Exchangeable Calcium (mg/kg)		..	..	4,144	..	5,766
	Exchangeable Magnesium (cmol+/kg)		..	..	13	..	11
	Exchangeable Magnesium (kg/ha)		..	..	3,631	..	3,062
	Exchangeable Magnesium (mg/kg)		..	..	1,621	..	1,367
	Exchangeable Potassium (cmol+/kg)		..	..	0.41	..	0.77
	Exchangeable Potassium (kg/ha)		..	..	357	..	673
	Exchangeable Potassium (mg/kg)		..	..	159	..	301
	Exchangeable Sodium (cmol+/kg)		..	..	9.6	..	1.9
	Exchangeable Sodium (kg/ha)		..	..	4,941	..	972
	Exchangeable Sodium (mg/kg)		..	..	2,206	..	434
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	0.01	..	0.01
	Exchangeable Aluminium (kg/ha)		..	..	2.4	..	2.7
	Exchangeable Aluminium (mg/kg)		..	..	1.1	..	1.2
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	44	..	43
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	47	..	67
	Magnesium (%)		..	..	30	..	26
	Potassium (%)		..	..	0.93	..	1.8
	Sodium - ESP (%)		..	..	22	..	4.4
	Aluminium (%)		..	..	0.03	..	0.03
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.6	..	2.6
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	305	993	1,116	1,457	43
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10YR..4/3	..	10YR..5/4
	Moist Munsell Colour		..	..	Brown	..	Yellowish Brown
	Mottles Munsell Colour		..	..	..	..	..
	Mottles Munsell Colour		..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 36	Sample 37	Sample 38	Sample 39	Sample 40
	Sample ID:	10B 60 - 70	10B 70 -80	10B 80 - 90	10B 90 - 100	13A 0 -10
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/36	R7615/37	R7615/38	R7615/39	R7615/40

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 41	Sample 42	Sample 43	Sample 44	Sample 45
		Sample ID:	13A 10 --20	13A 20 - 30	13A 30 - 40	13A 40 - 50	13A 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/41	R7615/42	R7615/43	R7615/44	R7615/45
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.21	9.24	8.94	8.26	8.25
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.368	0.625	1.308	3.991	4.573
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	23	..	..	36
	Exchangeable Calcium (kg/ha)		..	10,548	..	..	15,969
	Exchangeable Calcium (mg/kg)		..	4,709	..	..	7,129
	Exchangeable Magnesium (cmol+/kg)		..	14	..	..	15
	Exchangeable Magnesium (kg/ha)		..	3,841	..	..	4,061
	Exchangeable Magnesium (mg/kg)		..	1,715	..	..	1,813
	Exchangeable Potassium (cmol+/kg)		..	0.61	..	..	0.42
	Exchangeable Potassium (kg/ha)		..	534	..	..	372
	Exchangeable Potassium (mg/kg)		..	238	..	..	166
	Exchangeable Sodium (cmol+/kg)		..	6.6	..	..	14
	Exchangeable Sodium (kg/ha)		..	3,393	..	..	7,031
	Exchangeable Sodium (mg/kg)		..	1,515	..	..	3,139
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	<0.01	..	..	0.02
	Exchangeable Aluminium (kg/ha)		..	2.0	..	..	4.6
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	2.0
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	45	..	..	65
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	52	..	..	55
	Magnesium (%)		..	31	..	..	23
	Potassium (%)		..	1.4	..	..	0.66
	Sodium - ESP (%)		..	15	..	..	21
	Aluminium (%)		..	0.02	..	..	0.03
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.7	..	..	2.4
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	216	645	1,068	1,143	1,543
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/3	..	..	10YR..4/4
			..	Brown	..	..	Dark yellowish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 41	Sample 42	Sample 43	Sample 44	Sample 45
Sample ID:	13A 10 --20	13A 20 - 30	13A 30 - 40	13A 40 - 50	13A 50 - 60
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting

Parameter	Method reference	R7615/41	R7615/42	R7615/43	R7615/44	R7615/45

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 46	Sample 47	Sample 48	Sample 49	Sample 50
		Sample ID:	13A 60 - 70	13A 70 -80	13A 80 - 90	13A 90 - 100	13B 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/46	R7615/47	R7615/48	R7615/49	R7615/50
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.69	8.54	8.89	8.90	8.35
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	2.572	3.029	2.124	2.137	0.137
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	16	..	21
	Exchangeable Calcium (kg/ha)		..	..	7,289	..	9,358
	Exchangeable Calcium (mg/kg)		..	..	3,254	..	4,178
	Exchangeable Magnesium (cmol+/kg)		..	..	15	..	9.7
	Exchangeable Magnesium (kg/ha)		..	..	4,103	..	2,634
	Exchangeable Magnesium (mg/kg)		..	..	1,832	..	1,176
	Exchangeable Potassium (cmol+/kg)		..	..	0.39	..	1.5
	Exchangeable Potassium (kg/ha)		..	..	339	..	1,318
	Exchangeable Potassium (mg/kg)		..	..	151	..	588
	Exchangeable Sodium (cmol+/kg)		..	..	15	..	1.3
	Exchangeable Sodium (kg/ha)		..	..	7,913	..	649
	Exchangeable Sodium (mg/kg)		..	..	3,533	..	290
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	<0.01	..	0.01
	Exchangeable Aluminium (kg/ha)		..	..	1.4	..	2.6
	Exchangeable Aluminium (mg/kg)		..	..	<1	..	1.2
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	47	..	33
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	34	..	63
	Magnesium (%)		..	..	32	..	29
	Potassium (%)		..	..	0.82	..	4.5
	Sodium - ESP (%)		..	..	33	..	3.8
	Aluminium (%)		..	..	0.02	..	0.04
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.1	..	2.2
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,655	1,569	1,686	1,537	37
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10YR..4/3	..	10YR..4/2
			..	..	Brown	..	Dark grayish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 46	Sample 47	Sample 48	Sample 49	Sample 50
	Sample ID:	13A 60 - 70	13A 70 -80	13A 80 - 90	13A 90 - 100	13B 0 -10
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/46	R7615/47	R7615/48	R7615/49	R7615/50

Notes:

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2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
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			Sample 51	Sample 52	Sample 53	Sample 54	Sample 55
		Sample ID:	13B 10 --20	13B 20 - 30	13B 30 - 40	13B 40 - 50	13B 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/51	R7615/52	R7615/53	R7615/54	R7615/55
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.82	8.96	9.18	9.22	9.28
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.163	0.151	0.196	0.237	0.367
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	20	..	..	17
	Exchangeable Calcium (kg/ha)		..	9,175	..	..	7,452
	Exchangeable Calcium (mg/kg)		..	4,096	..	..	3,327
	Exchangeable Magnesium (cmol+/kg)		..	10	..	..	12
	Exchangeable Magnesium (kg/ha)		..	2,804	..	..	3,156
	Exchangeable Magnesium (mg/kg)		..	1,252	..	..	1,409
	Exchangeable Potassium (cmol+/kg)		..	1.1	..	..	0.72
	Exchangeable Potassium (kg/ha)		..	938	..	..	630
	Exchangeable Potassium (mg/kg)		..	419	..	..	281
	Exchangeable Sodium (cmol+/kg)		..	2.2	..	..	5.5
	Exchangeable Sodium (kg/ha)		..	1,130	..	..	2,828
	Exchangeable Sodium (mg/kg)		..	505	..	..	1,263
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	0.01	..	..	0.01
	Exchangeable Aluminium (kg/ha)		..	2.6	..	..	2.4
	Exchangeable Aluminium (mg/kg)		..	1.2	..	..	1.1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	34	..	..	34
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	60	..	..	48
	Magnesium (%)		..	30	..	..	34
	Potassium (%)		..	3.1	..	..	2.1
	Sodium - ESP (%)		..	6.5	..	..	16
	Aluminium (%)		..	0.04	..	..	0.04
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	2.0	..	..	1.4
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	43	18	15	43	159
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..3/2	..	..	10YR..4/3
			..	Very dark grayish brown	..	..	Brown
	Mottles Munsell Colour		..	10R..6/8	..	..	2.5Y2.5/1
			..	Light red	..	..	Black
	Degree of Mottling (%)		..	1	..	..	5

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 51	Sample 52	Sample 53	Sample 54	Sample 55
	Sample ID:	13B 10 --20	13B 20 - 30	13B 30 - 40	13B 40 - 50	13B 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/51	R7615/52	R7615/53	R7615/54	R7615/55

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
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130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 56	Sample 57	Sample 58	Sample 59	Sample 60
		Sample ID:	13B 60 - 70	13B 70 -80	13B 80 - 90	13B 90 - 100	15 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/56	R7615/57	R7615/58	R7615/59	R7615/60
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.16	9.05	8.98	8.96	8.89
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.448	0.760	0.830	1.028	0.207
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	13	..	33
	Exchangeable Calcium (kg/ha)		..	..	5,774	..	14,707
	Exchangeable Calcium (mg/kg)		..	..	2,578	..	6,566
	Exchangeable Magnesium (cmol+/kg)		..	..	12	..	12
	Exchangeable Magnesium (kg/ha)		..	..	3,254	..	3,234
	Exchangeable Magnesium (mg/kg)		..	..	1,453	..	1,444
	Exchangeable Potassium (cmol+/kg)		..	..	0.63	..	0.86
	Exchangeable Potassium (kg/ha)		..	..	552	..	751
	Exchangeable Potassium (mg/kg)		..	..	247	..	335
	Exchangeable Sodium (cmol+/kg)		..	..	9.1	..	2.4
	Exchangeable Sodium (kg/ha)		..	..	4,679	..	1,235
	Exchangeable Sodium (mg/kg)		..	..	2,089	..	551
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	0.01	..	0.02
	Exchangeable Aluminium (kg/ha)		..	..	2.7	..	4.1
	Exchangeable Aluminium (mg/kg)		..	..	1.2	..	1.8
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	35	..	48
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	37	..	68
	Magnesium (%)		..	..	35	..	25
	Potassium (%)		..	..	1.8	..	1.8
	Sodium - ESP (%)		..	..	26	..	5.0
	Aluminium (%)		..	..	0.04	..	0.04
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.1	..	2.8
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	306	553	914	771	68
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	2.5Y..4/3	..	10YR..2/2
			..	..	Olive Brown	..	Very dark brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 56	Sample 57	Sample 58	Sample 59	Sample 60
	Sample ID:	13B 60 - 70	13B 70 -80	13B 80 - 90	13B 90 - 100	15 0 -10
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/56	R7615/57	R7615/58	R7615/59	R7615/60

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 61	Sample 62	Sample 63	Sample 64	Sample 65
		Sample ID:	15 10 --20	15 20 - 30	15 30 - 40	15 40 - 50	15 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/61	R7615/62	R7615/63	R7615/64	R7615/65
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.04	9.06	9.19	9.32	9.22
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.217	0.218	0.211	0.330	0.524
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	33	..	..	29
	Exchangeable Calcium (kg/ha)		..	14,902	..	..	13,117
	Exchangeable Calcium (mg/kg)		..	6,653	..	..	5,856
	Exchangeable Magnesium (cmol+/kg)		..	12	..	..	16
	Exchangeable Magnesium (kg/ha)		..	3,324	..	..	4,401
	Exchangeable Magnesium (mg/kg)		..	1,484	..	..	1,965
	Exchangeable Potassium (cmol+/kg)		..	0.63	..	..	0.51
	Exchangeable Potassium (kg/ha)		..	550	..	..	446
	Exchangeable Potassium (mg/kg)		..	246	..	..	199
	Exchangeable Sodium (cmol+/kg)		..	2.9	..	..	7.5
	Exchangeable Sodium (kg/ha)		..	1,499	..	..	3,888
	Exchangeable Sodium (mg/kg)		..	669	..	..	1,736
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	0.01	..	..	0.02
	Exchangeable Aluminium (kg/ha)		..	2.7	..	..	3.5
	Exchangeable Aluminium (mg/kg)		..	1.2	..	..	1.6
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	49	..	..	53
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	68	..	..	55
	Magnesium (%)		..	25	..	..	30
	Potassium (%)		..	1.3	..	..	0.95
	Sodium - ESP (%)		..	5.9	..	..	14
	Aluminium (%)		..	0.03	..	..	0.03
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	2.7	..	..	1.8
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	70	75	39	149	378
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	5YR..2.5/1	..	..	7.5YR..2.5/1
	Moist Munsell Colour		..	Black	..	..	Black
	Mottles Munsell Colour		..	..	..	..	..
	Mottles Munsell Colour		..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 61	Sample 62	Sample 63	Sample 64	Sample 65
	Sample ID:	15 10 --20	15 20 - 30	15 30 - 40	15 40 - 50	15 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/61	R7615/62	R7615/63	R7615/64	R7615/65

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 66	Sample 67	Sample 68	Sample 69	Sample 70
		Sample ID:	15 60 - 70	15 70 -80	15 80 - 90	15 90 - 100	16 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/66	R7615/67	R7615/68	R7615/69	R7615/70
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.07	8.97	8.95	8.82	8.91
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.754	1.128	1.510	1.796	0.153
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	25	..	38
	Exchangeable Calcium (kg/ha)		..	..	11,442	..	16,835
	Exchangeable Calcium (mg/kg)		..	..	5,108	..	7,516
	Exchangeable Magnesium (cmol+/kg)		..	..	16	..	12
	Exchangeable Magnesium (kg/ha)		..	..	4,282	..	3,261
	Exchangeable Magnesium (mg/kg)		..	..	1,912	..	1,456
	Exchangeable Potassium (cmol+/kg)		..	..	0.50	..	0.65
	Exchangeable Potassium (kg/ha)		..	..	436	..	569
	Exchangeable Potassium (mg/kg)		..	..	194	..	254
	Exchangeable Sodium (cmol+/kg)		..	..	14	..	1.7
	Exchangeable Sodium (kg/ha)		..	..	7,342	..	855
	Exchangeable Sodium (mg/kg)		..	..	3,278	..	382
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	0.01	..	0.01
	Exchangeable Aluminium (kg/ha)		..	..	2.4	..	2.9
	Exchangeable Aluminium (mg/kg)		..	..	1.1	..	1.3
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	56	..	52
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	46	..	72
	Magnesium (%)		..	..	28	..	23
	Potassium (%)		..	..	0.89	..	1.3
	Sodium - ESP (%)		..	..	25	..	3.2
	Aluminium (%)		..	..	0.02	..	0.03
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.6	..	3.1
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	777	1,233	1,508	1,912	59
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10R..3/1	..	7.5..3/2
			..	..	Dark reddish gray	..	Dark brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 66	Sample 67	Sample 68	Sample 69	Sample 70
Sample ID:	15 60 - 70	15 70 -80	15 80 - 90	15 90 - 100	16 0 -10
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/66	R7615/67	R7615/68	R7615/69	R7615/70

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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5. Guidelines for phosphorus have been reduced for Australian soils.
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7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
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11. Conversions to kg/ha = mg/kg x 2.24
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 71	Sample 72	Sample 73	Sample 74	Sample 75
		Sample ID:	16 10 --20	16 20 - 30	16 30 - 40	16 40 - 50	16 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/71	R7615/72	R7615/73	R7615/74	R7615/75
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.01	9.20	9.37	9.23	9.19
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.177	0.232	0.321	0.467	0.741
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	31	..	..
	Exchangeable Calcium (kg/ha)		..	..	13,713	..	..
	Exchangeable Calcium (mg/kg)		..	..	6,122	..	..
	Exchangeable Magnesium (cmol+/kg)		..	..	17	..	..
	Exchangeable Magnesium (kg/ha)		..	..	4,509	..	..
	Exchangeable Magnesium (mg/kg)		..	..	2,013	..	..
	Exchangeable Potassium (cmol+/kg)		..	..	0.49	..	..
	Exchangeable Potassium (kg/ha)		..	..	429	..	..
	Exchangeable Potassium (mg/kg)		..	..	192	..	..
	Exchangeable Sodium (cmol+/kg)		..	..	5.4	..	..
	Exchangeable Sodium (kg/ha)		..	..	2,775	..	..
	Exchangeable Sodium (mg/kg)		..	..	1,239	..	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	0.02	..	..
	Exchangeable Aluminium (kg/ha)		..	..	3.6	..	..
	Exchangeable Aluminium (mg/kg)		..	..	1.6	..	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	..
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	..
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	53	..	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	58	..	..
	Magnesium (%)		..	..	31	..	..
	Potassium (%)		..	..	0.93	..	..
	Sodium - ESP (%)		..	..	10	..	..
	Aluminium (%)		..	..	0.03	..	..
	Hydrogen (%)		..	..	0.00	..	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.8	..	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	20	70	119	258	853
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10R..3/1	..	..
	Mottles Munsell Colour		..	..	Dark reddish gray	..	..
	Degree of Mottling (%)		..	..	10YR..2/1,2.5,6/6YR	..	..
			..	..	Black,Light red	..	..
			..	..	2, 1	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 71	Sample 72	Sample 73	Sample 74	Sample 75
	Sample ID:	16 10 --20	16 20 - 30	16 30 - 40	16 40 - 50	16 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/71	R7615/72	R7615/73	R7615/74	R7615/75

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 76	Sample 77	Sample 78	Sample 79	Sample 80
		Sample ID:	16 60 - 70	16 70 -80	16 80 - 90	16 90 - 100	21 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/76	R7615/77	R7615/78	R7615/79	R7615/80
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.15	8.95	9.06	8.93	8.77
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.987	1.323	1.225	1.796	0.133
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	27	..	..	24	39
	Exchangeable Calcium (kg/ha)		12,194	..	..	10,960	17,590
	Exchangeable Calcium (mg/kg)		5,444	..	..	4,893	7,853
	Exchangeable Magnesium (cmol+/kg)		20	..	..	20	13
	Exchangeable Magnesium (kg/ha)		5,476	..	..	5,425	3,541
	Exchangeable Magnesium (mg/kg)		2,445	..	..	2,422	1,581
	Exchangeable Potassium (cmol+/kg)		0.62	..	..	0.60	1.1
	Exchangeable Potassium (kg/ha)		545	..	..	522	987
	Exchangeable Potassium (mg/kg)		243	..	..	233	441
	Exchangeable Sodium (cmol+/kg)		12	..	..	16	1.2
	Exchangeable Sodium (kg/ha)		6,370	..	..	8,406	636
	Exchangeable Sodium (mg/kg)		2,844	..	..	3,753	284
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	<0.01	..	..	<0.01	0.02
	Exchangeable Aluminium (kg/ha)		1.2	..	..	1.6	4.2
	Exchangeable Aluminium (mg/kg)		<1	..	..	<1	1.9
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	<0.01	..	..	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		<1	..	..	<1	<1
	Exchangeable Hydrogen (mg/kg)		<1	..	..	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	60	..	..	61	55
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	45	..	..	40	72
	Magnesium (%)		33	..	..	33	24
	Potassium (%)		1.0	..	..	0.97	2.1
	Sodium - ESP (%)		21	..	..	27	2.3
	Aluminium (%)		0.01	..	..	0.01	0.04
	Hydrogen (%)		0.00	..	..	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	1.4	..	..	1.2	3.0
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	955	1,445	1,302	1,579	50
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	10YR..4/2 Dark grayish brown	..	..	10YR..4/3 Brown	10YR..3/6 Dark yellowish brown
	Mottles Munsell Colour		..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 76	Sample 77	Sample 78	Sample 79	Sample 80
	Sample ID:	16 60 - 70	16 70 -80	16 80 - 90	16 90 - 100	21 0 -10
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/76	R7615/77	R7615/78	R7615/79	R7615/80

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 81	Sample 82	Sample 83	Sample 84	Sample 85
		Sample ID:	21 10 --20	21 20 - 30	21 30 - 40	21 40 - 50	21 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/81	R7615/82	R7615/83	R7615/84	R7615/85
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.82	8.95	9.01	8.92	8.86
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.159	0.212	0.350	0.373	0.604
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	38	..	32	..
	Exchangeable Calcium (kg/ha)		..	16,880	..	14,575	..
	Exchangeable Calcium (mg/kg)		..	7,536	..	6,507	..
	Exchangeable Magnesium (cmol+/kg)		..	14	..	16	..
	Exchangeable Magnesium (kg/ha)		..	3,929	..	4,335	..
	Exchangeable Magnesium (mg/kg)		..	1,754	..	1,935	..
	Exchangeable Potassium (cmol+/kg)		..	1.1	..	0.94	..
	Exchangeable Potassium (kg/ha)		..	923	..	821	..
	Exchangeable Potassium (mg/kg)		..	412	..	366	..
	Exchangeable Sodium (cmol+/kg)		..	3.0	..	5.9	..
	Exchangeable Sodium (kg/ha)		..	1,545	..	3,013	..
	Exchangeable Sodium (mg/kg)		..	690	..	1,345	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	0.02	..	0.02	..
	Exchangeable Aluminium (kg/ha)		..	4.0	..	3.6	..
	Exchangeable Aluminium (mg/kg)		..	1.8	..	1.6	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	<0.01	..
	Exchangeable Hydrogen (kg/ha)		..	<1	..	<1	..
	Exchangeable Hydrogen (mg/kg)		..	<1	..	<1	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	56	..	55	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	67	..	59	..
	Magnesium (%)		..	26	..	29	..
	Potassium (%)		..	1.9	..	1.7	..
	Sodium - ESP (%)		..	5.3	..	11	..
	Aluminium (%)		..	0.04	..	0.03	..
	Hydrogen (%)		..	0.00	..	0.00	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	2.6	..	2.0	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	30	69	226	285	989
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/1	..	10YR..4/1	..
			..	Dark Gray	..	Dark Gray	..
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 81	Sample 82	Sample 83	Sample 84	Sample 85
	Sample ID:	21 10 --20	21 20 - 30	21 30 - 40	21 40 - 50	21 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter / Method reference	R7615/81	R7615/82	R7615/83	R7615/84	R7615/85

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 86	Sample 87	Sample 88	Sample 89	Sample 90
		Sample ID:	21 60 - 70	21 70 -80	21 80 - 90	21 90 - 100	25 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/86	R7615/87	R7615/88	R7615/89	R7615/90
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.79	8.56	8.64	8.46	7.80
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.920	1.227	1.309	1.468	0.072
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	32	..	..	14
	Exchangeable Calcium (kg/ha)		..	14,183	..	..	6,346
	Exchangeable Calcium (mg/kg)		..	6,332	..	..	2,833
	Exchangeable Magnesium (cmol+/kg)		..	18	..	..	6.3
	Exchangeable Magnesium (kg/ha)		..	4,976	..	..	1,705
	Exchangeable Magnesium (mg/kg)		..	2,221	..	..	761
	Exchangeable Potassium (cmol+/kg)		..	1.0	..	..	0.29
	Exchangeable Potassium (kg/ha)		..	885	..	..	252
	Exchangeable Potassium (mg/kg)		..	395	..	..	112
	Exchangeable Sodium (cmol+/kg)		..	11	..	..	1.1
	Exchangeable Sodium (kg/ha)		..	5,696	..	..	551
	Exchangeable Sodium (mg/kg)		..	2,543	..	..	246
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	<0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	1.6	..	..	1.4
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	62	..	..	22
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	51	..	..	65
	Magnesium (%)		..	30	..	..	29
	Potassium (%)		..	1.6	..	..	1.3
	Sodium - ESP (%)		..	18	..	..	4.9
	Aluminium (%)		..	0.01	..	..	0.03
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.7	..	..	2.3
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,327	1,240	1,677	1,710	39
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/1	..	..	10YR..3/2
			..	Dark Gray	..	..	Very dark grayish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 86	Sample 87	Sample 88	Sample 89	Sample 90
Sample ID:	21 60 - 70	21 70 -80	21 80 - 90	21 90 - 100	25 0 -10
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / **Method reference**	R7615/86	R7615/87	R7615/88	R7615/89	R7615/90

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
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11. Conversions to kg/ha = mg/kg x 2.24
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
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			Sample 91	Sample 92	Sample 93	Sample 94	Sample 95
		Sample ID:	25 10 --20	25 20 - 30	25 30 - 40	25 40 - 50	25 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/91	R7615/92	R7615/93	R7615/94	R7615/95
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.14	9.19	9.25	9.22	9.15
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.215	0.221	0.374	0.614	0.847
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	20	..	..	23
	Exchangeable Calcium (kg/ha)		..	9,083	..	..	10,183
	Exchangeable Calcium (mg/kg)		..	4,055	..	..	4,546
	Exchangeable Magnesium (cmol+/kg)		..	14	..	..	15
	Exchangeable Magnesium (kg/ha)		..	3,741	..	..	4,030
	Exchangeable Magnesium (mg/kg)		..	1,670	..	..	1,799
	Exchangeable Potassium (cmol+/kg)		..	0.27	..	..	0.26
	Exchangeable Potassium (kg/ha)		..	239	..	..	226
	Exchangeable Potassium (mg/kg)		..	107	..	..	101
	Exchangeable Sodium (cmol+/kg)		..	4.6	..	..	8.5
	Exchangeable Sodium (kg/ha)		..	2,352	..	..	4,388
	Exchangeable Sodium (mg/kg)		..	1,050	..	..	1,959
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	<0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	1.8	..	..	<1
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	39	..	..	46
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	52	..	..	49
	Magnesium (%)		..	35	..	..	32
	Potassium (%)		..	0.70	..	..	0.56
	Sodium - ESP (%)		..	12	..	..	18
	Aluminium (%)		..	0.02	..	..	0.01
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.5	..	..	1.5
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	72	71	213	570	815
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/1	..	..	10YR..3/3
			..	Dark gray	..	..	Dark brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 91	Sample 92	Sample 93	Sample 94	Sample 95
	Sample ID:	25 10 --20	25 20 - 30	25 30 - 40	25 40 - 50	25 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/91	R7615/92	R7615/93	R7615/94	R7615/95

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 96	Sample 97	Sample 98	Sample 99	Sample 100
		Sample ID:	25 60 - 70	25 70 -80	25 80 - 90	25 90 - 100	26A 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/96	R7615/97	R7615/98	R7615/99	R7615/100
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.19	9.13	9.19	9.22	8.65
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.851	0.927	0.944	0.896	0.104
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	22	..	17
	Exchangeable Calcium (kg/ha)		..	..	9,847	..	7,669
	Exchangeable Calcium (mg/kg)		..	..	4,396	..	3,424
	Exchangeable Magnesium (cmol+/kg)		..	..	14	..	11
	Exchangeable Magnesium (kg/ha)		..	..	3,683	..	3,072
	Exchangeable Magnesium (mg/kg)		..	..	1,644	..	1,371
	Exchangeable Potassium (cmol+/kg)		..	..	0.28	..	0.96
	Exchangeable Potassium (kg/ha)		..	..	248	..	843
	Exchangeable Potassium (mg/kg)		..	..	111	..	376
	Exchangeable Sodium (cmol+/kg)		..	..	8.4	..	1.8
	Exchangeable Sodium (kg/ha)		..	..	4,341	..	935
	Exchangeable Sodium (mg/kg)		..	..	1,938	..	417
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	<0.01	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	..	<1	..	<1
	Exchangeable Aluminium (mg/kg)		..	..	<1	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	44	..	31
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	50	..	55
	Magnesium (%)		..	..	31	..	36
	Potassium (%)		..	..	0.64	..	3.1
	Sodium - ESP (%)		..	..	19	..	5.8
	Aluminium (%)		..	..	0.01	..	0.01
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.6	..	1.5
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	762	763	909	750	31
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10YR..5/4	..	10YR..4/2
			..	..	Yellowish brown	..	Dark grayish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 96	Sample 97	Sample 98	Sample 99	Sample 100
Sample ID:	25 60 - 70	25 70 -80	25 80 - 90	25 90 - 100	26A 0 -10
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/96	R7615/97	R7615/98	R7615/99	R7615/100

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615
Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 101	Sample 102	Sample 103	Sample 104	Sample 105
		Sample ID:	26A 10 --20	26A 20 - 30	26A 30 - 40	26A 40 - 50	26A 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/101	R7615/102	R7615/103	R7615/104	R7615/105
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	9.28	9.29	9.11	8.94	8.83
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.260	0.299	0.414	0.553	0.865
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	13	..	..	9.4
	Exchangeable Calcium (kg/ha)		..	5,891	..	..	4,206
	Exchangeable Calcium (mg/kg)		..	2,630	..	..	1,878
	Exchangeable Magnesium (cmol+/kg)		..	11	..	..	12
	Exchangeable Magnesium (kg/ha)		..	3,081	..	..	3,378
	Exchangeable Magnesium (mg/kg)		..	1,375	..	..	1,508
	Exchangeable Potassium (cmol+/kg)		..	0.60	..	..	0.61
	Exchangeable Potassium (kg/ha)		..	521	..	..	534
	Exchangeable Potassium (mg/kg)		..	233	..	..	238
	Exchangeable Sodium (cmol+/kg)		..	4.5	..	..	10
	Exchangeable Sodium (kg/ha)		..	2,307	..	..	5,320
	Exchangeable Sodium (mg/kg)		..	1,030	..	..	2,375
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	<0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	1.6	..	..	<1
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	30	..	..	33
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	44	..	..	29
	Magnesium (%)		..	38	..	..	38
	Potassium (%)		..	2.0	..	..	1.9
	Sodium - ESP (%)		..	15	..	..	32
	Aluminium (%)		..	0.03	..	..	0.01
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.2	..	..	0.76
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	52	128	321	318	912
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/4	..	..	10YR..5/3
			..	Dark yellowish brown	..	..	Brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 101	Sample 102	Sample 103	Sample 104	Sample 105
Sample ID:	26A 10 --20	26A 20 - 30	26A 30 - 40	26A 40 - 50	26A 50 - 60
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/101	R7615/102	R7615/103	R7615/104	R7615/105

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 106	Sample 107	Sample 108	Sample 109	Sample 110
		Sample ID:	26A 60 - 70	26A 70 -80	26A 80 - 90	26A 90 - 100	26B 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/106	R7615/107	R7615/108	R7615/109	R7615/110
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.84	8.71	8.62	8.54	9.11
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.884	1.095	1.175	1.346	0.289
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	..	8.9	24
	Exchangeable Calcium (kg/ha)		..	..	..	4,007	10,929
	Exchangeable Calcium (mg/kg)		..	..	..	1,789	4,879
	Exchangeable Magnesium (cmol+/kg)		..	..	..	14	12
	Exchangeable Magnesium (kg/ha)		..	..	..	3,679	3,166
	Exchangeable Magnesium (mg/kg)		..	..	..	1,642	1,413
	Exchangeable Potassium (cmol+/kg)		..	..	..	0.74	0.60
	Exchangeable Potassium (kg/ha)		..	..	..	644	523
	Exchangeable Potassium (mg/kg)		..	..	..	287	233
	Exchangeable Sodium (cmol+/kg)		..	..	..	13	3.5
	Exchangeable Sodium (kg/ha)		..	..	..	6,718	1,794
	Exchangeable Sodium (mg/kg)		..	..	..	2,999	801
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	..	<0.01	<0.01
	Exchangeable Aluminium (kg/ha)		..	..	..	1.1	1.6
	Exchangeable Aluminium (mg/kg)		..	..	..	<1	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	..	<0.01	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	..	<1	<1
	Exchangeable Hydrogen (mg/kg)		..	..	..	<1	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	..	36	40
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	..	25	61
	Magnesium (%)		..	..	..	37	29
	Potassium (%)		..	..	..	2.0	1.5
	Sodium - ESP (%)		..	..	..	36	8.7
	Aluminium (%)		..	..	..	0.01	0.02
	Hydrogen (%)		..	..	..	0.00	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	..	0.66	2.1
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	651	851	976	1,410	186
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	..	10YR..5/3	10YR..5/4
			..	..	..	Brown	Yellowish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 106	Sample 107	Sample 108	Sample 109	Sample 110
Sample ID:	26A 60 - 70	26A 70 -80	26A 80 - 90	26A 90 - 100	26B 0 -10
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / Method reference	R7615/106	R7615/107	R7615/108	R7615/109	R7615/110

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
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5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
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11. Conversions to kg/ha = mg/kg x 2.24
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 111	Sample 112	Sample 113	Sample 114	Sample 115
		Sample ID:	26B 10 --20	26B 20 - 30	26B 30 - 40	26B 40 - 50	26B 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/111	R7615/112	R7615/113	R7615/114	R7615/115
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.82	8.72	8.51	8.25	8.39
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.550	2.164	2.411	3.518	2.880
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	22	..	..	22
	Exchangeable Calcium (kg/ha)		..	9,827	..	..	9,887
	Exchangeable Calcium (mg/kg)		..	4,387	..	..	4,414
	Exchangeable Magnesium (cmol+/kg)		..	14	..	..	14
	Exchangeable Magnesium (kg/ha)		..	3,681	..	..	3,697
	Exchangeable Magnesium (mg/kg)		..	1,643	..	..	1,650
	Exchangeable Potassium (cmol+/kg)		..	0.42	..	..	0.52
	Exchangeable Potassium (kg/ha)		..	372	..	..	452
	Exchangeable Potassium (mg/kg)		..	166	..	..	202
	Exchangeable Sodium (cmol+/kg)		..	13	..	..	13
	Exchangeable Sodium (kg/ha)		..	6,834	..	..	6,476
	Exchangeable Sodium (mg/kg)		..	3,051	..	..	2,891
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	<0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	<1	..	..	1.9
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	49	..	..	49
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	45	..	..	45
	Magnesium (%)		..	28	..	..	28
	Potassium (%)		..	0.86	..	..	1.1
	Sodium - ESP (%)		..	27	..	..	26
	Aluminium (%)		..	0.01	..	..	0.02
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	1.6	..	..	1.6
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,425	2,166	2,317	2,484	2,292
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..4/4	..	..	10YR..5/3
	Moist Munsell Colour		..	Dark yellowish brown	..	..	Brown
	Mottles Munsell Colour		..	..	..	..	..
	Mottles Munsell Colour		..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

130 samples supplied by Minesoils Pty. Ltd. on 13/08/2024. Lab Job No.R7615

Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 111	Sample 112	Sample 113	Sample 114	Sample 115
	Sample ID:	26B 10 --20	26B 20 - 30	26B 30 - 40	26B 40 - 50	26B 50 - 60
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/111	R7615/112	R7615/113	R7615/114	R7615/115

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 116	Sample 117	Sample 118	Sample 119	Sample 120
		Sample ID:	26B 60 - 70	26B 70 -80	26B 80 - 90	26B 90 - 100	28 0 -10
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/116	R7615/117	R7615/118	R7615/119	R7615/120
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.15	8.46	8.53	8.55	8.27
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	3.380	2.629	2.446	2.516	0.075
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	18	..	28
	Exchangeable Calcium (kg/ha)		..	..	8,207	..	12,387
	Exchangeable Calcium (mg/kg)		..	..	3,664	..	5,530
	Exchangeable Magnesium (cmol+/kg)		..	..	14	..	11
	Exchangeable Magnesium (kg/ha)		..	..	3,757	..	3,128
	Exchangeable Magnesium (mg/kg)		..	..	1,677	..	1,396
	Exchangeable Potassium (cmol+/kg)		..	..	0.64	..	0.45
	Exchangeable Potassium (kg/ha)		..	..	562	..	395
	Exchangeable Potassium (mg/kg)		..	..	251	..	176
	Exchangeable Sodium (cmol+/kg)		..	..	13	..	1.0
	Exchangeable Sodium (kg/ha)		..	..	6,554	..	520
	Exchangeable Sodium (mg/kg)		..	..	2,926	..	232
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	<0.01	..	0.01
	Exchangeable Aluminium (kg/ha)		..	..	1.5	..	2.3
	Exchangeable Aluminium (mg/kg)		..	..	<1	..	1.0
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	<1
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	45	..	41
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	40	..	68
	Magnesium (%)		..	..	30	..	28
	Potassium (%)		..	..	1.4	..	1.1
	Sodium - ESP (%)		..	..	28	..	2.5
	Aluminium (%)		..	..	0.02	..	0.03
	Hydrogen (%)		..	..	0.00	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	1.3	..	2.4
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	2,353	2,615	2,356	2,691	71
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10YR..4/4	..	10YR..3/1
			..	..	Dark yellowish brown	..	Very dark gray
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

		Sample 116	Sample 117	Sample 118	Sample 119	Sample 120
	Sample ID:	26B 60 - 70	26B 70 -80	26B 80 - 90	26B 90 - 100	28 0 -10
	Crop:	N/G	N/G	N/G	N/G	N/G
	Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter	Method reference	R7615/116	R7615/117	R7615/118	R7615/119	R7615/120

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013,
   Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium,
    122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 121	Sample 122	Sample 123	Sample 124	Sample 125
		Sample ID:	28 10 --20	28 20 - 30	28 30 - 40	28 40 - 50	28 50 - 60
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/121	R7615/122	R7615/123	R7615/124	R7615/125
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.88	8.98	8.90	8.74	8.68
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.157	0.230	0.471	0.641	0.814
	Exchangeable Calcium (cmol₊/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	30	..	..	23
	Exchangeable Calcium (kg/ha)		..	13,384	..	..	10,546
	Exchangeable Calcium (mg/kg)		..	5,975	..	..	4,708
	Exchangeable Magnesium (cmol₊/kg)		..	14	..	..	16
	Exchangeable Magnesium (kg/ha)		..	3,719	..	..	4,474
	Exchangeable Magnesium (mg/kg)		..	1,660	..	..	1,997
	Exchangeable Potassium (cmol₊/kg)		..	0.23	..	..	0.26
	Exchangeable Potassium (kg/ha)		..	204	..	..	232
	Exchangeable Potassium (mg/kg)		..	91	..	..	104
	Exchangeable Sodium (cmol₊/kg)		..	3.1	..	..	8.1
	Exchangeable Sodium (kg/ha)		..	1,572	..	..	4,193
	Exchangeable Sodium (mg/kg)		..	702	..	..	1,872
	Exchangeable Aluminium (cmol₊/kg)	**Inhouse S37 (KCl)	..	0.01	..	..	<0.01
	Exchangeable Aluminium (kg/ha)		..	2.2	..	..	1.2
	Exchangeable Aluminium (mg/kg)		..	<1	..	..	<1
	Exchangeable Hydrogen (cmol₊/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	<0.01	..	..	<0.01
	Exchangeable Hydrogen (kg/ha)		..	<1	..	..	<1
	Exchangeable Hydrogen (mg/kg)		..	<1	..	..	<1
	Effective Cation Exchange Capacity (ECEC) (cmol₊/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol₊/kg)	..	47	..	..	48
	Calcium (%)	**Base Saturation Calculations - Cation cmol₊/kg / ECEC x 100	..	64	..	..	49
	Magnesium (%)		..	29	..	..	34
	Potassium (%)		..	0.50	..	..	0.55
	Sodium - ESP (%)		..	6.5	..	..	17
	Aluminium (%)		..	0.02	..	..	0.01
	Hydrogen (%)		..	0.00	..	..	0.00
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol₊/kg)	..	2.2	..	..	1.4
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	38	35	289	873	675
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	10YR..3/1	..	..	10YR..4/2
			..	Very dark gray	..	..	Dark grayish brown
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

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	Sample 121	Sample 122	Sample 123	Sample 124	Sample 125
Sample ID:	28 10 --20	28 20 - 30	28 30 - 40	28 40 - 50	28 50 - 60
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / **Method reference**	R7615/121	R7615/122	R7615/123	R7615/124	R7615/125

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
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AGRICULTURAL SOIL ANALYSIS REPORT

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh
PO Box 11034 TAMWORTH NSW 2340

			Sample 126	Sample 127	Sample 128	Sample 129	Sample 130
		Sample ID:	28 60 - 70	28 70 -80	28 80 - 90	28 90 - 100	10B 40 - 50
		Crop:	N/G	N/G	N/G	N/G	N/G
		Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
	Parameter	Method reference	R7615/126	R7615/127	R7615/128	R7615/129	R7615/130
	pH	Rayment & Lyons 2011 - 4A1 (1:5 Water)	8.49	8.24	7.56	6.12	9.34
	Electrical Conductivity (dS/m)	Rayment & Lyons 2011 - 3A1 (1:5 Water)	1.316	1.903	1.610	2.025	0.204
	Exchangeable Calcium (cmol+/kg)	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	..	..	16	..	..
	Exchangeable Calcium (kg/ha)		..	..	7,210	..	..
	Exchangeable Calcium (mg/kg)		..	..	3,219	..	..
	Exchangeable Magnesium (cmol+/kg)		..	..	17	..	..
	Exchangeable Magnesium (kg/ha)		..	..	4,684	..	..
	Exchangeable Magnesium (mg/kg)		..	..	2,091	..	..
	Exchangeable Potassium (cmol+/kg)		..	..	0.34	..	..
	Exchangeable Potassium (kg/ha)		..	..	299	..	..
	Exchangeable Potassium (mg/kg)		..	..	133	..	..
	Exchangeable Sodium (cmol+/kg)		..	..	11	..	..
	Exchangeable Sodium (kg/ha)		..	..	5,844	..	..
	Exchangeable Sodium (mg/kg)		..	..	2,609	..	..
	Exchangeable Aluminium (cmol+/kg)	**Inhouse S37 (KCl)	..	..	<0.01	..	..
	Exchangeable Aluminium (kg/ha)		..	..	<1	..	..
	Exchangeable Aluminium (mg/kg)		..	..	<1	..	..
	Exchangeable Hydrogen (cmol+/kg)	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	..	..	<0.01	..	..
	Exchangeable Hydrogen (kg/ha)		..	..	<1	..	..
	Exchangeable Hydrogen (mg/kg)		..	..	<1	..	..
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)	**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	..	..	45	..	..
	Calcium (%)	**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	..	..	36	..	..
	Magnesium (%)		..	..	38	..	..
	Potassium (%)		..	..	0.76	..	..
	Sodium - ESP (%)		..	..	25	..	..
	Aluminium (%)		..	..	0.01	..	..
	Hydrogen (%)		..	..	0.00	..	..
	Calcium/Magnesium Ratio	**Calculation: Calcium / Magnesium (cmol+/kg)	..	..	0.93	..	..
	Chloride (mg/kg)	**Rayment & Lyons 2011 - 5A3a	1,247	1,309	1,293	1,781	18
	Moist Munsell Colour	**Inhouse Munsell Soil Colour Classification	..	..	10YR..3/4	..	..
			..	..	Dark yellowish brown	..	..
	Mottles Munsell Colour		..	..	..	..	..
			..	..	..	..	..
	Degree of Mottling (%)		..	..	..	..	..

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

PO Box 11034 TAMWORTH NSW 2340

	Sample 126	Sample 127	Sample 128	Sample 129	Sample 130
Sample ID:	28 60 - 70	28 70 -80	28 80 - 90	28 90 - 100	10B 40 - 50
Crop:	N/G	N/G	N/G	N/G	N/G
Client:	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting	SLR Consulting
Parameter / **Method reference**	R7615/126	R7615/127	R7615/128	R7615/129	R7615/130

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
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9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 cmol$_+$/kg = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
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	Parameter		Method reference	Heavy Soil	Medium Soil	Light Soil	Sandy Soil
	Sample ID:						
	Crop:						
	Client:			Clay	Clay Loam	Loam	Loamy Sand
				Indicative guidelines - refer to Notes 6 and 8			
	pH		Rayment & Lyons 2011 - 4A1 (1:5 Water)	6.5	6.5	6.3	6.3
	Electrical Conductivity (dS/m)		Rayment & Lyons 2011 - 3A1 (1:5 Water)	0.200	0.150	0.120	0.100
	Exchangeable Calcium	**(cmol+/kg)**	Rayment & Lyons 2011 - 15D3 (Ammonium Acetate)	15.6	10.8	5.0	1.9
		(kg/ha)		7000	4816	2240	840
		(mg/kg)		3125	2150	1000	375
	Exchangeable Magnesium	**(cmol+/kg)**		2.4	1.7	1.2	0.60
		(kg/ha)		650	448	325	168
		(mg/kg)		290	200	145	75
	Exchangeable Potassium	**(cmol+/kg)**		0.60	0.50	0.40	0.30
		(kg/ha)		526	426	336	224
		(mg/kg)		235	190	150	100
	Exchangeable Sodium	**(cmol+/kg)**		0.3	0.26	0.22	0.11
		(kg/ha)		155	134	113	57
		(mg/kg)		69	60	51	25
	Exchangeable Aluminium	**(cmol+/kg)**	**Inhouse S37 (KCl)	0.6	0.5	0.4	0.2
		(kg/ha)		121	101	73	30
		(mg/kg)		54	45	32	14
	Exchangeable Hydrogen	**(cmol+/kg)**	**Rayment & Lyons 2011 - 15G1 (Acidity Titration)	0.6	0.5	0.4	0.2
		(kg/ha)		13	11	8	3
		(mg/kg)		6	5	4	2
	Effective Cation Exchange Capacity (ECEC) (cmol+/kg)		**Calculation: Sum of Ca,Mg,K,Na,Al,H (cmol+/kg)	20.1	14.3	7.8	3.3
	Calcium (%)		**Base Saturation Calculations - Cation cmol+/kg / ECEC x 100	77.6	75.7	65.6	57.4
	Magnesium (%)			11.9	11.9	15.7	18.1
	Potassium (%)			3.0	3.5	5.2	9.1
	Sodium - ESP (%)			1.5	1.8	2.9	3.3
	Aluminium (%)			6.0	7.1	10.5	12.1
	Hydrogen (%)						
	Calcium/Magnesium Ratio		**Calculation: Calcium / Magnesium (cmol+/kg)	6.5	6.4	4.2	3.2
	Chloride (mg/kg)		**Rayment & Lyons 2011 - 5A3a	..			
	Moist Munsell Colour		**Inhouse Munsell Soil Colour Classification	..			
	Mottles Munsell Colour			..			
	Degree of Mottling (%)			..			

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Analysis requested by Matt Hemingway. Your Job: MS155 Curragh

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		Heavy Soil	Medium Soil	Light Soil	Sandy Soil
	Sample ID:				
	Crop:				
	Client:	Clay	Clay Loam	Loam	Loamy Sand
	Parameter	Method reference	Indicative guidelines - refer to Notes 6 and 8		

Notes:

1. All results presented as a 40°C oven dried weight. Soil sieved and lightly crushed to < 2 mm.
2. Methods from Rayment and Lyons, 2011. *Soil Chemical Methods - Australasia.* CSIRO Publishing: Collingwood.
3. Soluble Salts included in Exchangeable Cations - NO PRE-WASH (unless requested).
4. 'Morgan 1 Extract' adapted from 'Science in Agriculture', 'Non-Toxic Farming' and LaMotte Soil Handbook.
5. Guidelines for phosphorus have been reduced for Australian soils.
6. Indicative guidelines are based on 'Albrecht' and 'Reams' concepts.
7. Total Acid Extractable Nutrients indicate a store of nutrients.
8. National Environmental Protection (Assessment of Site Contamination) Measure 2013, Schedule B(1) - Guideline on Investigation Levels for Soil and Groundwater. Table 5-A Background Ranges.
9. Information relating to testing colour codes is available on sheet 2 - 'Understanding your agricultural soil results'.
10. Conversions for 1 $cmol_+/kg$ = 230 mg/kg Sodium, 390 mg/kg Potassium, 122 mg/kg Magnesium, 200 mg/kg Calcium
11. Conversions to kg/ha = mg/kg x 2.24
12. The chloride calculation of Cl mg/L = EC x 640 is considered an estimate, and most likely an over-estimate
13. ** NATA accreditation does not cover the performance of this service.
14. Analysis conducted between sample arrival date and reporting date.
15. This report is not to be reproduced except in full. Results only relate to the item tested.
16. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions
17. This report was issued on 2/09/2024.

Quality Checked: Kris Saville
Agricultural Co-Ordinator

Appendix 3
SLR Consulting 2014 Soil Survey SCL Assessment Report

global environmental solutions

Strategic Cropping Land Assessment

Curragh Extension Project

Report Number 626.10135

22 July 2015

WSP / Parsons Brinkerhoff
Level 4 Northbank Plaza
69 Ann Street
Brisbane QLD 4000

Version: Revision 0

Strategic Cropping Land Assessment

Curragh Extension Project

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
626.10135	Revision 0	22 July 2015	Adam Koppers	Dean Fletcher	Dean Fletcher

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APPENDICES

1 INTRODUCTION

SLR Consulting (SLR) was commissioned by WSP / Parsons Brinkerhoff (WSP/PB) on behalf of Wesfarmers Curragh Pty Limited to undertake a Strategic Cropping Land (SCL) Assessment for the Curragh Extension Project (the Project). The Project is located north of Blackwater in Central Western Queensland and is situated in the Central Highland Regional Council Local Government Area (**Figure 1**).

1.1 Project Background

The Project is comprised of four mining lease applications (ML700006, ML700007, ML700008 and ML700009) which were lodged with the Department of Natural Resources and Mines 15 April 2015. In addition, an Environmental Authority (EA) Amendment application (Curragh Mine's Environmental Authority EPML00643713) for the Project was lodged with the Department of Environment and Heritage Protection (DEHP) on the 15 April 2015, which has received the following assessment level decisions:

- 29 April 2015 – notification from DEHP that the EA amendment application will be assessed as a Major Amendment
- 12 May 2015 – notification from DEHP that the Project does not require an Environmental Impact Statement under the *Environmental Protection Act 1994.*

1.2 Relevant Legislation

This SCL Assessment has been prepared generally in accordance with the requirements of the following relevant strategic land use planning documents:

- *Regional Planning Interests Act 2014* (RPI Act);
- *Regional Planning Interests Regulation 2014* (RPI Regulation); and
- *RPI Act Guideline 08/14: How to demonstrate that land in the strategic cropping area does not meet the criteria for strategic cropping land* (State of Queensland, 2014) (RPI Guideline).

1.2.1 Regional Planning Interests Act 2014

The operative provisions of the RPI Act commenced on 13 June 2014 and replaced the repealed SCL Act. The RPI Act is designed to manage the impact of resource activities and other regulated activities on areas of the State that contribute, or are likely to contribute, to Queensland's economics, social and environmental prosperity. The relevant aspects of the RPI Act, as with regard to this report, are as follows:

- The RPI Act incorporates the current SCL zonal criteria and on-ground guideline for assessing whether a property (or part of a property) is SCL; and
- The RPI Act does not allow the mapping of an Area of Regional Interest (ARI) to be challenged by proponents or third parties. However, through the process of a Regional Impact Development Approval (RIDA) application this will in essence determine if land is SCL or not according to the Assessment Criteria contained in the RPI Guideline. These criteria detailed are generally equivalent to those in the repealed SCL Act.

1.3 Purpose of this Document

The purpose of this document is to provide sufficient evidence that demonstrates that the land mapped as SCL on the SCL trigger map is, or is not SCL. This will include a summary of the fieldwork that has been conducted in relation to this SCL Assessment and will also contain sufficient information and advice regarding the on-ground assessment of SCL.

1.4 Project Area and SCL Study Area

1.4.1 Project Area

SLR understands that four broad Project Domains have been demarcated for this Project (**Figure 2**) and include:

1. Mining Area;
2. Infrastructure Area;
3. Nil Disturbance Area; and
4. Easement Area.

Domains 1, 2 and 3 are located within the Project mining lease application areas covering 5,995.7 ha. The Easement Area required for powerline relocation, is located adjacent but external to the Project mining lease application area ML700006, and covers 61.3 ha. Although the relocation of the powerline within the Easement Area is not is considered a mining activity, and therefore not regulated by the RPI Act, this area of land has been included in this SCL Assessment however excluded from the Regional Interest Development Approval application for the Curragh Extension Project.

The collective term for the land covered by the four domains is the Project Area. Therefore, the Project Area that includes all four domains is 6,057.0 ha (**Table 1**). A total of 1,646.8 ha of land is SCL trigger mapped within the Project Area.

Table 1 Project Area Domains

Domain	Area (ha)	SCL Trigger Mapped Area (ha)
Domain 1: Mining Area	1,905.9	410.0
Domain 2: Other Disturbance (including Infrastructure)	669.5	350.9
Domain 3: Nil Disturbance Area	3,420.3	829.6
Domain 4: Easement Areas	61.3	56.3
Total	**6,057.0**	**1,646.8**

1.4.2 SCL Study Area

The SCL Study Area is restricted to land within the Project Area which is currently SCL trigger mapped and will be disturbed by mining activities associated with the Project (Domains 1, 2 & 3) and powerline relocation within the easement (Domain 4). In addition some areas of 'Nil Disturbance' adjacent to the proposed disturbance areas that are SCL trigger mapped, have been evaluated to allow for minor changes in the current mine plan. The total SCL Study Area is 1,233.7 ha (**Table 2**; **Figure 3**).

Table 2 SCL Study Area by Domain

Domain	Area (ha)
Domain 1: Mining Area	410.0
Domain 2: Other Disturbance (including Infrastructure)	350.9
Domain 3: Nil Disturbance Area	416.5
Domain 4: Easement Areas*	56.3*
Total	**1,233.7**

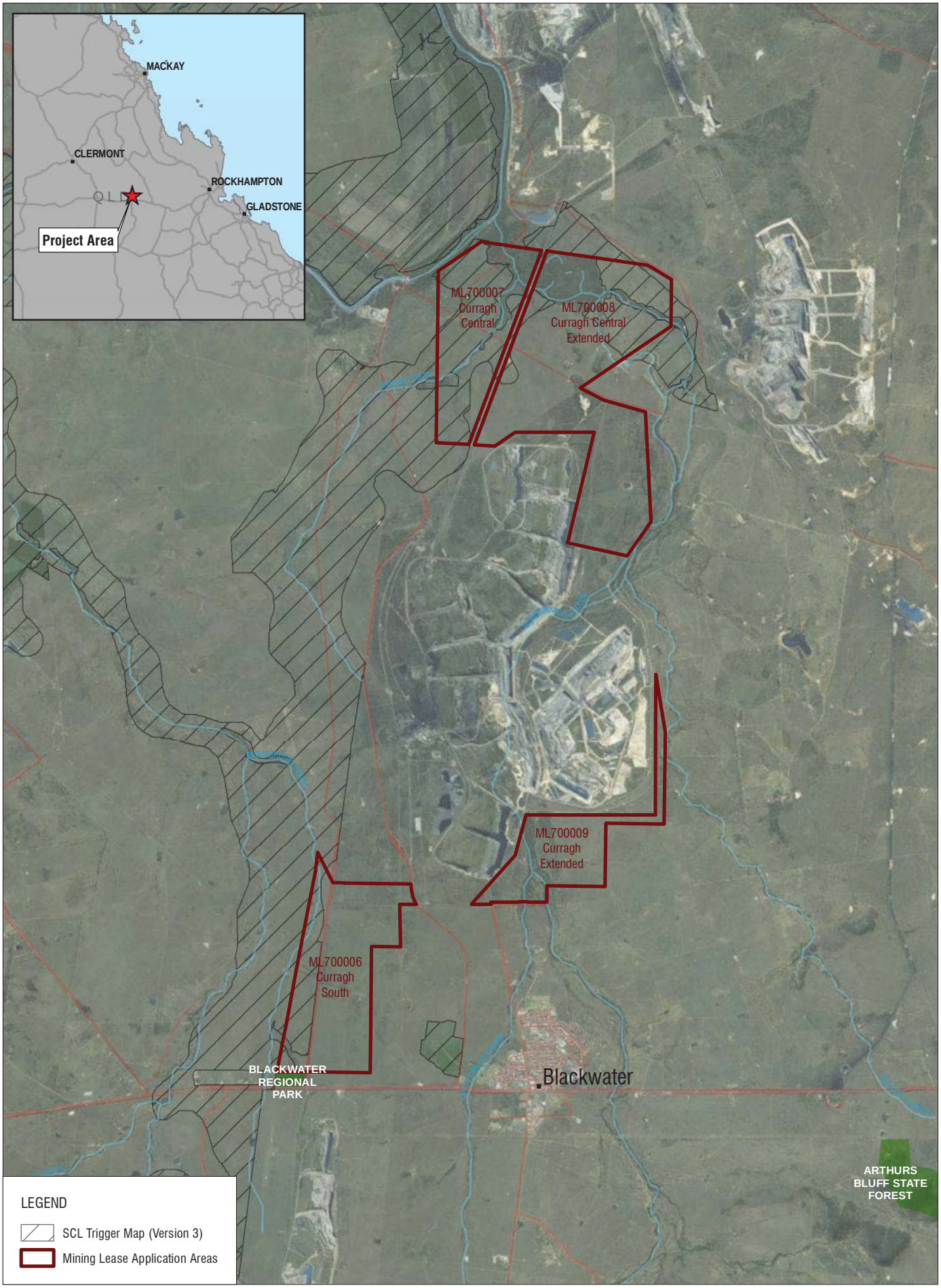
* Note: Domain 4 is excluded from the Curragh Extension Project RIDA application as it is outside the proposed Mining Lease boundaries.

1.5 SCL Assessment Checklist

The RPI Guideline provides information required to be addressed and included in this report. This information is summarised in **Table 3** along with the relevant references to the sections of this report where the information may be found.

Table 3 SCL Assessment Checklist

Information Required	Satisfied	Where in document
Appropriate map unit area	Yes	Table 12 (Section 3.1)
Appropriate site density per map unit	Yes	Table 12 (Section 3.1)
Location and identification of each observation site	Yes	Figure 5
Location of the map units	Yes	Figure 6
Extent of mapped SCL which does not meet criteria	Yes	Figure 7
Certificates of Analysis for all laboratory data	Yes	Appendix A
All soil profile site observations with appropriate information	Yes	Section 3; Appendix B
GPS coordinates of all site observations	Yes	Appendix C



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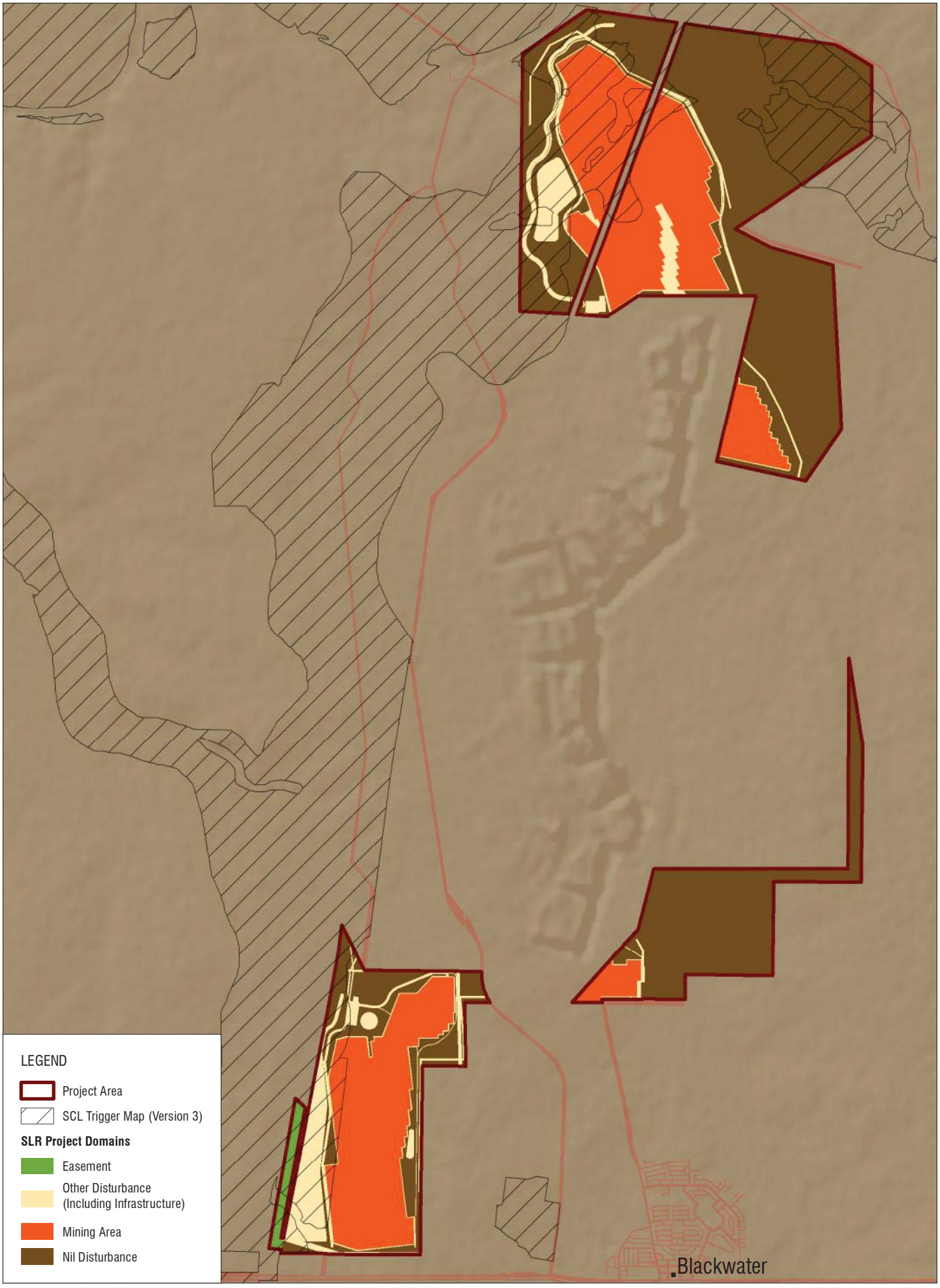
Curragh Extension Project
SCL Assessment

Regional Locality

FIGURE 1



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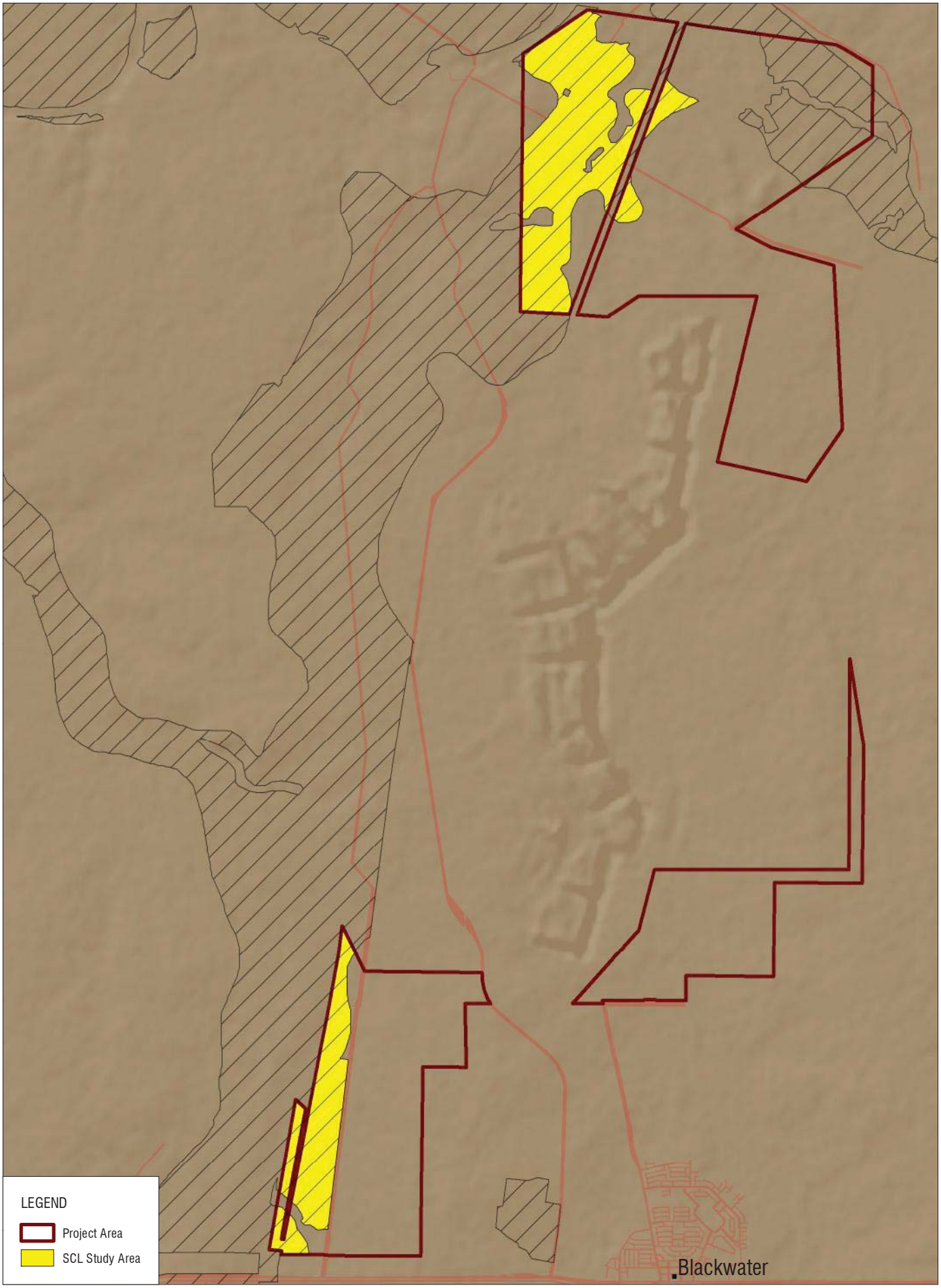
SCL Assessment

Project Domains

FIGURE 2



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Curragh Extension Project
SCL Assessment

SCL Study Area

FIGURE 3

2 METHODOLOGY

2.1 Soil Survey Methodology

2.1.1 Desktop Studies and Reference Mapping

The following resources and techniques were used as an initial examination of the Study Areas:

- Aerial photographs and topographic maps;

  Aerial photo and topographic map interpretation was used as a remote sensing technique allowing detailed analysis of the landscape and mapping of features expected to be related to the distribution of soils within the Study Area.

- Reference information;

  Source materials, including cadastral data, prior and current physiographic, geological, vegetation, and water resources studies were used to obtain correlations between pattern elements and soil properties that may be observable in the field. An existing soil report for the area, titled *No. 19 Lands of the Isaac-Comet Area, Queensland* (Story et al., 1967) was utilised to assist in defining boundaries of units and classes at a more intensive scale.

2.1.2 Field Survey Type

SLR undertook a field survey to ground truth the SCL Study Area. The soil survey type was in accordance with the *Guidelines for Surveying Soil and Land Resources* (McKenzie et al., 2008). The field survey undertaken was an integrated free survey which assumes that many land characteristics are interdependent and tend to occur in correlated sets (NSCT, 2008). Survey points are irregularly located according to the survey teams' judgement to enable the delineation of soil and SCL boundaries. Soil and SCL boundaries can be abrupt or gradual, and catena and toposequences are used to aid the description of gradual variation.

2.1.3 Survey Observation Types

There are four types of observations that can be used for the SCL Assessment:

- Detailed Sites:

  Field observation sites that allows for the identification of any physiographic factors or vegetation associations that characterise the site and associated map unit, the major pedological and structural features of the soil that are of relevance to SCL assessment.

- Analysed Sites

  Detailed Sites from which soil samples are collected and sent to NATA accredited laboratory for chemical and or physical analyses;

- Exclusion Sites

  Observation sites from which land can quickly and easily be determined as meeting or not meeting criteria relating to slope, rockiness or gilgai; and

- Check Sites

  Field observation sites that are examined in sufficient detail to allocate the site to a specific soil type and map unit. Commonly referred to as mapping observations.

Section 2.1.4 summarises the field survey observation types undertaken for the assessment.

2.1.4 Field Survey Observation Sites

Of the 1,233.7 ha of SCL Study Area, the fieldwork program excluded land that exceeded a slope greater than 3% using 'remote and indirect measurement (see **Appendix D** for methodology). Land with slopes greater than 3% is considered non-SCL in the Western Cropping SCL Zone. There are approximately 70 ha of land within the SCL exceeding slopes of 3% and this is listed as an SCL Exclusion Zone (**Figure 4**).

In October 2014, a total of 73 field survey observation sites were completed within the Project Area, of which 24 sites were within the SCL Study Area (**Figure 5**). Only observation sites within the SCL Study Area and therefore relevant to the SCL Assessment are discussed within this document.

In accordance with the RPI Guideline, validating SCL trigger mapping requires one observation every 50 ha. The number of observation survey sites required is shown in **Table 4**.

Table 4 Required Field Observations: SCL Study Area

SCL Study Area	Area (ha)	Survey Scale	Total Required Survey Sites
SCL Inclusion Zone - fieldwork required	1,163.7	1 Site per 50 ha	24
SCL Exclusion Zone - no fieldwork required	70.0	N/A	0
Total	**1,233.7**	**-**	**24**

All 24 observation sites within the SCL Study Area were Detailed Sites or Analysed Sites for the purpose of the RPI Guideline. There were no SCL Exclusion Sites based on rockiness or gilgai or Check Sites (**Table 5**).

Table 5 Field Survey Observations

Area	Observation Sites				
	Detailed	Analysed	Exclusion	Check	Total
SCL Study Area	16	8	0	0	24

Detailed Sites

Soil profiles within the Study Area were assessed in accordance with the Australian *Soil and Land Survey Field Handbook* soil classification procedures (NCST, 2009). Soil profiles were excavated from each Detailed Site using a mechanical non-rotating hydraulic ram soil corer. Each core was excavated to bedrock, equipment refusal or to an approximate depth of 1.2 m. Soil samples were taken for analysis, and the cores were backfilled after the profile was assessed.

Detailed soil profile descriptions recorded information that covered the major assessment parameters that are specified in **Table 6**. Soil profile logging was undertaken in the field using soil data sheets. GPS recordings were taken for all sites and soil exposures from excavated cores were photographed during field operations as colour photography of profile sites is a useful adjunct to description of land attributes.

The soil taxonomic classification system utilised to classify each Detailed Site was the *Australian Soil Classification System* (Isbell, 2002).

Table 6 Detailed Survey Site Assessment Parameters

Assessment Parameters	
Unique ID Number	Pedality structure, grade and consistence
GPS coordinates	Stones including abundance and size
Date	Mottles including amount, size and distinctiveness
Landform pattern and element	Segregations including abundance, nature, form and size
Current land use	Pan presence and form
Horizon depth including distinctiveness and shape	Roots including amount and size
Field texture grade	Permeability and drainage
Field colour (Munsell Colour Chart)	Field pH

Analysed Sites

Soil was generally collected at 10 cm increments throughout the profile. Samples representative of soil horizons were also generally collected at the following soil depths: 0-10 cm, 20-30 cm, 50-60 cm and 90-100 cm. Where horizon mixing was to be avoided, these depths were adjusted accordingly.

A total of 12 survey sites were laboratory analysed for the SCL parameters listed in **Table 7**, of which eight sites were within the SCL Study Area and used for the SCL Assessment (refer **Section 3**). The remaining four survey sites analysed were outside the SCL Study Area but within the SCL trigger mapped area. These sites were tested as a reconnaissance survey in areas of 'Nil Disturbance' should any changes in the Project disturbance footprint be required. Certificates of analysis are contained in **Appendix A**.

Table 7 SCL Laboratory Analysis

Laboratory Suite	Sampling Frequency	Laboratory Analysis
SCL Basic suite	Every sample (0.1 m increments down the profile to a maximum depth of 1.0 m or bedrock)	• Electrical conductivity (EC) • pH • Chloride
SCL Major suite	Every major soil horizon	• Exchangeable cations • Cation exchange capacity (CEC) • Colour • Particle size analysis

2.2 SCL Assessment Methodology

A key part of the RIDA application is demonstrating whether the Project's activities will have an impact on SCL. This requires assessment of the SCL Study Area in accordance with the RPI Guideline.

2.2.1 Strategic Cropping Land Criteria

The SCL criteria assessment relevant for the Western Cropping Zone is shown in **Table 8**. These criteria will be applied as appropriate to the survey observations.

Table 8 Zonal Criteria: Western Cropping Zone

Criteria		Description
1	Slope	Slope is less than or equal to 3%
2	Rockiness	The average density of rocks of greater than 60 mm diameter in the soil surface is less than or equal to 20%
3	Gilgai microrelief	The average density of gilgai microrelief of greater than 500 mm depth is less than 50 per cent of the land surface
4	Soil depth	The soil depth is greater than or equal to 600 mm
5	Soil wetness	The site has favourable drainage
6	Soil pH	For non-rigid soils, the soil at 300 mm and 600 mm soil depth must be greater that pH 5.0.
		For rigid soils, the soil at 300 mm and 600 mm soil depth must be greater that pH 5.1 to pH 8.9 inclusive.
7	Salinity	Chloride < 800 mg/kg within 600 mm of the soil surface
8	Soil water storage	$\geq$ 100 mm to a soil depth or soil physio-chemical limitation of $\leq$ 1000 mm

2.2.2 Effective Rooting Depth and Soil Water Storage

Criterion 8 of the SCL guideline, soil water storage (SWS), is expressed as mm of water over a specified depth of soil. Soil depth is calculated according its effective rooting depth (ERD) or to a maximum depth of 1000 mm. **Table 9** shows the ERD thresholds for the Western Cropping Zone in accordance with the RPI Guideline.

Table 9 Effective Rooting Depth Criteria for Western Cropping Zone

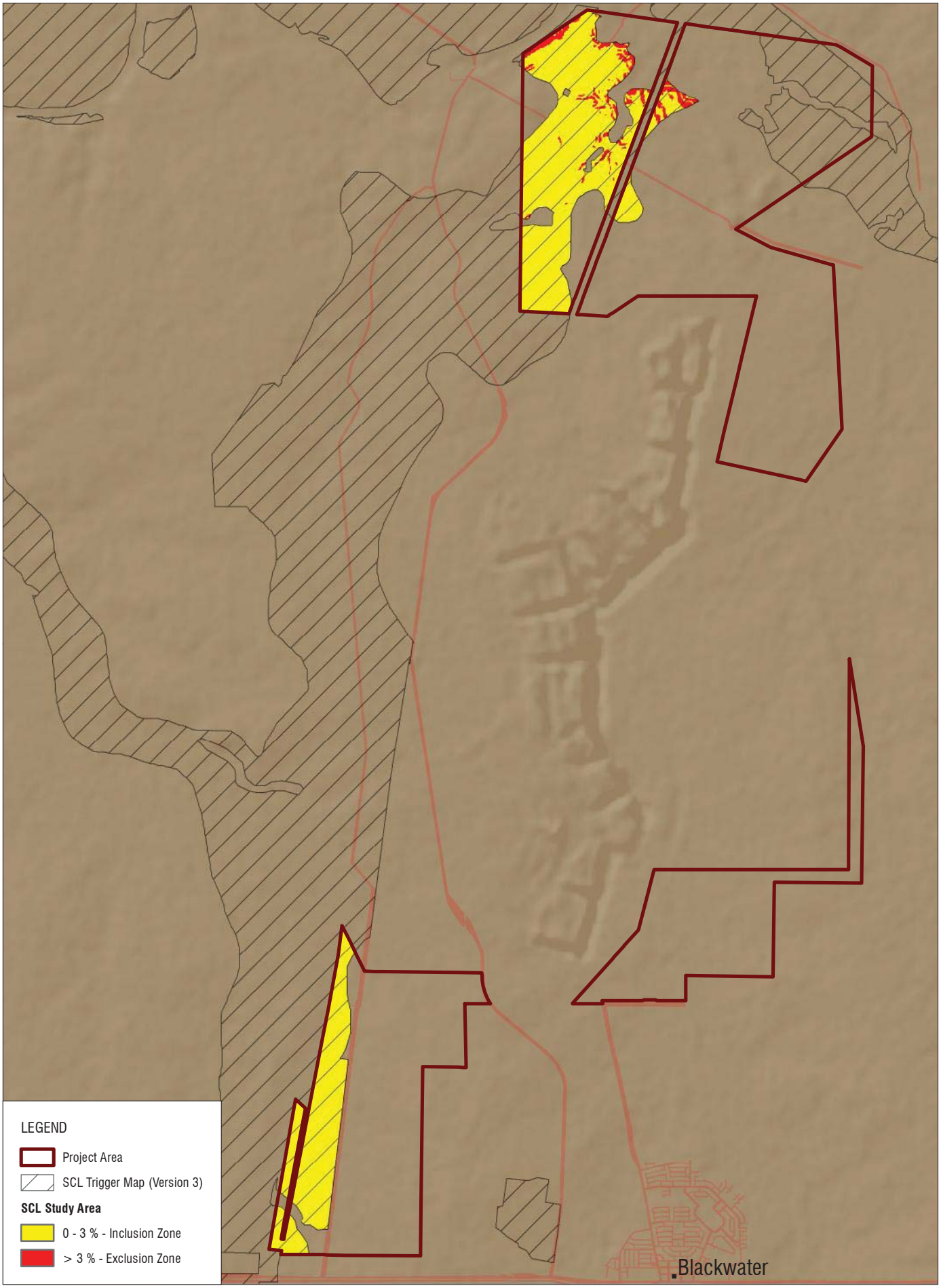
Descriptor		ERD occurs where:
Chloride Levels	Cl 1:5	>800 mg/kg
Sodicity	Exchangeable sodium percentage (ESP)	>15%
Cation Exchange Balance	Ca:Mg ratio	≤0.1
pH	Rigid soils	$\leq$5.0 and $\geq$9.0
	Non-rigid soils	$\leq$5.0
Bedrock	Depth to bedrock	Depth to C horizons

For this assessment, SWS of the soil profile was calculated using the soil texture lookup table method in accordance with the RPI Guideline (**Table 10**). Once the applicable soil textures (using laboratory data) are determined for each soil horizon, the soil water storage value for each layer is applied.

Table 10 Soil Texture Lookup Table

Soil Texture	Soil Water Storage
Sand; clayey sand; loamy sand	4 mm / 100 mm
Sandy loam	5 mm / 100 mm
Loam; silty loam; sandy clay loam	6 mm / 100 mm
Clay loam; clay loam, sandy; silty clay loam	8 mm / 100 mm
Silty clay; clays with <45% clay fraction	10 mm / 100 mm
Clays with ≥45% clay fraction	12 mm / 100 mm

Where the SWS estimate for a soil profile is within 15% of the criterion 8 threshold, a more robust estimate of SWS is required to be calculated using the PAWCER Pedotransfer method including laboratory analysed gravimetric water content at 1.5 MPa, as per the RPI Guideline. No sites analysed failed solely on criterion 8 and therefore additional laboratory analysis for SWS is not required (refer **Table 18**).



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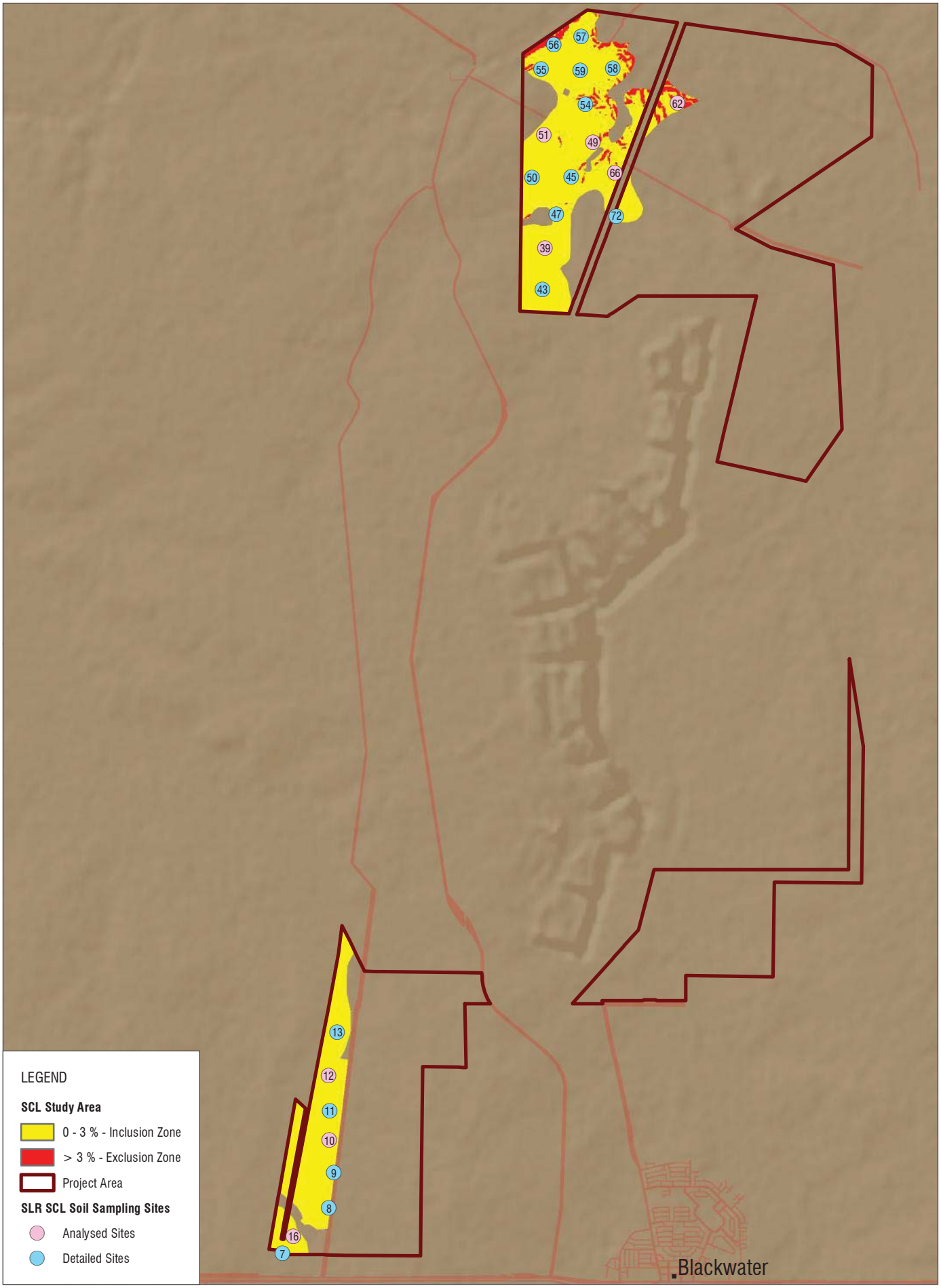
Curragh Extension Project
SCL Assessment

SCL Exclusion Zone

FIGURE 4



LEGEND

SCL Study Area

- 0 - 3 % - Inclusion Zone
- > 3 % - Exclusion Zone
- Project Area

SLR SCL Soil Sampling Sites

- Analysed Sites
- Detailed Sites

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Curragh Extension Project
SCL Assessment

Field Observation Sites

FIGURE 5

3 SOIL SURVEY RESULTS

In accordance with the RPI Guideline, a Soil Map Unit may consist of one or more soil types, but will typically only contain a single dominant soil type. Therefore, in a Soil Map Unit there may contain a dominant soil type and a subdominant and/or soil variant that are part of the soil landscape continuum but do not represent the major soil type present. The sub-dominant and/or variant typically occur when the soil type is too small to map as a Soil Map Unit or their presence is minor and part of the typical soil variance expected in a landscape.

Within the Study Area, one soil mapping unit (Soil Map Unit 1) (refer **Figure 6**) was identified that contained three soil types:

- Self-mulching Brown Vertosol (dominant);
- Self-mulching Black Vertosol (sub-dominant) and
- Eutrophic Brown Dermosol (sub-dominant)

3.1 Soil Map Unit 1 – Self-mulching Brown Vertosol

The dominant soil type for Soil Map Unit 1 is a Self-mulching Brown Vertosol. The Self-mulching Black Vertosol and Eutrophic Brown Dermosol do not meet the minimum soil unit map area requirements (10 ha) or number of sites per map unit (**Table 11**), therefore they have been aggregated with the dominant soil type in accordance with the RPI Guideline.

Table 11 Soil Types per Soil Map Unit

Soil Map Unit	Soil Types	Representative Sites
1	Self-Mulching Brown Vertosol	7, 8, 9, 10, 11, 12, 13, 16, 39, 45, 47, 49, 54, 57, 58, 59, 62, 66, 72
	Self-Mulching Black Vertosol	43, 56
	Eutrophic Brown Dermosol	50, 51, 55

The Self-mulching Brown Vertosol is characterised by silty clay grading to heavy clay or uniform heavy clay throughout the profile. This soil type is generally alkaline throughout the profile and exhibits increasing concentrations of chloride with depth, reaching extreme soil salinity levels. The profiles are generally non-sodic in the topsoil and marginally to strongly sodic in the subsoil. The number of observation types within Soil Map Unit 1 is shown in **Table 12**.

Table 12 Number of Survey Sites per Soil Map Unit

Soil Map Unit	SCL Study Area – Inclusion Zone (ha)	Observation Site Type	Site ID	No. of Sites	Required Sites
1	1,163.7	Analysed	10, 12, 16, 39, 49, 51, 62, 66	8	3
		Detailed	7, 8, 9, 11, 13, 43, 45, 47, 48, 50, 54, 55, 56, 57, 58, 72	16	3
		Check	-	0	2^
Total				24	8
Site Density				50 ha / site	50 ha / site

^ Check sites have been directly substituted for additional detailed sites.

The representative soil profiles for each dominant and sub-dominant soil type are described below (refer **Table 13** to **Table 17**).

3.1.1 Soil Map Unit 1 – Self-mulching Brown Vertosol (Dominant Soil Type)

Table 13 Detailed Description: Site 10

ASC Name	Self-mulching Brown Vertosol
Site No.	10
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (10YR 3/3) Heavy Clay, Weak structure of 5-10 mm angular blocky peds with a moderate consistence. Nil mottling; <5% <5 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; common fine roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.80	Very dark grayish brown (10YR 3/2) Heavy Clay, Strong structure of 30-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous & 5% gypsum segregations; common fine roots; Well drained with a gradual and irregular boundary.
	B23 0.80 – 1.10	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 50-70 mm angular blocky peds with a strong consistence. 30% distinct orange (7.5YR 6/8) mottling; Nil stone content; 5% calcareous & 5% gypsum segregations; few fine roots; Poorly drained.

Table 14 Analysed Description: Site 10

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	8.7	40	0.137	44.1	1.1	3.9	HC	12
B21	0.1	0.2	8.9	60	0.153	48.4	1.9	3.7	HC	12
	0.2	0.3	9.1	60	0.215	45.5	3.3	3.0		12
	0.3	0.4	9	220	0.379	35.8	8.9	1.8		12
B22	0.4	0.5	9	500	0.573	35.7	10.1	1.6	HC	12
	0.5	0.6	9	460	0.538	37.4	10.2	1.6		12
	0.6	0.7	8.9	700	0.822	38.3	11.5	1.4		12
	0.7	0.8	8.6	840	0.937	38	11.3	1.3		12
B23	0.8	0.9	8.5	1190	1.030	36.6	11.7	1.2	HC	12
	0.9	1.0	7.8	1690	1.510	35.2	11.6	1.0		12
SCL Criteria Compliance										
Effective Rooting Depth			0.7 m							
Total Soil Water Storage			84 mm							
Criterion 6 (pH) Compliance			Yes							
Criterion 7 (Salinity) Compliance			Yes							
Criterion 8 (SWS) Compliance			No							

3.1.2 Soil Map Unit 1 – Self-mulching Black Vertosol (Sub-dominant Soil Type)

Table 15 Detailed Description: Site 56

ASC Name	Self-mulching Black Vertosol
Site No.	56
Inspection Date	2/11/2014
Landform; Element	Lower Slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly
Drainage	Well drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Crusted / Loose
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.15	Very dark grey (7.5YR 3/1) Medium Clay, Strong structure of 10-50 mm platy peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.15 – 0.60	Black (7.5YR 2.5/1) Heavy Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary.
	B22 0.60 – 1.00	Black (7.5YR 2.5/1) Heavy Clay, Strong structure of 30-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; common fine and coarse roots; Moderately drained.

3.1.3 Soil Map Unit 1 – Eutrophic Brown Dermosol (Sub-dominant Soil Type)

Table 16 Detailed Description: Site 51

ASC Name	Eutrophic Brown Dermosol
Site No.	51
Inspection Date	1/11/2014
Landform; Element	Lower slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Firm
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark Yellowish-brown (10YR 3/4) Clay Loam, Weak structure of 10-30 mm platy peds with a strong consistence. Nil mottling; 10% 20 mm stone content; Nil segregations; common fine roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark Yellowish-brown (10YR 3/4) Light Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; common fine roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.60	Dark Yellowish-brown (10YR 3/4) Light Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; 10% 40 mm stone content; Nil segregations; few fine roots; Moderately drained with a gradual and even boundary.
	B23 0.60 – 1.00	Dark Yellowish-brown (10YR 4/6) Light Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 10% distinct brown (7.5YR 6/6) mottling; Nil stone content; <5% manganiferous segregations; Nil roots; Imperfectly drained.

Table 17 Analysed Description: Site 51

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	7.1	60	0.121	11.7	5.1	0.9	CL	8
B21	0.1	0.2	7.0	110	0.171	14.3	8.4	0.8	LC	10
	0.2	0.3	7.0	430	0.393	15.1	13.2	0.6		10
	0.3	0.4	6.8	1040	0.706	9.9	19.2	0.5	LC	10
B22	0.4	0.5	6.9	1110	0.727	10.7	24.3	0.4		10
	0.5	0.6	7.6	1400	0.829	9.1	26.4	0.3		10
B23	0.6	0.7	7.1	1900	1.120	8.6	27.9	0.3		10
	0.7	0.8	7.3	1480	0.932	6.4	28.1	0.3	LC	10
	0.8	0.9	7.2	1800	1.100	10.8	26.9	0.2		10
	0.9	1.0	6.8	2890	1.490	5.6	30.4	0.2		10
SCL Criteria Compliance										
Effective Rooting Depth	0.3 m									
Total Soil Water Storage	28 mm									
Criterion 6 (pH) Compliance	Yes									
Criterion 7 (Salinity) Compliance	No									
Criterion 8 (SWS) Compliance	No									

3.2 Strategic Cropping Land Assessment

This SCL assessment has been conducted in accordance with the RPI Act and the RPI Guideline (**Table 18**; **Appendix B**). A key part of the RIDA application is demonstrating whether the Project's activities will be carried out on SCL. A single Soil Map Unit was mapped with the SCL Study Area and this is represented by the dominant soil type, Self-mulching Brown Vertosol. Two sub-dominant soil types, Self-mulching Black Vertosol and Eutrophic Brown Dermosol were also present. In accordance with the RPI Guideline; the SCL assessment is undertaken on the dominant soil type within the mapping unit. As this dominant soil type fails to meet the SCL criteria, the entire Soil Map Unit is assessed as non-SCL (**Figure 7**).

No observation sites of the dominant soil type, within the SCL Study Area, failed SCL Criteria 1 to 5. The majority of laboratory analysed observation sites exhibited SCL constraints for both or either Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm) (**Figure 8**).

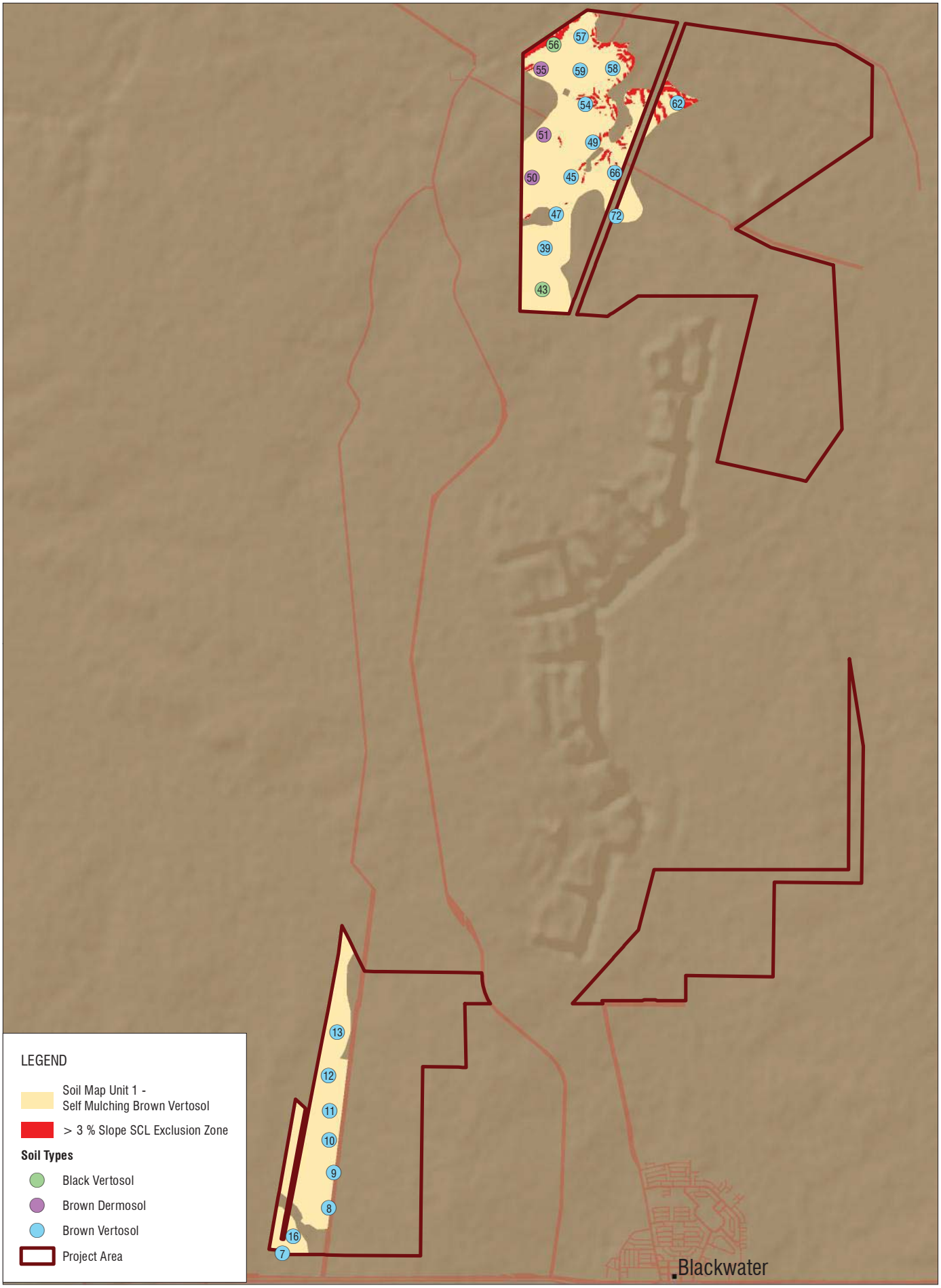
The classification of a Soil Map Unit as 'SCL' or 'non-SCL' is based on the characteristics of the dominant soil type failing one or more SCL criterion. In this case, 5 out of 7 analysed sites (>70%) within the dominant soil type (Self-mulching Brown Vertosol) of Soil Map Unit 1 fail salinity and/or soil water storage criteria.

The two sites that do not fail SCL criteria are not located adjacent to each other and therefore are not suitable to be mapped as separate Soil Map Units as they would not meet the minimum requirements set out by the RPI Guideline in terms of sampling density or map unit area

Based on the evidence provided, Soil Map Unit 1 has been assessed as being 'non-SCL'.

Table 18 Strategic Cropping Land Assessment

Soil Type		SCL Criteria								SCL
Soil Name	**Site No.**	**Slope**	**Rockiness**	**Gilgai**	**Soil Depth**	**Soil Wetness**	**pH**	**Salinity**	**Soil Water Storage**	
Soil Map Unit 1: Self-Mulching Brown Vertosol										
Dominant Soil Type: Self-mulching Brown Vertosol	10	✓	✓	✓	✓	✓	✓	✓	✗	Not SCL
	12	✓	✓	✓	✓	✓	✓	✓	✓	
	16	✓	✓	✓	✓	✓	✓	✗	✗	
	39	✓	✓	✓	✓	✓	✓	✗	✗	
	49	✓	✓	✓	✓	✓	✓	✗	✗	
	62	✓	✓	✓	✓	✓	✓	✓	✓	
	66	✓	✓	✓	✓	✓	✓	✗	✗	
	7	✓	✓	✓	✓	✓	N/A: Detailed Sites not laboratory analysed. Correlated with analysed sites.			
	8	✓	✓	✓	✓	✓				
	9	✓	✓	✓	✓	✓				
	11	✓	✓	✓	✓	✓				
	13	✓	✓	✓	✓	✓				
	45	✓	✓	✓	✓	✓				
	47	✓	✓	✓	✓	✓				
	48	✓	✓	✓	✓	✓				
	54	✓	✓	✓	✓	✓				
	57	✓	✓	✓	✓	✓				
	59	✓	✓	✓	✓	✓				
	72	✓	✓	✓	✗	✓				
Sub-dominant Soil Type: Self-mulching Black Vertosol	43	✓	✓	✓	✗	✓	N/A: Detailed Sites not laboratory analysed. Correlated with analysed sites.			
	56	✓	✓	✓	✓	✓				
Sub-dominant Soil Type: Eutrophic Brown Dermosol	51	✓	✓	✓	✓	✓	✓	✗	✗	
	50	✓	✓	✓	✗	✓	N/A: Detailed Sites not laboratory analysed. Correlated with analysed sites.			
	55	✓	✓	✓	✗	✓				



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Project No.:	626.10135
Date:	10/06/2015
Drawn by:	NT
Scale:	1:100,000
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Projection:	GDA 1994 MGA Zone 55

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WSP / Parsons Brinckerhoff

Curragh Extension Project
SCL Assessment

Soil Map Units

FIGURE 6

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Curragh Extension Project
SCL Assessment

SCL Assessment

FIGURE 7

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WSP / Parsons Brinckerhoff

Curragh Extension Project
SCL Assessment

SCL Limitations

FIGURE 8

4 CONCLUSION

SLR was commissioned by WSP/Parsons Brinckerhoff on behalf of Wesfarmers Curragh Pty Limited to undertake a SCL Assessment for the Curragh Extension Project. The purpose of this document is to provide sufficient evidence that demonstrates that the land mapped as SCL on the SCL trigger map is or is not SCL

The results of this SCL Assessment are summarised below:

- A total of 24 survey field observations have been within the SCL Study Area exceeding the required survey density.
- The SCL Assessment has identified only a single Soil Map Unit within the SCL Study Area, comprised of the dominant soil type Self-mulching Brown Vertosol and the sub-dominant soil types Self-mulching Black Vertosol and Eutrophic Brown Dermosol. The Self-mulching Black Vertosol and Eutrophic Brown Dermosol do not meet the minimum soil unit map area requirements (10 ha) or number of sites per map unit, therefore they have been aggregated with the dominant soil type in accordance with the RPI Guideline
- The majority of analysed SCL sites within Soil Map Unit 1 failed Criterion 7: Salinity (chloride > 800 mg/kg within 600 mm of the surface) and Criterion 8: Soil Water Storage (<100 mm to a soil depth or soil physio-chemical limitation of <1000 mm.
- The land within the SCL Study Area is therefore assessed as being ‘non-SCL’.

5 REFERENCES

- Isbell RF (2002) The Australian Soil Classification (rev. edn.). *CSIRO Publishing: Melbourne*.
- McKenzie NJ, Grundy MJ, Webster R, Ringrose-Voase AJ (2008) Guidelines for Surveying Soil and Land Resources (2nd edn). *CSIRO Publishing: Melbourne*.
- National Committee on Soil Terrain (2009) Australian Soil and Land Survey Field Handbook (3rd edn). *CSIRO Publishing: Melbourne*.
- State of Queensland (2011) Strategic Cropping Land Act 2011
- State of Queensland (2014) Regional Planning Interest Act 2014
- State of Queensland (2014) Regional Planning Interests Regulation 2014
- State of Queensland (2014) RPI Act Guideline 08/14: How to demonstrate that land in the strategic cropping area does not meet the criteria for strategic cropping land
- Story R, Fitzpatrick EA, Gunn RH, Galloway RW (1967) No. 19 Lands of the Isaac–Comet Area, Queensland. *Land Research Surveys* 1967 , 1–159.

Appendix A

Certificate of Analyses

CERTIFICATE OF ANALYSIS

Work Order	: **EB1447096**	Page	: 1 of 20
Client	: **SLR Consulting Australia Pty Ltd**	Laboratory	: Environmental Division Brisbane
Contact	: MS ADELE CALANDRA	Contact	: Customer Services EB
Address	: LEVEL 1, 241 DENNISON STREET BROADMEADOW NSW 2292	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: acalandra@slrconsulting.com	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: +61 02 4920 3000	Telephone	: +61-7-3243 7222
Facsimile	: +61 02 4961 3360	Facsimile	: +61-7-3243 7218
Project	: 626.10135.00200 - MDL 162	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 26-Nov-2014 09:48
C-O-C number	: ----	Date Analysis Commenced	: 27-Nov-2014
Sampler	: ----	Issue Date	: 08-Dec-2014 14:32
Site	: ----		
		No. of samples received	: 86
Quote number	: ----	No. of samples analysed	: 86

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 10: 0-10 cm	Site 10: 10-20 cm	Site 10: 20-30 cm	Site 10: 30-40 cm	Site 10: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-001	EB1447096-002	EB1447096-003	EB1447096-004	EB1447096-005
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.7	8.9	9.1	9.0	9.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	137	153	215	379	573
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	9.1	10.5	10.6	10.3	10.9
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	34.5	37.2	32.9	20.9	19.8
^ Exchangeable Magnesium	----	0.1	meq/100g	8.8	10.0	10.8	11.5	12.1
^ Exchangeable Potassium	----	0.1	meq/100g	0.4	0.2	0.2	0.2	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	0.5	0.9	1.5	3.2	3.6
^ Cation Exchange Capacity	----	0.1	meq/100g	44.1	48.4	45.5	35.8	35.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	40	60	60	220	500

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 10: 50-60 cm	Site 10: 60-70 cm	Site 10: 70-80 cm	Site 10: 80-90 cm	Site 10: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-006	EB1447096-007	EB1447096-008	EB1447096-009	EB1447096-010
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.0	8.9	8.6	8.5	7.8
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	538	822	937	1030	1510
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	11.7	11.2	11.7	12.4	12.1
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	20.3	19.4	19.0	17.5	15.4
^ Exchangeable Magnesium	----	0.1	meq/100g	13.0	14.2	14.5	14.6	15.5
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.2	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	3.8	4.4	4.3	4.3	4.1
^ Cation Exchange Capacity	----	0.1	meq/100g	37.4	38.3	38.0	36.6	35.2
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	460	700	840	1190	1690

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 12: 0-10 cm	Site 12: 10-20 cm	Site 12: 20-30 cm	Site 12: 30-40 cm	Site 12: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-011	EB1447096-012	EB1447096-013	EB1447096-014	EB1447096-015
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.1	8.4	8.8	9.0	9.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	51	104	112	177	284
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	6.0	8.8	13.6	9.8	9.0
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	21.1	19.9	19.9	19.2	21.0
^ Exchangeable Magnesium	----	0.1	meq/100g	9.4	10.4	11.2	11.9	12.4
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.3	0.1	0.1	0.1
^ Exchangeable Sodium	----	0.1	meq/100g	0.6	1.0	2.1	2.8	3.1
^ Cation Exchange Capacity	----	0.1	meq/100g	31.3	31.6	33.4	34.1	36.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	30	60	60	120

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 12: 50-60 cm	Site 12: 60-70 cm	Site 12: 70-80 cm	Site 12: 80-90 cm	Site 12: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-016	EB1447096-017	EB1447096-018	EB1447096-019	EB1447096-020
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.9	9.0	8.9	8.8	8.7
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	390	513	722	877	1040
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	9.2	10.8	9.4	10.0	9.8
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	21.1	20.4	25.8	28.0	25.6
^ Exchangeable Magnesium	----	0.1	meq/100g	12.2	13.1	14.3	14.7	15.1
^ Exchangeable Potassium	----	0.1	meq/100g	0.1	0.1	0.1	0.1	0.1
^ Exchangeable Sodium	----	0.1	meq/100g	2.9	3.7	3.6	3.6	3.5
^ Cation Exchange Capacity	----	0.1	meq/100g	36.3	37.4	43.8	46.3	44.3
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	210	330	530	750	880

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 16: 0-10 cm	Site 16: 10-20 cm	Site 16: 20-30 cm	Site 16: 30-40 cm	Site 16: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-021	EB1447096-022	EB1447096-023	EB1447096-024	EB1447096-025
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.9	8.8	8.9	8.6	8.8
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	65	296	451	1200	1020
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	6.8	11.4	12.4	11.4	11.3
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	19.5	21.4	24.8	31.7	36.7
^ Exchangeable Magnesium	----	0.1	meq/100g	7.3	9.8	11.5	12.4	14.2
^ Exchangeable Potassium	----	0.1	meq/100g	0.8	0.3	0.3	0.3	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	0.4	1.9	2.7	2.6	3.9
^ Cation Exchange Capacity	----	0.1	meq/100g	28.0	33.4	39.3	47.0	55.1
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	130	350	880	1190

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 16: 50-60 cm	Site 16: 60-70 cm	Site 16: 70-80 cm	Site 16: 80-90 cm	Site 16: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-026	EB1447096-027	EB1447096-028	EB1447096-029	EB1447096-030
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.5	8.2	6.8	7.2	6.8
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	1460	1350	2080	1780	1870
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	11.5	13.1	11.8	12.2	12.7
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	28.0	26.9	12.6	13.0	13.1
^ Exchangeable Magnesium	----	0.1	meq/100g	13.4	14.0	13.4	13.6	14.0
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.2	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	3.4	3.1	4.3	4.6	4.7
^ Cation Exchange Capacity	----	0.1	meq/100g	45.1	44.3	30.5	31.5	32.0
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	1420	1830	2220	2200	2480

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 39: 0-10 cm	Site 39: 10-20 cm	Site 39: 20-30 cm	Site 39: 30-40 cm	Site 39: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-031	EB1447096-032	EB1447096-033	EB1447096-034	EB1447096-035
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.3	8.7	9.0	9.0	9.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	233	371	579	941	1050
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	4.8	9.7	10.2	11.2	10.9
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	31.3	35.9	27.8	31.6	31.6
^ Exchangeable Magnesium	----	0.1	meq/100g	9.4	11.8	12.5	13.0	13.1
^ Exchangeable Potassium	----	0.1	meq/100g	0.4	0.2	0.3	0.2	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	0.5	1.2	2.7	3.3	3.7
^ Cation Exchange Capacity	----	0.1	meq/100g	41.6	49.2	43.3	48.2	48.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	50	260	540	1100	1340

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 39: 50-60 cm	Site 39: 60-70 cm	Site 39: 70-80 cm	Site 39: 80-90 cm	Site 39: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-036	EB1447096-037	EB1447096-038	EB1447096-039	EB1447096-040
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.9	8.8	8.7	8.7	8.8
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	1470	1660	2030	1920	1710
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	10.9	11.2	12.2	10.8	9.8
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	30.1	27.7	27.2	19.5	13.8
^ Exchangeable Magnesium	----	0.1	meq/100g	13.0	13.4	14.0	12.9	12.3
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.2	0.1
^ Exchangeable Sodium	----	0.1	meq/100g	3.8	3.8	4.0	3.9	4.0
^ Cation Exchange Capacity	----	0.1	meq/100g	47.1	45.1	45.4	36.5	30.3
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	2000	2430	2900	2700	2580

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 49: 0-10 cm	Site 49: 10-20 cm	Site 49: 20-30 cm	Site 49: 30-40 cm	Site 49: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-041	EB1447096-042	EB1447096-043	EB1447096-044	EB1447096-045
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.6	8.9	9.0	9.2	9.2
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	171	177	234	321	471
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	14.0	15.1	15.6	16.3	15.4
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	39.3	44.4	41.9	38.7	39.4
^ Exchangeable Magnesium	----	0.1	meq/100g	9.2	11.4	12.2	13.6	14.5
^ Exchangeable Potassium	----	0.1	meq/100g	1.5	0.9	0.8	0.7	0.7
^ Exchangeable Sodium	----	0.1	meq/100g	0.3	1.1	1.7	3.3	3.8
^ Cation Exchange Capacity	----	0.1	meq/100g	50.3	57.8	56.6	56.3	58.4
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	30	30	70	100	320

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 49: 50-60 cm	Site 49: 60-70 cm	Site 49: 70-80 cm	Site 49: 80-90 cm	Site 49: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-046	EB1447096-047	EB1447096-048	EB1447096-049	EB1447096-050
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.0	9.0	8.8	8.7	8.6
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	808	937	1180	1400	1620
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	15.8	17.0	14.9	15.0	14.7
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	14.7	35.4	19.7	31.8	32.0
^ Exchangeable Magnesium	----	0.1	meq/100g	7.1	14.9	9.5	15.3	15.4
^ Exchangeable Potassium	----	0.1	meq/100g	0.3	0.8	0.5	0.8	0.8
^ Exchangeable Sodium	----	0.1	meq/100g	3.0	5.3	4.0	5.4	5.4
^ Cation Exchange Capacity	----	0.1	meq/100g	25.1	56.3	33.8	53.4	53.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	1000	1160	1590	2080	2360

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 51: 0-10 cm	Site 51: 10-20 cm	Site 51: 20-30 cm	Site 51: 30-40 cm	Site 51: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-051	EB1447096-052	EB1447096-053	EB1447096-054	EB1447096-055
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.1	7.0	7.0	6.8	6.9
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	121	171	393	706	727
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	1.2	5.0	5.8	6.0	6.1
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	5.0	5.8	5.1	2.5	2.1
^ Exchangeable Magnesium	----	0.1	meq/100g	5.5	7.1	7.9	5.4	5.9
^ Exchangeable Potassium	----	0.1	meq/100g	0.6	0.1	0.1	<0.1	<0.1
^ Exchangeable Sodium	----	0.1	meq/100g	0.6	1.2	2.0	1.9	2.6
^ Cation Exchange Capacity	----	0.1	meq/100g	11.7	14.3	15.1	9.9	10.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	60	110	430	1040	1110

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 51: 50-60 cm	Site 51: 60-70 cm	Site 51: 70-80 cm	Site 51: 80-90 cm	Site 51: 90-100 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-056	EB1447096-057	EB1447096-058	EB1447096-059	EB1447096-060
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**7.6**	**7.1**	**7.3**	**7.2**	**6.8**
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**829**	**1120**	**932**	**1100**	**1490**
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**14.2**	**7.7**	**4.3**	**7.2**	**16.7**
ED008: Exchangeable Cations								
^ **Exchangeable Calcium**	----	0.1	meq/100g	**1.5**	**1.3**	**1.0**	**1.5**	**0.7**
^ **Exchangeable Magnesium**	----	0.1	meq/100g	**5.0**	**4.8**	**3.6**	**6.2**	**3.2**
^ **Exchangeable Potassium**	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
^ **Exchangeable Sodium**	----	0.1	meq/100g	**2.4**	**2.4**	**1.8**	**2.9**	**1.7**
^ **Cation Exchange Capacity**	----	0.1	meq/100g	**9.1**	**8.6**	**6.4**	**10.8**	**5.6**
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	**1400**	**1900**	**1480**	**1800**	**2890**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 62: 0-10 cm	Site 62: 10-20 cm	Site 62: 20-30 cm	Site 62: 30-40 cm	Site 62: 40-50 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-061	EB1447096-062	EB1447096-063	EB1447096-064	EB1447096-065
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.6	8.8	8.9	9.0	9.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	141	158	199	245	292
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	10.9	13.1	14.0	14.2	14.0
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	37.0	41.4	42.6	38.0	39.4
^ Exchangeable Magnesium	----	0.1	meq/100g	10.3	10.7	11.7	12.5	12.7
^ Exchangeable Potassium	----	0.1	meq/100g	1.0	0.8	0.7	0.7	0.7
^ Exchangeable Sodium	----	0.1	meq/100g	0.5	0.8	1.5	2.6	2.9
^ Cation Exchange Capacity	----	0.1	meq/100g	48.9	53.7	56.5	53.8	55.8
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	20	40	60	120

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 62: 50-60 cm	Site 62: 70-80 cm	Site 62: 80-90 cm	Site 62: 90-100 cm	Site 63: 0-10 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-066	EB1447096-068	EB1447096-069	EB1447096-070	EB1447096-071
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.0	8.9	9.0	8.8	7.1
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	381	591	582	889	120
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	15.2	16.3	15.7	16.1	3.0
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	35.8	33.0	34.7	33.2	5.1
^ Exchangeable Magnesium	----	0.1	meq/100g	13.6	13.9	13.8	14.0	3.1
^ Exchangeable Potassium	----	0.1	meq/100g	0.7	0.7	0.7	0.8	1.0
^ Exchangeable Sodium	----	0.1	meq/100g	3.7	4.2	4.3	4.3	<0.1
^ Cation Exchange Capacity	----	0.1	meq/100g	53.8	51.9	53.6	52.2	9.3
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	230	590	570	1110	100

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 63: 10-20 cm	Site 63: 20-30 cm	Site 63: 30-40 cm	Site 63: 40-50 cm	Site 63: 50-60 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-072	EB1447096-073	EB1447096-074	EB1447096-075	EB1447096-076
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.2	7.5	7.4	7.5	7.7
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	20	23	24	40	45
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	4.0	4.1	2.9	1.7	3.9
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	7.1	5.4	6.6	3.8	4.2
^ Exchangeable Magnesium	----	0.1	meq/100g	2.5	3.7	3.2	3.6	3.0
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.1	0.1	0.1	0.1
^ Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.3	0.1	0.5	0.3
^ Cation Exchange Capacity	----	0.1	meq/100g	9.8	9.6	10.1	8.0	7.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	<10	20	20

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 63: 60-70 cm	Site 63: 70-80 cm	Site 63: 80-90 cm	Site 63: 90-100 cm	Site 64: 0-10 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-077	EB1447096-078	EB1447096-079	EB1447096-080	EB1447096-081
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.8	7.8	8.1	8.6	8.4
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	45	61	75	166	136
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	2.7	2.2	2.9	8.1	10.6
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	3.2	3.9	4.0	5.0	34.2
^ Exchangeable Magnesium	----	0.1	meq/100g	3.1	3.6	4.0	5.2	7.1
^ Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.1	0.2	0.2	1.6
^ Exchangeable Sodium	----	0.1	meq/100g	0.4	0.5	0.6	0.8	0.2
^ Cation Exchange Capacity	----	0.1	meq/100g	6.8	8.1	8.8	11.2	43.2
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	30	40	110	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 64: 10-20 cm	Site 64: 20-30 cm	Site 64: 30-40 cm	Site 64: 40-50 cm	Site 64: 50-60 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447096-082	EB1447096-083	EB1447096-084	EB1447096-085	EB1447096-086
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.7	8.9	9.0	9.0	9.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	160	186	278	327	447
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	17.0	25.6	14.9	14.7	14.5
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	35.4	39.7	39.8	37.7	36.6
^ Exchangeable Magnesium	----	0.1	meq/100g	8.0	10.4	11.0	11.6	12.3
^ Exchangeable Potassium	----	0.1	meq/100g	0.9	0.8	0.7	0.8	0.8
^ Exchangeable Sodium	----	0.1	meq/100g	0.6	1.3	1.8	2.4	3.0
^ Cation Exchange Capacity	----	0.1	meq/100g	44.9	52.3	53.3	52.4	52.7
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	40	130	130	330

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 10: 100-110 cm	----	----	----	----
			Client sampling date / time	24-Nov-2014 15:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EB1447096-087	--------	--------	--------	--------
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	**8.2**	----	----	----	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	**1030**	----	----	----	----
EA055: Moisture Content								
^ **Moisture Content (dried @ 103°C)**	----	1	%	**21.1**	----	----	----	----
ED008: Exchangeable Cations								
^ **Exchangeable Calcium**	----	0.1	meq/100g	**14.9**	----	----	----	----
^ **Exchangeable Magnesium**	----	0.1	meq/100g	**15.0**	----	----	----	----
^ **Exchangeable Potassium**	----	0.1	meq/100g	**0.2**	----	----	----	----
^ **Exchangeable Sodium**	----	0.1	meq/100g	**4.5**	----	----	----	----
^ **Cation Exchange Capacity**	----	0.1	meq/100g	**34.7**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	**1370**	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: **EB1447095**	Page	: 1 of 9
Client	: **SLR Consulting Australia Pty Ltd**	Laboratory	: Environmental Division Brisbane
Contact	: MS ADELE CALANDRA	Contact	: Customer Services EB
Address	: LEVEL 1, 241 DENNISON STREET BROADMEADOW NSW 2292	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: acalandra@slrconsulting.com	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: +61 02 4920 3000	Telephone	: +61-7-3243 7222
Facsimile	: +61 02 4961 3360	Facsimile	: +61-7-3243 7218
Project	: 626.10135.00200 - MDL 162	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 26-Nov-2014 08:10
C-O-C number	: ----	Date Analysis Commenced	: 27-Nov-2014
Sampler	: ----	Issue Date	: 08-Dec-2014 13:22
Site	: ----		
		No. of samples received	: 34
Quote number	: ----	No. of samples analysed	: 34

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Matt Frost	Senior Organic Chemist	Brisbane Inorganics

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- **ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl (Method 15G1) is a more suitable method for the determination of exchange acidity (H+ + Al3+).**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 64: 60-70 cm	Site 64: 70-80 cm	Site 64: 80-90 cm	Site 64: 90-100 cm	Site 65: 0-10 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-001	EB1447095-002	EB1447095-003	EB1447095-004	EB1447095-005
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.9	8.8	8.8	8.6	7.2
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	627	813	994	1340	44
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	15.3	15.2	15.6	14.7	6.3
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	37.4	36.6	36.6	36.1	13.4
^ Exchangeable Magnesium	----	0.1	meq/100g	12.9	13.8	14.0	14.3	5.0
^ Exchangeable Potassium	----	0.1	meq/100g	0.8	0.8	0.9	0.9	1.0
^ Exchangeable Sodium	----	0.1	meq/100g	3.2	3.6	3.6	3.5	<0.1
^ Cation Exchange Capacity	----	0.1	meq/100g	54.3	54.8	55.1	54.8	19.4
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	630	960	1280	1850	20

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 65: 10-20 cm	Site 65: 20-30 cm	Site 65: 30-40 cm	Site 65: 40-50 cm	Site 65: 50-60 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-006	EB1447095-007	EB1447095-008	EB1447095-009	EB1447095-010
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	7.8	7.9	8.6	8.6	8.6
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	35	46	117	124	125
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	8.6	8.9	8.4	15.4	8.4
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	17.0	20.4	32.5	31.3	27.4
^ Exchangeable Magnesium	----	0.1	meq/100g	6.7	6.5	6.5	6.6	6.7
^ Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.3	0.3	0.3
^ Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
^ Cation Exchange Capacity	----	0.1	meq/100g	24.2	27.4	39.3	38.2	34.4
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	20	20	20	20	10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 65: 60-70 cm	Site 65: 70-80 cm	Site 65: 80-90 cm	Site 65: 90-100 cm	Site 66: 0-10 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-011	EB1447095-012	EB1447095-013	EB1447095-014	EB1447095-015
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.6	8.6	8.4	8.4	8.0
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	109	108	102	92	101
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	8.7	6.8	4.1	3.8	17.2
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	16.4	16.2	12.1	9.3	20.9
^ Exchangeable Magnesium	----	0.1	meq/100g	7.4	6.7	4.7	4.4	6.4
^ Exchangeable Potassium	----	0.1	meq/100g	0.3	0.3	0.3	0.3	0.4
^ Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	<0.1	<0.1	0.2
^ Cation Exchange Capacity	----	0.1	meq/100g	24.1	23.2	17.1	14.0	28.0
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	10	<10	20

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 66: 10-20 cm	Site 66: 20-30 cm	Site 66: 30-40 cm	Site 66: 40-50 cm	Site 66: 50-60 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-016	EB1447095-017	EB1447095-018	EB1447095-019	EB1447095-020
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.5	8.7	8.7	8.7	8.5
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	191	345	519	564	763
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	10.1	10.7	11.1	11.7	11.5
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	22.0	25.2	18.5	15.2	11.5
^ Exchangeable Magnesium	----	0.1	meq/100g	7.0	10.1	12.2	12.1	12.0
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.2	0.2
^ Exchangeable Sodium	----	0.1	meq/100g	0.3	0.9	1.6	2.0	2.7
^ Cation Exchange Capacity	----	0.1	meq/100g	29.6	36.5	32.5	29.6	26.5
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	50	170	440	460	780

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 66: 60-70 cm	Site 66: 70-80 cm	Site 66: 80-90 cm	Site 66: 90-100 cm	Site 70: 0-10 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-021	EB1447095-022	EB1447095-023	EB1447095-024	EB1447095-025
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.3	8.2	8.3	8.1	8.5
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	864	1050	901	1060	157
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	11.7	12.0	19.4	18.7	10.1
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	9.6	9.0	9.4	8.6	43.4
^ Exchangeable Magnesium	----	0.1	meq/100g	12.1	12.0	12.2	12.6	9.4
^ Exchangeable Potassium	----	0.1	meq/100g	0.2	0.2	0.2	0.2	2.0
^ Exchangeable Sodium	----	0.1	meq/100g	3.0	3.4	3.1	3.2	0.1
^ Cation Exchange Capacity	----	0.1	meq/100g	24.9	24.7	25.0	24.7	54.9
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	1090	1340	1080	1690	20

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 70: 10-20 cm	Site 70: 20-30 cm	Site 70: 30-40 cm	Site 70: 40-50 cm	Site 70: 50-60 cm
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00
Compound	CAS Number	LOR	Unit	EB1447095-026	EB1447095-027	EB1447095-028	EB1447095-029	EB1447095-030
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	8.7	8.8	9.0	9.1	9.1
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	189	207	254	311	332
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	13.9	13.9	13.3	14.5	14.8
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	44.2	44.3	40.9	40.7	37.8
^ Exchangeable Magnesium	----	0.1	meq/100g	11.3	12.3	13.9	14.5	13.0
^ Exchangeable Potassium	----	0.1	meq/100g	1.0	0.9	0.8	0.9	0.7
^ Exchangeable Sodium	----	0.1	meq/100g	0.5	0.8	2.0	2.5	3.0
^ Cation Exchange Capacity	----	0.1	meq/100g	56.9	58.4	57.7	58.5	54.6
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	40	50	60	90	110

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	Site 70: 60-70 cm	Site 70: 70-80 cm	Site 70: 80-90 cm	Site 70: 90-100 cm	----
			Client sampling date / time	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	24-Nov-2014 15:00	----
Compound	CAS Number	LOR	Unit	EB1447095-031	EB1447095-032	EB1447095-033	EB1447095-034	--------
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	9.1	8.6	8.4	8.7	----
EA010: Conductivity								
Electrical Conductivity @ 25°C	----	1	µS/cm	508	1040	1430	1120	----
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	16.1	15.8	14.9	14.9	----
ED008: Exchangeable Cations								
^ Exchangeable Calcium	----	0.1	meq/100g	38.6	39.2	33.4	36.5	----
^ Exchangeable Magnesium	----	0.1	meq/100g	14.5	14.3	11.8	12.9	----
^ Exchangeable Potassium	----	0.1	meq/100g	0.8	0.8	0.6	0.7	----
^ Exchangeable Sodium	----	0.1	meq/100g	3.7	3.7	3.6	3.6	----
^ Cation Exchange Capacity	----	0.1	meq/100g	57.6	58.0	49.5	53.8	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	150	450	320	990	----

Department of Primary Industries
Soil Conservation Service

SOIL TEST REPORT

Scone Research Centre

REPORT NO:	SCO14/246R1
REPORT TO:	Adele Calandra SLR Consulting 10 Kings Rd New Lambton NSW 2305
REPORT ON:	Forty-nine samples Your ref: 626.10135.00200
PRELIMINARY RESULTS ISSUED:	Not issued
REPORT STATUS:	Final
DATE REPORTED:	3 December 2014
METHODS:	Information on test procedures can be obtained from Scone Research Centre

TESTING CARRIED OUT ON SAMPLE AS RECEIVED

SR Young
(Laboratory Manager)

Scone Research Centre, PO Box 283 Scone 2337, 709 Gundy Road Scone 2337
Ph: 02 6545 1666, Fax: 02 6545 2520

SOIL CONSERVATION SERVICE
Scone Research Centre

Report No: SCO14/246R1
Client Reference: Adele Calandra
SLR Consulting
10 Kings Rd
New Lambton NSW 2305

Lab No	Method	P7B/2 Particle Size Analysis (%)					Colour	
	Sample Id	clay	silt	f sand	c sand	gravel	Dry	Moist
1	Site 10 0-10 cm	55	14	27	4	<1	10YR 4/2	10YR 3/3
2	Site 10 20-30 cm	61	13	20	6	<1	10YR 4/2	10YR 3/3
3	Site 10 50-60 cm	66	9	18	6	1	10YR 4/2	10YR 3/2
4	Site 10 85-95 cm	68	8	18	5	1	10YR 4/2	10YR 3/3
5	Site 12 0-5 cm	47	17	31	5	<1	10YR 4/2	10YR 3/3
6	Site 12 15-25 cm	53	16	26	5	<1	10YR 4/2	10YR 3/3
7	Site 12 45-55 cm	58	15	22	5	0	10YR 4/2	10YR 3/2
8	Site 12 65-75 cm	65	11	20	4	<1	10YR 4/2	10YR 3/2
9	Site 12 85-95 cm	62	10	22	5	1	10YR 4/3	10YR 4/3
10	Site 16 0-5 cm	43	21	29	6	1	10YR 4/3	10YR 3/3
11	Site 16 15-25 cm	62	15	19	4	<1	10YR 4/2	10YR 3/3
12	Site 16 50-60 cm	72	6	18	4	<1	10YR 4/3	10YR 3/3
13	Site 16 80-90 cm	64	15	18	3	0	10YR 4/4	10YR 3/4
14	Site 39 0-10 cm	45	16	21	16	2	10YR 4/2	10YR 3/3
15	Site 39 20-30 cm	51	16	18	14	1	10YR 4/3	10YR 4/3
16	Site 39 50-60 cm	50	16	18	16	<1	10YR 4/3	10YR 4/3
17	Site 39 80-90 cm	46	14	19	20	1	10YR 5/4	10YR 4/4
18	Site 49 0-10 cm	74	14	7	4	1	10YR 4/2	10YR 3/3
19	Site 49 20-30 cm	78	11	7	4	<1	10YR 4/2	10YR 3/3
20	Site 49 50-60 cm	82	8	6	3	1	10YR 4/3	10YR 3/3
21	Site 49 80-90 cm	87	6	5	2	<1	10YR 3/3	10YR 3/3
22	Site 51 0-10 cm	26	11	25	33	5	10YR 4/3	10YR 3/4
23	Site 51 20-30 cm	35	8	22	30	5	10YR 4/3	10YR 3/4
24	Site 51 45-55 cm	30	7	20	34	9	10YR 4/4	10YR 3/4
25	Site 51 75-85 cm	36	10	21	30	3	10YR 5/4	10YR 3/6

SRJ

SOIL CONSERVATION SERVICE
Scone Research Centre

Report No: SCO14/246R1
Client Reference: Adele Calandra
SLR Consulting
10 Kings Rd
New Lambton NSW 2305

Lab No	Method	P7B/2 Particle Size Analysis (%)					Colour	
	Sample Id	clay	silt	f sand	c sand	gravel	Dry	Moist
26	Site 62 0-10 cm	68	24	7	1	0	10YR 4/2	10YR 3/4
27	Site 62 20-30 cm	79	16	4	1	<1	10YR 4/3	10YR 3/4
28	Site 62 50-60 cm	78	16	4	2	0	10YR 4/3	10YR 3/4
29	Site 62 80-90 cm	78	17	3	2	<1	10YR 3/4	10YR 3/4
30	Site 63 0-10 cm	25	6	42	27	<1	10YR 3/4	10YR 3/3
31	Site 63 35-45 cm	25	8	34	32	1	10YR 4/4	10YR 3/4
32	Site 63 70-80 cm	24	6	36	33	1	10YR 4/4	10YR 3/4
33	Site 63 90-100 cm	22	4	42	32	<1	10YR 4/4	10YR 3/4
34	Site 64 0-5 cm	50	28	17	5	<1	10YR 4/3	10YR 3/3
35	Site 64 15-25 cm	64	20	13	3	<1	10YR 4/3	10YR 3/4
36	Site 64 45-55 cm	66	18	13	3	<1	10YR 4/3	10YR 3/4
37	Site 64 80-90 cm	69	14	14	3	0	10YR 5/4	10YR 4/4
38	Site 65 0-10 cm	18	7	66	9	0	10YR 4/4	10YR 3/3
39	Site 65 20-30 cm	41	21	36	2	0	10YR 4/3	10YR 3/3
40	Site 65 50-60 cm	36	22	40	2	<1	10YR 5/4	10YR 4/4
41	Site 65 85-95 cm	23	12	60	5	<1	10YR 5/4	10YR 4/4
42	Site 66 0-10 cm	43	20	27	6	4	10YR 5/3	10YR 4/3
43	Site 66 15-25 cm	58	17	19	6	<1	10YR 5/4	10YR 4/4
44	Site 66 45-55 cm	55	15	21	7	2	10YR 5/4	10YR 4/3
45	Site 66 75-85 cm	60	18	17	4	1	10YR 5/4	10YR 4/3
46	Site 70 0-10 cm	56	35	7	2	<1	10YR 4/2	10YR 3/3
47	Site 70 20-30 cm	70	22	7	1	0	10YR 4/3	10YR 3/3
48	Site 70 50-60 cm	69	23	7	1	<1	10YR 4/3	10YR 3/4
49	Site 70 80-90 cm	74	17	8	1	<1	10YR 4/3	10YR 3/4

END OF TEST REPORT

Appendix B

Profile Descriptions of Observation Sites

Soil Map Unit 1 – Self-mulching Brown Vertosol (Dominant Soil Type)

Table B1 Detailed Description: Site 7

ASC Name	Self-mulching Brown Vertosol
Site No.	7
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark grey (10YR 4/1) Medium Clay, Weak structure of 5-20 mm subangular blocky peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.10 – 0.25	Brown (7.5YR 4/3) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; <10% calcareous segregations; many coarse roots; Well drained with a gradual and wavy boundary
	B22 0.25 – 0.45	Brown (10YR 4/3) Heavy Clay, Strong structure of 20-60 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; <10% calcareous segregations; common fine roots; Well drained with a gradual and irregular boundary.
	B23 0.45 – 1.00	Brown (10YR 4/3) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. 15% distinct yellow (7.5YR 6/6) mottling; Nil stone content; <10% calcareous segregations; few fine roots; Moderately drained.

Table B2 Detailed Description: Site 8

ASC Name	Self-mulching Brown Vertosol
Site No.	8
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	5% 50-300 mm fragments
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Dark brown (7.5YR 3/3) Silty Clay, Weak structure of 5-00 mm platy peds with a moderate consistence. Nil mottling; 10% <5 mm stone content; Nil segregations; common coarse roots; Well drained with an abrupt and even boundary.
	B21 0.05 – 0.40	Brown (7.5YR 4/4) Medium Clay, Strong structure of 10-30 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.40 – 0.65	Brown (7.5YR 4/4) Heavy Clay, Strong structure of 25-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; common fine roots; Well drained with a gradual and irregular boundary.
	B23 0.65 – 1.00	Strong brown (7.5YR 4/6) Heavy Clay, Strong structure of 50+ mm angular blocky peds with a strong consistence. 10% faint yellow mottling; 10% <5 mm stone content; 10% calcareous segregations; few fine roots; Moderately drained.

Table B3 Detailed Description: Site 9

ASC Name	Self-mulching Brown Vertosol
Site No.	9
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Brown (7.5YR 4/3) Silty Clay, Weak structure of 5-10 mm platy peds with a weak consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with an abrupt and even boundary.
	B21 0.05 – 0.30	Brown (7.5YR 4/3) Medium Clay, Strong structure of 20-30 mm angular blocky peds with a strong consistence. Nil mottling; 5% <5mm stone content; Nil segregations; many coarse roots; Well drained with a gradual and even boundary
	B22 0.30 – 0.60	Brown (7.5YR 4/4) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; 5% <5mm stone content; 10% < 5mm calcareous segregations; many fine roots; Well drained with a gradual and irregular boundary.
	B23 0.60 – 1.00	Strong brown (7.5YR 4/6) Heavy Clay, Strong structure of 40-60 mm angular blocky peds with a strong consistence. 10% faint red mottling; 5% <10mm stone content; 5% < 5mm calcareous segregations; few fine roots; Moderately drained.

Table B4 Detailed Description: Site 10

ASC Name	Self-mulching Brown Vertosol
Site No.	10
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (10YR 3/3) Heavy Clay, Weak structure of 5-10 mm angular blocky peds with a moderate consistence. Nil mottling; <5% <5 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; common fine roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.80	Very dark grayish brown (10YR 3/2) Heavy Clay, Strong structure of 30-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous & 5% gypsum segregations; common fine roots; Well drained with a gradual and irregular boundary.
	B23 0.80 – 1.10	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 50-70 mm angular blocky peds with a strong consistence. 30% distinct orange (7.5YR 6/8) mottling; Nil stone content; 5% calcareous & 5% gypsum segregations; few fine roots; Poorly drained.

Table B5 Analysed Description: Site 10

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	8.7	40	0.137	44.1	1.1	3.9	HC	12
B21	0.1	0.2	8.9	60	0.153	48.4	1.9	3.7	HC	12
	0.2	0.3	9.1	60	0.215	45.5	3.3	3.0		12
	0.3	0.4	9	220	0.379	35.8	8.9	1.8		12
B22	0.4	0.5	9	500	0.573	35.7	10.1	1.6	HC	12
	0.5	0.6	9	460	0.538	37.4	10.2	1.6		12
	0.6	0.7	8.9	700	0.822	38.3	11.5	1.4		12
	0.7	0.8	8.6	840	0.937	38	11.3	1.3		12
B23	0.8	0.9	8.5	1190	1.030	36.6	11.7	1.2	HC	12
	0.9	1.0	7.8	1690	1.510	35.2	11.6	1.0		12
SCL Criteria Compliance										
Effective Rooting Depth			0.7 m							
Total Soil Water Storage			84 mm							
Criterion 6 (pH) Compliance			Yes							
Criterion 7 (Salinity) Compliance			Yes							
Criterion 8 (SWS) Compliance			No							

Table B6 Detailed Description: Site 11

ASC Name	Self-mulching Brown Vertosol
Site No.	11
Inspection Date	29/10/2014
Landform; Element	Open depression
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (7.5YR 3/4) Medium Clay, Weak structure of 5-10 mm platy peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and evem boundary.
	B21 0.10 – 0.60	Dark brown (7.5YR 3/4) Heavy Clay, Strong structure of 10-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.60 – 0.80	Dark brown (7.5YR 3/4) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; common coarse and fine roots; Well drained with a gradual and even boundary.
	B23 0.80 – 1.00	Dark brown (7.5YR 3/3) Heavy Clay, Strong structure of 50-100 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; few fine roots; Well drained.

Table B7 Detailed Description: Site 12

ASC Name	Self-mulching Brown Vertosol
Site No.	12
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Dark brown (10YR 3/3) Medium Clay, Weak structure of 5-20 mm platy peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.05 – 0.60	Very dark grayish brown (10YR 3/2) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common fine roots; Well drained with a gradual and wavy boundary
	B22 0.60 – 0.80	Very dark grayish brown (10YR 3/2) Heavy Clay, Strong structure of 50-70 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 10% calcareous segregations; common fine roots; Well drained with a gradual and wavy boundary.
	B23 0.80 – 1.00	Brown (10YR 4/3) Heavy Clay, Strong structure of 70+ mm angular blocky peds with a strong consistence. 30% distinct orange (7.5YR 6/8) mottling; Nil stone content; 5% calcareous segregations; few fine roots; Poorly drained.

Table B8 Analysed Description: Site 12

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.05	8.1	<10	0.051	31.3	1.9	2.2	MC	12
B21	0.05	0.2	8.4	30	0.104	31.6	3.2	1.9	HC	12
	0.2	0.3	8.8	60	0.112	33.4	6.3	1.8		12
	0.3	0.4	9.0	60	0.177	34.1	8.2	1.6		12
	0.4	0.5	9.0	120	0.284	36.7	8.4	1.7		12
	0.5	0.6	8.9	210	0.390	36.3	8.0	1.7		12
B22	0.6	0.7	9.0	330	0.513	37.4	9.9	1.6	HC	12
	0.7	0.8	8.9	530	0.722	43.8	8.2	1.8		12
B23	0.8	0.9	8.8	750	0.877	46.3	7.8	1.9	HC	12
	0.9	1.0	8.7	880	1.040	44.3	7.9	1.7		12

SCL Criteria Compliance	
Effective Rooting Depth	0.9 m
Total Soil Water Storage	108 mm
Criterion 6 (pH) Compliance	Yes
Criterion 7 (Salinity) Compliance	Yes
Criterion 8 (SWS) Compliance	Yes

Table B9 Detailed Description: Site 13

ASC Name	Self-mulching Brown Vertosol
Site No.	13
Inspection Date	29/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark grayish brown (10YR 4/2) Medium Clay, strong structure of 5-20 mm subangular peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 25-35 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.40 – 0.70	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 540-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; common coarse roots; Moderately drained with a gradual and even boundary.
	B23 0.70 – 1.00	Brown (10YR 4/3) Heavy Clay, Strong structure of 50+ mm angular blocky peds with a strong consistence. 10% faint yellow mottling; Nil stone content; 5% <5mm calcareous and 10% <5mm manganiferous segregations; few fine roots; Moderately drained.

Table B10 Detailed Description: Site 16

ASC Name	Self-mulching Brown Vertosol
Site No.	16
Inspection Date	30/10/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Moderately drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Dark brown (10YR 3/3) Light-medium Clay, Strong structure of 5-20 mm subangular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with an abrupt and irregular boundary.
	B21 0.05 – 0.40	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous & 5% gypsum segregations; abundant coarse roots; Well drained with a gradual and irregular boundary.
	B22 0.40 – 0.70	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 50+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous & 10% gypsum segregations; common fine roots; Moderately drained with a gradual and irregular boundary.
	B23 0.70 – 1.00	Dark Yellowish-brown (10YR 3/4) Heavy Clay, Strong structure of 50+ mm angular blocky peds with a strong consistence. 30% distinct grey (5YR 3/1) mottling; Nil stone content; 10% gypsum segregations; few fine roots; Moderately drained.

Table B11 Analysed Description: Site 16

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.05	7.9	20	0.065	28	1.4	2.7	LMC	10
B21	0.05	0.2	8.8	130	0.296	33.4	5.7	2.2	HC	12
	0.2	0.3	8.9	350	0.451	39.3	6.9	2.2		12
	0.3	0.4	8.6	880	1.200	47.0	5.5	2.6	HC	12
B22	0.4	0.5	8.8	1190	1.020	55.1	7.1	2.6		12
	0.5	0.6	8.5	1420	1.460	45.1	7.5	2.1		12
	0.6	0.7	8.2	1830	1.350	44.3	7.0	1.9		12
B23	0.7	0.8	6.8	2220	2.080	30.5	14.1	0.9	HC	12
	0.8	0.9	7.2	2200	1.780	31.5	14.6	1.0		12
	0.9	1.0	6.8	2480	1.870	32.0	14.7	0.9		12
SCL Criteria Compliance										
Effective Rooting Depth	0.3 m									
Total Soil Water Storage	34 mm									
Criterion 6 (pH) Compliance	Yes									
Criterion 7 (Salinity) Compliance	No									
Criterion 8 (SWS) Compliance	No									

Table B12 Detailed Description: Site 39

ASC Name	Self-mulching Brown Vertosol
Site No.	39
Inspection Date	31/10/2014
Landform; Element	Lower Slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Moderately drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (10YR 3/3) Medium Clay, Strong structure of 50-100 mm platy peds with a strong consistence. Nil mottling; 5% 5 mm stone content; Nil segregations; abundant coarse roots; Well drained with a gradual and wavy boundary.
	B21 0.10 – 0.40	Brown (10YR 4/3) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and wavy boundary.
	B22 0.40 – 0.70	Brown (10YR 4/3) Medium Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 10% calcareous segregations; common coarse roots; Moderately drained with a gradual and wavy boundary.
	B23 0.70 – 1.00	Dark Yellowish-brown (10YR 4/4) Medium Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 10% faint grey (5YR 3/2) mottling; Nil stone content; 10% calcareous segregations; few fine and coarse roots; Poorly drained.

Table B13 Analysed Description: Site 39

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	8.3	50	0.233	41.6	1.2	3.3	MC	12
B21	0.1	0.2	8.7	260	0.371	49.2	2.4	3.0	HC	12
	0.2	0.3	9.0	540	0.579	43.3	6.2	2.2		12
	0.3	0.4	9.0	1100	0.941	48.2	6.8	2.4	HC	12
B22	0.4	0.5	9.0	1340	1.050	48.7	7.6	2.4		12
	0.5	0.6	8.9	2000	1.470	47.1	8.1	2.3		12
	0.6	0.7	8.8	2430	1.660	45.1	8.4	2.1		12
B23	0.7	0.8	8.7	3900	2.030	45.4	8.8	1.9	HC	12
	0.8	0.9	8.7	2700	1.920	36.5	10.7	1.5		12
	0.9	1.0	8.8	2580	1.710	30.3	13.2	1.1		12

SCL Criteria Compliance	
Effective Rooting Depth	0.3 m
Total Soil Water Storage	36 mm
Criterion 6 (pH) Compliance	Yes
Criterion 7 (Salinity) Compliance	No
Criterion 8 (SWS) Compliance	No

Table B14 Detailed Description: Site 45

ASC Name	Self-mulching Brown Vertosol
Site No.	45
Inspection Date	1/11/2014
Landform; Element	Open depression
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Loose
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (10YR 3/4) Medium Clay, Moderate structure of 2-5 mm crumb peds with a moderate consistence. Nil mottling; 15% 20 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.10 – 0.30	Dark brown (10YR 3/4) Heavy Clay, Strong structure of 20-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a clear and wavy boundary
	B22 0.30 – 0.70	Dark brown (10YR 3/4) Heavy Clay, Strong structure of 50-100 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse and few fine roots; Moderately drained with a gradual and wavy boundary.
	B23 0.70 – 1.00	Light brown (10YR 6/3) Heavy Clay, Strong structure of 50-100+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; few fine roots; Moderately drained.

Table B15 Detailed Description: Site 47

ASC Name	Self-mulching Brown Vertosol
Site No.	47
Inspection Date	1/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Very dark brown (10YR 2.5/3) Medium Clay, Moderate structure of <5 mm crumb peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.10 – 0.50	Very dark brown (10YR 2.5/3) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and wavy boundary
	B22 0.50 – 0.80	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; common coarse roots; Moderately drained with a gradual and wavy boundary.
	B23 0.80 – 1.00	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 30% distinct very dark brown (10YR 2.5/2) mottling; Nil stone content; Nil segregations; few coarse and fine roots; Poorly drained.

Table B16 Detailed Description: Site 48

ASC Name	Self-mulching Brown Vertosol
Site No.	48
Inspection Date	1/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Dark brown (10YR 3/3) Medium Clay, Moderate structure of 5-30 mm platy peds with a moderate consistence. Nil mottling; <5% <10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.05 – 0.30	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.30 – 0.60	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; <5% <5mm calcareous segregations; common coarse and fine roots; Moderately drained with a gradual and irregular boundary.
	B23 0.60 – 1.00	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 20% faint orange mottling; Nil stone content; 10% <5mm calcareous segregations; few coarse and fine roots; Poorly drained.

Table B17 Detailed Description: Site 49

ASC Name	Self-mulching Brown Vertosol
Site No.	49
Inspection Date	1/11/2014
Landform; Element	Midslope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Crusted & loose
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark brown (10YR 3/3) Heavy Clay, Moderate structure of 5-20 mm crumb peds with a moderate consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5 mm calcareous segregations; common coarse roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.70	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common fine and coarse roots; Well drained with a gradual and even boundary.
	B23 0.70 – 1.00	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; few fine and coarse roots; Well drained.

Table B18 Analysed Description: Site 49

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	8.6	30	0.171	50.3	0.6	4.3	HC	12
B21	0.1	0.2	8.9	30	0.177	57.8	1.9	3.9	HC	12
	0.2	0.3	9	70	0.234	56.6	3.0	3.4		12
	0.3	0.4	9.2	100	0.321	56.3	5.9	2.8	HC	12
B22	0.4	0.5	9.2	320	0.471	58.4	6.5	2.7		12
	0.5	0.6	9.0	1000	0.808	25.1	12.0	2.1		12
	0.6	0.7	9.0	1160	0.937	56.3	9.4	2.4		12
B23	0.7	0.8	8.8	1590	1.180	33.8	11.8	2.1	HC	12
	0.8	0.9	8.7	2080	1.400	53.4	10.1	2.1		12
	0.9	1.0	8.6	2360	1.620	53.7	10.1	2.1		12

SCL Criteria Compliance	
Effective Rooting Depth	0.5 m
Total Soil Water Storage	60 mm
Criterion 6 (pH) Compliance	Yes
Criterion 7 (Salinity) Compliance	No
Criterion 8 (SWS) Compliance	No

Table B19 Detailed Description: Site 54

ASC Name	Self-mulching Brown Vertosol
Site No.	54
Inspection Date	1/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	5% 50 mm fragments
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark grayish brown (7.5YR 4/2) Medium Clay, Moderate structure of 2-10 mm crumb peds with a strong consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.10 – 0.50	Very dark grayish brown (10YR 3/2) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; common coarse roots; Well drained with a gradual and wavy boundary
	B23 0.50 – 1.00	Brown (10YR 4/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; 5% calcareous segregations; common coarse roots; Moderately drained.

Table B20 Detailed Description: Site 57

ASC Name	Self-mulching Brown Vertosol
Site No.	57
Inspection Date	2/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Crusted
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Very dark grayish brown (10YR 3/2) Medium Clay, Moderate structure of 10-50 mm platy peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.05 – 0.30	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 20-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.30 – 0.70	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; common coarse roots; Moderately drained with a gradual and even boundary.
	B23 0.70 – 1.00	Dark brown (10YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 10% <5m calcareous segregations; common coarse and fine roots; Moderately drained.

Table B21 Detailed Description: Site 59

ASC Name	Self-mulching Brown Vertosol
Site No.	59
Inspection Date	2/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Crusted
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Dark brown (7.5YR 3/2) Medium Clay, Moderate structure of 10-60 mm platy peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.05 – 0.30	Dark brown (7.5YR 3/3) Heavy Clay, Strong structure of 20-30 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; <5% <5mm calcareous segregations; common coarse roots; Well drained with a gradual and even boundary
	B22 0.30 – 0.65	Dark brown (7.5YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% <5mm calcareous segregations; common coarse and fine roots; Moderately drained with a gradual and even boundary.
	B23 0.65 – 1.00	Dark brown (7.5YR 3/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 15% <5mm calcareous segregations; nil roots; Moderately drained.

Table B22 Detailed Description: Site 62

ASC Name	Self-mulching Brown Vertosol
Site No.	62
Inspection Date	2/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Moderately drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark Yellowish-brown (10YR 3/4) Heavy Clay, Moderate structure of 2-10 mm crumb peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10– 0.40	Dark Yellowish-brown (10YR 3/4) Heavy Clay, Strong structure of 15-30 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.70	Dark Yellowish-brown (10YR 3/4) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Moderately drained with a gradual and even boundary.
	B23 0.70 – 1.00	Dark Yellowish-brown (10YR 3/4) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; Nil roots; Moderately drained.

Table B23 Analysed Description: Site 62

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	8.6	5	0.141	48.9	1.0	3.6	HC	12
B21	0.1	0.2	8.8	20	0.158	53.7	1.5	3.9	HC	12
	0.2	0.3	8.9	40	0.199	56.5	2.7	3.6		12
	0.3	0.4	9.0	60	0.245	53.8	4.8	3.0	HC	12
B22	0.4	0.5	9.0	120	0.292	55.8	5.2	3.1		12
	0.5	0.6	9.0	230	0.381	53.8	6.9	2.6		12
	0.6	0.7	*	*	*	*	*	*		12
B23	0.7	0.8	8.9	590	0.591	51.9	8.1	2.4	HC	12
	0.8	0.9	9	570	0.582	53.6	8.0	2.5		12
	0.9	1.0	8.8	1110	0.889	52.2	8.2	2.4		12

SCL Criteria Compliance	
Effective Rooting Depth	0.9 m
Total Soil Water Storage	108 mm
Criterion 6 (pH) Compliance	Yes
Criterion 7 (Salinity) Compliance	Yes
Criterion 8 (SWS) Compliance	Yes

* Not laboratory analysed

Table B24 Detailed Description: Site 66

ASC Name	Self-mulching Brown Vertosol
Site No.	66
Inspection Date	2/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Moderately drained
Dominant Slope	0-1%
Surface Coarse Fragments	<10% <10 mm
Surface Condition	Self-mulching
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Brown (10YR 4/3) Light-medium Clay, Moderate structure of 20-50 mm platy peds with a strong consistence. Nil mottling; <10% <10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.35	Dark Yellowish-brown (10YR 4/4) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; <10% <10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a gradual and even boundary.
	B22 0.35 – 0.60	Brown (10YR 4/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; <10% <10 mm stone content; <5% manganiferous segregations; common coarse roots; Moderately drained with a gradual and even boundary.
	B23 0.60 – 1.00	Brown (10YR 4/3) Heavy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 15% prominent orange mottling; <10% <10 mm stone content; <5% manganiferous segregations; few fine and coarse roots; Poorly drained.

Table B25 Analysed Description: Site 66

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.10	8.0	20	0.101	28.0	0.7	3.3	LMC	10
B21	0.10	0.2	8.5	50	0.191	29.6	1.0	3.1	HC	12
	0.2	0.35	8.7	170	0.345	36.5	2.5	2.5		12
B22	0.35	0.4	8.7	440	0.519	32.5	4.9	1.5	HC	12
	0.4	0.5	8.7	460	0.564	29.6	6.8	1.3		12
	0.5	0.6	8.5	780	0.763	26.5	10.2	1.0		12
B23	0.6	0.7	8.3	1090	0.864	24.9	12.0	0.8	HC	12
	0.7	0.8	8.2	1340	1.050	24.7	13.8	0.8		12
	0.8	0.9	8.3	1080	0.901	25.0	12.4	0.8		12
	0.9	1.0	8.1	1690	1.060	24.7	13.0	0.7		12
SCL Criteria Compliance										
Effective Rooting Depth			0.6 m							
Total Soil Water Storage			70 mm							
Criterion 6 (pH) Compliance			Yes							
Criterion 7 (Salinity) Compliance			No							
Criterion 8 (SWS) Compliance			No							

Table B26 Detailed Description: Site 72

ASC Name	Self-mulching Brown Vertosol
Site No.	72
Inspection Date	3/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Firm
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.05	Brown (7.5YR 4/3) Sandy Clay, Moderate structure of 10-30 mm platy peds with a moderate consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with an abrupt and even boundary.
	B21 0.05 – 0.25	Brown (7.5YR 4/3) Sandy Clay, Strong structure of 20-30 mm angular blocky peds with a strong consistence. Nil mottling; <5% <10mm stone content; Nil segregations; common coarse roots; Moderately drained with a clear and wavy boundary
	B22 0.25 – 0.60	Strong brown (7.5YR 5/6) Sandy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; 5% <10mm stone content; 20% <5mm calcareous segregations; few fine roots; Moderately drained with a gradual and wavy boundary.
	B23 0.60 – 0.90	Strong brown (7.5YR 5/6) Sandy Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; 5% <10mm stone content; 20% <5mm calcareous segregations; few fine roots; Moderately drained.

Soil Map Unit 1 – Self-mulching Black Vertosol (Sub-dominant Soil Type)

Table B27 Detailed Description: Site 43

ASC Name	Self-mulching Black Vertosol
Site No.	43
Inspection Date	1/11/2014
Landform; Element	Flat; Minimal
Microrelief; Component	None; None
Permeability	Slowly
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Crusted
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.15	Very dark grey (7.5YR 3/1) Medium Clay, Strong structure of 2-10 mm crumb peds with a strong consistence. Nil mottling; 10% <10 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and irregular boundary.
	B2 0.15 – 0.70	Black (7.5YR 2.5/1) Heavy Clay, Strong structure of 20-30 mm angular blocky peds with a strong consistence. Nil mottling; 10% <10 mm stone content; Nil segregations; common coarse roots; Well drained with an abrupt and even boundary.
	BC 0.70 – 1.00	Weathering bedrock

Table B2819 Detailed Description: Site 56

ASC Name	Self-mulching Black Vertosol
Site No.	56
Inspection Date	2/11/2014
Landform; Element	Lower Slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly
Drainage	Well drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Crusted / Loose
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.15	Very dark grey (7.5YR 3/1) Medium Clay, Strong structure of 10-50 mm platy peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; abundant coarse roots; Well drained with a clear and even boundary.
	B21 0.15 – 0.60	Black (7.5YR 2.5/1) Heavy Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; Nil segregations; common coarse roots; Well drained with a gradual and even boundary.
	B22 0.60 – 1.00	Black (7.5YR 2.5/1) Heavy Clay, Strong structure of 30-50 mm angular blocky peds with a strong consistence. Nil mottling; Nil stone content; 5% calcareous segregations; common fine and coarse roots; Moderately drained.

Soil Map Unit 1 – Eutrophic Brown Dermosol (Sub-dominant Soil Type)

Table B29 Detailed Description: Site 50

ASC Name	Brown Dermosol
Site No.	50
Inspection Date	1/11/2014
Landform; Element	Upper slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Firm
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.07	Brown (7.5YR 4/4) Sandy Clay Loam, Weak structure of 10-20 mm angular blocky peds with a strong consistence. Nil mottling; 10% 10 mm stone content; Nil segregations; common fine roots; Well drained with a gradual and even boundary.
	B21 0.07 – 0.22	Brown (7.5YR 4/4) Light Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; common fine roots; Well drained with a gradual and wavy boundary.
	B22 0.22 – 0.60	Strong brown (7.5YR 4/6) Medium Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; 5% <10 mm stone content; 20% <5mm calcareous segregations; common fine and coarse fine roots; Moderately drained with a gradual and wavy boundary.
	BC 0.60 – 1.00+	Weathered bedrock

Table B30 Detailed Description: Site 51

ASC Name	Eutrophic Brown Dermosol
Site No.	51
Inspection Date	1/11/2014
Landform; Element	Lower slope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	0-1%
Surface Coarse Fragments	Nil
Surface Condition	Firm
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.10	Dark Yellowish-brown (10YR 3/4) Clay Loam, Weak structure of 10-30 mm platy peds with a strong consistence. Nil mottling; 10% 20 mm stone content; Nil segregations; common fine roots; Well drained with a clear and even boundary.
	B21 0.10 – 0.40	Dark Yellowish-brown (10YR 3/4) Light Clay, Strong structure of 30-40 mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; Nil segregations; common fine roots; Well drained with a gradual and even boundary.
	B22 0.40 – 0.60	Dark Yellowish-brown (10YR 3/4) Light Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. Nil mottling; 10% 40 mm stone content; Nil segregations; few fine roots; Moderately drained with a gradual and even boundary.
	B23 0.60 – 1.00	Dark Yellowish-brown (10YR 4/6) Light Clay, Strong structure of 40+ mm angular blocky peds with a strong consistence. 10% distinct brown (7.5YR 6/6) mottling; Nil stone content; <5% manganiferous segregations; Nil roots; Imperfectly drained.

Table B31 Analysed Description: Site 51

Horizon	Upper Layer	Lower Layer	pH (1:5)	Chloride	EC (1:5)	CEC	ESP	Ca:Mg	Soil Texture	SWS
	m	m		mg/kg	dS/m	cmol+ /kg	%			mm/100 mm
A1	0.0	0.1	7.1	60	0.121	11.7	5.1	0.9	CL	8
B21	0.1	0.2	7.0	110	0.171	14.3	8.4	0.8	LC	10
	0.2	0.3	7.0	430	0.393	15.1	13.2	0.6		10
	0.3	0.4	6.8	1040	0.706	9.9	19.2	0.5	LC	10
B22	0.4	0.5	6.9	1110	0.727	10.7	24.3	0.4		10
	0.5	0.6	7.6	1400	0.829	9.1	26.4	0.3		10
B23	0.6	0.7	7.1	1900	1.120	8.6	27.9	0.3		10
	0.7	0.8	7.3	1480	0.932	6.4	28.1	0.3	LC	10
	0.8	0.9	7.2	1800	1.100	10.8	26.9	0.2		10
	0.9	1.0	6.8	2890	1.490	5.6	30.4	0.2		10

SCL Criteria Compliance	
Effective Rooting Depth	0.3 m
Total Soil Water Storage	28 mm
Criterion 6 (pH) Compliance	Yes
Criterion 7 (Salinity) Compliance	No
Criterion 8 (SWS) Compliance	No

Table B32 Detailed Description: Site 55

ASC Name	Brown Dermosol
Site No.	55
Inspection Date	2/11/2014
Landform; Element	Midslope; Minimal
Microrelief; Component	None; None
Permeability	Slowly permeable
Drainage	Well drained
Dominant Slope	1-3%
Surface Coarse Fragments	Nil
Surface Condition	Crusted & loose
Disturbances (Land Use)	Grazing

Profile	Horizon / Depth (m)	Description
	A1 0.0 – 0.15	Dark Yellowish-brown (10YR 3/4) Medium Clay, strong structure of 5-20 mm angular blocky peds with a strong consistence. Nil mottling; 10% 5 mm stone content; Nil segregations; abundant coarse roots; Well drained with a clear and wavy boundary.
	B21 0.15 – 0.40	Dark Yellowish-brown (10YR 3/4) Medium Clay, Strong structure of 5-20 mm angular blocky peds with a strong consistence. Nil mottling; <5% 10 mm stone content; 15% <5mm calcareous segregations; abundant coarse roots; Well drained with a gradual and wavy boundary.
	B22 0.40 – 0.70	Reddish yellow (7.5YR 6/6) Medium Clay, Strong structure of 5-20 mm angular blocky peds with a strong consistence. Nil mottling; 10% 40 mm stone content; 30% <5mm calcareous segregations; few coarse roots; Well drained with a gradual and wavy boundary.
	BC 0.70 – 1.00	Weathering bedrock

Appendix C

GPS Coordinates of Observation Sites

Table C1 GPS Coordinates of Observation Sites

Site No.	GPS Coordinates		
	Spatial Datum	Eastings	Northings
7	GDA 1994 MGA Zone 55	684513	7390913
8	GDA 1994 MGA Zone 55	685417	7391806
9	GDA 1994 MGA Zone 55	685505	7392494
10	GDA 1994 MGA Zone 55	685428	7393127
11	GDA 1994 MGA Zone 55	685434	7393702
12	GDA 1994 MGA Zone 55	685407	7394389
13	GDA 1994 MGA Zone 55	685581	7395235
16	GDA 1994 MGA Zone 55	684719	7391255
39	GDA 1994 MGA Zone 55	689632	7410539
43	GDA 1994 MGA Zone 55	689585	7409729
45	GDA 1994 MGA Zone 55	690144	7411926
47	GDA 1994 MGA Zone 55	689849	7411198
49	GDA 1994 MGA Zone 55	690566	7412601
50	GDA 1994 MGA Zone 55	689382	7411912
51	GDA 1994 MGA Zone 55	689610	7412746
54	GDA 1994 MGA Zone 55	690417	7413336
55	GDA 1994 MGA Zone 55	689553	7414021
56	GDA 1994 MGA Zone 55	689805	7414504
57	GDA 1994 MGA Zone 55	690335	7414669
58	GDA 1994 MGA Zone 55	690949	7414044
59	GDA 1994 MGA Zone 55	690319	7413997
62	GDA 1994 MGA Zone 55	692212	7413362
66	GDA 1994 MGA Zone 55	690994	7412002
72	GDA 1994 MGA Zone 55	691018	7411166

Appendix D

Methodology for remote and indirect measurement of slope

Methodology for remote and indirect measurement of slope

Slope analysis for the Project Area was determined using remote and indirect Slope Determination methodology as describe in the *RPI Act Guideline 08/14 – How to demonstrate that land in the strategic cropping are does not meet the criteria for strategic cropping land*.

SLR Consulting uses ESRI's ArcGIS software including the 3D Analyst extension for spatial analysis operations. SLR were provided detailed 1 m elevation contour data for some of the Project Area, these contours were supplemented with '10 m Contours for the Blackwater Region' from DNRM. The two vector data sources were combined and used to generate a DEM for the region. The data was resampled to a 20m x 20m grid size in order to optimize the slope analysis as per the guideline.

The DEM used to undertake a slope analysis using the default parameters of the 3D Analyst Raster Surface Slope tool.

Vector regions were generated based on the raster slopes and these were used in area calculations and in the generation of exclusion area polygons.

Appendix C Exemption to Public Notification Letter

Regional Interest Development Approval – Supporting Document

Curragh Extension Project Regional Interest Development Approval RPI15/009 Requested Amendment

Coronado Curragh Pty Ltd

SLR Project No.: 620.040791.00001

14 November 2024

Appendix C Public Notification Exemption Request

In accordance with Section 55 of the *Regional Planning Interests Act 2014* (RPI Act), we acknowledge that before deciding whether to grant the requested amendment, the Chief Executive may issue a notice requiring the holder of the approval to notify the application under Division 4 within a reasonable period. However, we respectfully request an exemption from the requirement for public notification of this Requested Amendment application.

The Requested Amendment involves the reclassification of an area of land currently designated as Strategic Cropping Land (SCL) to non-Strategic Cropping Land (non-SCL). Importantly, there are no changes to the approved Project's design or its scope, as approved under RIDA RPI15/009.

This Requested Amendment pertains solely to the reclassification of land under the RPI Act and does not involve any alterations to the physical layout or operational aspects of the Project as approved under RIDA RPI15/009. As the original approval was granted based on the current Project design, which remains unchanged, the amendment does not introduce any new environmental or planning considerations that would warrant further public consultation. The reclassification does not alter the broader intent of the Project, nor does it result in any significant changes to land use or potential impacts that would necessitate public input under the provisions of the RPI Act.

Given that the amendment is limited to the reclassification of the land as non-SCL, and does not modify the nature or extent of the approved development, we believe that public notification is not warranted in this case. We respectfully submit that an exemption from public notification is appropriate to facilitate the efficient processing of this amendment.

Appendix D Current Title Search

Regional Interest Development Approval – Supporting Document

Curragh Extension Project Regional Interest Development Approval RPI15/009 Requested Amendment

Coronado Curragh Pty Ltd

SLR Project No.: 620.040791.00001

14 November 2024

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832583
Search Date: 30/10/2024 10:04 Title Reference: 17646027
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: GHPL 37/3698

Lease Type: PERPETUAL

LOT 46 CROWN PLAN HT610
Local Government: CENTRAL HIGHLANDS

Area: 3145.646000 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
GRAZING OR AGRICULTURAL

TERM OF LEASE

Day of beginning of lease

Lease in perpetuity commencing on 01/04/1972

REGISTERED LESSEE

Dealing No: 718836344 27/06/2018

CORONADO CURRAGH PTY LTD A.C.N. 009 362 565

CONDITIONS

M76 The lessee shall, within three years from the commencement of the term of the lease, enclose the holding with a good and substantial stock-proof fence.

M76 The lessee shall, within one year from the commencement of the term of the lease, provide one additional permanent water facility, which, if an earth tank, shall be of not less than 8,000 cubic yards capacity.

M76 The lessee shall within two years from the commencement of the term of the lease and to the satisfaction of the Minister, burn and sow to improved pastures the presently pulled unburnt scrub country on the selection.

CONDITIONS

M78 The lessee shall, within three years from the commencement of the term of the lease and to the satisfaction of the Minister, develop an area of not less than 3,000 acres of standing scrub on the selection by:

(a) destroying by ringbarking or otherwise in accordance with a Permit granted by the Land Commissioner, such scrub in equal proportions during each year of such period and thereafter maintaining such area free from all regrowth, suckers and undergrowth; and
(b) sowing such cleared areas with improved grasses.

M175 Subject to the condition of Occupation as defined by the Land Act.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Lease No. 17646027

2. EASEMENT No 602803562 (A908) 01/10/1975
BURDENING THE LAND TO
THE CAPRICORNIA REGIONAL ELECTRICITY BOARD
OVER EASEMENT A ON HT325

3. TRANSFER No 708521684 21/03/2005 at 11:44
EASEMENT: 602803562 (A908)
QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
A.C.N. 078 849 233

4. RESUMPTION EASEMENT No 602803563 (R1170) 26/03/1977
EASEMENTS PURSUANT TO PROCLAMATION DATED 24TH MARCH, 1977, UNDER THE PROVISIONS OF THE ACQUISITION OF LAND ACT 1967-1969 AND AMENDED BY PROCLAIMATION DATED 26TH JANUARY, 1978, OVER AREAS TOTALLING 4015 SQUARE METRES AS SHOWN AS BETWEEN STATIONS 2A-2B-5B-5A-2A AND 6A-13-14-7A AND 6A ON SURVEY PLAN HT373 ARE HEREBY TAKEN BY
THE COMMISSIONER OF IRRIGATION AND WATER SUPPLY
FOR THE PURPOSE OF THE WATER ACT 1926-1976 VIZ BLACKWATER WATER SUPPLY AND SHALL VEST IN THE CROWN AS FROM 26TH MARCH, 1977.

5. VESTING No 706142706 25/11/2002 at 08:30
RESUMPTION EASEMENT: 602803563 (R1170)
SUNWATER A.B.N. 17 020 276 523

6. EASEMENT No 602803564 (A1388) 19/08/1980
BURDENING THE LAND TO
THE QUEENSLAND ELECTRICITY GENERATING BOARD
OVER EASEMENT B ON HT465

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832583
Search Date: 30/10/2024 10:04 Title Reference: 17646027
Date Created: 21/10/1995

ENCUMBRANCES AND INTERESTS

7. TRANSFER No 708691468 27/05/2005 at 09:05
EASEMENT: 602803564 (A1388)
QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
A.C.N. 078 849 233

8. EASEMENT No 602803565 (A1969) 09/05/1985
BURDENING THE LAND TO
THE CAPRICORNIA ELECTRICITY BOARD
OVER
EASEMENT G ON HT525
EASEMENT H ON HT535

9. EASEMENT No 602803566 (A2197) 01/04/1987
BURDENING THE LAND TO
COUNCIL OF THE SHIRE OF DUARINGA
OVER EASEMENTS E AND F ON HT399

10. MORTGAGE No 719146132 06/12/2018 at 09:54
STANWELL CORPORATION LIMITED A.C.N. 078 848 674

11. MORTGAGE No 720798770 18/05/2021 at 13:17
WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
UNDER INSTRUMENT 720798770

12. MORTGAGE No 722662102 07/08/2023 at 09:55
GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
A.C.N. 608 945 008 TRUSTEE
UNDER DOCUMENT 722662102

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711269348	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	13/12/2007 11:02	CURRENT
717898529	CON COM AGMT MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014	15/03/2017 11:09	CURRENT
719767646	EXEMPT CONS SEC 322AA LAND ACT 1994	02/12/2019 08:28	CURRENT

UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act (1994) or
section 281 Land Act (1994)

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832663
Search Date: 30/10/2024 10:07 Title Reference: 30462038
Date Created: 18/07/1979

Previous Title: 30460090
30460091

REGISTERED OWNER Interest

Dealing No: 708589272 18/04/2005

JOHN PERROTT ACTON	TENANTS IN COMMON	1/2
JUDY MARGARET ACTON	TENANTS IN COMMON	1/2
	AS TENANTS IN COMMON	

ESTATE AND LAND

Estate in Fee Simple

LOT 1 REGISTERED PLAN 613729
Local Government: CENTRAL HIGHLANDS

For exclusions / reservations for public purposes refer to
Plan RP 613729

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 30460090 (POR 45)
   Deed of Grant No. 30460091 (POR 45)

2. EASEMENT IN GROSS No 601523883 (C406818) 14/11/1980
   BURDENING THE LAND
   TO THE QUEENSLAND ELECTRICITY GENERATING BOARD
   OVER EASEMENT A ON RP13902

3. TRANSFER No 703630291 14/10/1999 at 08:19
   EASEMENT IN GROSS: 601523883 (C406818)
   QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED
   A.C.N. 078 849 233

4. MORTGAGE No 708589275 18/04/2005 at 11:13
   NATIONAL AUSTRALIA BANK LIMITED A.B.N. 12 004 044 937

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832663
Search Date: 30/10/2024 10:07 Title Reference: 30462038
Date Created: 18/07/1979

EASEMENTS, ENCUMBRANCES AND INTERESTS

5. EASEMENT IN GROSS No 721875931 02/08/2022 at 12:58
burdening the land
BHP COAL PTY LTD A.C.N. 010 595 721
TENANTS IN COMMON 163/400
UMAL CONSOLIDATED PTY LTD A.C.N. 000 767 386
TENANTS IN COMMON 3/400
BHP QUEENSLAND COAL INVESTMENTS PTY LTD A.C.N. 098 876 825
TENANTS IN COMMON 17/200
MITSUBISHI DEVELOPMENT PTY LTD A.C.N. 009 779 873
TENANTS IN COMMON 1553/10000
QCT INVESTMENT PTY LTD A.C.N. 010 487 831
TENANTS IN COMMON 3/25
QCT MINING PTY LTD A.C.N. 010 487 840
TENANTS IN COMMON 789/5000
QCT RESOURCES PTY LTD A.C.N. 010 808 705
TENANTS IN COMMON 669/10000
over
EASEMENT B ON SP307803

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713179128	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	15/04/2010 14:14	CURRENT

UNREGISTERED DEALINGS - NIL

Corrections have occurred - Refer to Historical Search

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832532
Search Date: 30/10/2024 10:03 Title Reference: 40063072
Date Created: 16/11/2011

DESCRIPTION OF LAND

Tenure Reference: TL 0/235282

Lease Type: TERM

LOT 2 SURVEY PLAN 246036
Local Government: CENTRAL HIGHLANDS

Area: 5.313000 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
COMMERCIAL/BUSINESS

TERM OF LEASE

Term and day of beginning of lease

Term: 15 years commencing on 01/11/2011

Expiring on 31/10/2026

REGISTERED LESSEE

Dealing No: 718836344 27/06/2018

CORONADO CURRAGH PTY LTD A.C.N. 009 362 565

CONDITIONS

CONDITIONS

A209 A78

(1) The lessee must use the leased land for residential purposes, namely the construction of a workers accommodation centre, including accommodation, kitchen and dining facilities and other associated infrastructure, for use by employees of the lessee and other persons who are working in Blackwater and surrounding areas.
(2) This lease may be forfeited if not used for the purpose stated above.
(3) The annual rent must be paid in accordance with the Land Act 1994.
(4) The Parties acknowledge that GST may be payable in respect of a supply made under this lease. Where GST becomes payable in respect of a supply made under this lease, the State (lessor) may recover the GST from the lessee by increasing the consideration payable by the lessee to the State by an amount equal to that which the State is obliged to remit to the Commonwealth as GST on the supply and that amount may be recovered from the lessee as part of the money payable to the State under this lease. The State will upon request by the lessee, issue to the lessee a valid GST tax invoice in respect of any taxable supply made under this lease. (NOTE: For the purposes of this condition "GST" means the goods and services tax which results from the enactment of A New Tax System (Goods and Services Tax) Act 1999 and the related Acts which constitute the Commonwealth taxation reform (as amended from time to time)).
(5) The lessee must pay the cost of any required survey or re-survey of the leased land.
(6) The lessee must control pest plants and animals, on the leased land, in accordance with the Land Protection (Pest and Stock Route Management) Act 2002 and the Local Laws and requirements of the Central Highlands Regional Council.
(7) The lessee has the responsibility for a duty of care, to take all reasonable and practicable measures to sustainably manage the leased land by conserving the physical, biological, productive and cultural values, either on the leased land or in areas affected by the management of the leased land.
(8) The lessee must ensure that the use and development of the leased land conforms to the Planning Scheme, Local Laws and requirements of the Central Highlands Regional Council, binding on the lessee.
(9) The lessee must give the Minister administering the Land Act 1994, information about the lease, when requested.
(10) The lessee must not clear any vegetation on the leased land, unless in accordance with the Sustainable Planning Act 2009.
(11) No compensation for improvements or developmental work is payable by the State at the forfeiture, surrender or expiry of the lease, but the lessee has the right to remove the lessees moveable improvements within a period of three (3) months from the forfeiture, surrender or expiry of the lease, provided all money due by the lessee to the State on any account whatsoever has been paid, or be required to remove those improvements as specified in any further

CONDITIONS

condition of lease.
(12) This lease is subject to the Land Act 1994 and all other relevant State and Commonwealth Acts.
A89
(1) The lessee must allow any person authorised under the Forestry Act 1959 access to the leased land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the leased land.
(2) Except as hereinafter provided the lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the leased land without the permission of the Minister administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements or a permit, licence, agreement or contract granted or made under the Forestry Act 1959.
A90
Further to Condition A78 (11), the lessee must remove all improvements and rehabilitate the area to the satisfaction of the Minister administering the Land Act 1994 within three (3) months from the date of forfeiture, surrender or expiry of the lease.
A91
If the lessee fails to remove the improvements and rehabilitate the area as detailed in Condition A90 above, the Minister administering the Land Act 1994 , can remove the improvements and rehabilitate the area and is hereby authorised to do whatever is necessary to effect the said removal and rehabilitation. The said Minister may recover from the lessee the total cost incurred in the said removal and rehabilitation.
C343
The lessee must from the commencement of the lease and to the satisfaction of the Minister administering the Land Act 1994 and the Central Highlands Regional Council, develop the leased land in accordance with the development approvals of the Central Highlands Regional Council.
H123
The provision of access to the leased land will not be the responsibility of the Central Highlands Regional Council or the State.
I66
The lessee indemnifies and agrees to keep indemnified the Minister administering the Land Act 1994, and the State of Queensland, and the Central Highlands Regional Council (the "Indemnified parties") against all actions, suits, proceedings, claims, demands, costs, losses, damages and expenses ("Claim") arising out of or in any way connected to or resulting from the granting of this lease to the lessee or which is connected to or resulting from the lessees' use and occupation of the leased land (all of which are referred to as

CONDITIONS

"the indemnified acts or omissions") save to the extent that the Claim arises as a result of any negligent act or omission of the Indemnified parties, however, any negligent act or omission of one of the Indemnified parties does not negate the indemnity to any of the other Indemnified party/ies. The lessee hereby releases and discharges the Indemnified parties from any Claim relating to the indemnified acts or omissions which may be made against the Indemnified parties.

I69

(1) The lessee must effect a public liability insurance policy with an insurer authorised under the Insurance Act 1973 (Commonwealth) or, in any other case, to the satisfaction of the Minister administering the Land Act 1994, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the leased land or any improvements thereon and against all claims, demands, proceedings, costs, charges and expenses whatsoever in respect thereof subject to the terms and conditions of the insurance policy. Such policy must:

(a) be for an amount of not less than twenty million dollars $20,000,000 in respect of all claims arising out of a single event or such higher amounts as the Minister may reasonably require:

(b) be effected on a "claims occurring" basis so that any claim made by the lessee under the policy after expiration of the period of policy cover but relating to an event occurring during the currency of the policy will be covered by the policy subject to the claim meeting the policy's other terms and conditions;

(c) be effected on such other reasonable terms and conditions as may be required by the Minister; and

(d) be maintained at all times during the currency of the lease.

(2) The lessee must, as soon as practicable, inform the Minister and Trustee, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the Minister and Trustee kept fully informed of subsequent actions and developments concerning the claim.

(3) The lessee must renew such policy, at the lessees' expense, each year during the currency of this lease and forward a certificate of currency to the Minister and Trustee within 14 days of the commencement of each respective renewal period.

(4) Upon receipt of a Notice of Cancellation, the lessee must immediately effect another public liability policy in accordance with the provisions of this condition.

(5) Clause (1) of this condition will be satisfied if the lessee is the State of Queensland or a statutory authority eligible for cover under the Queensland Government Insurance Fund and is insured and continues to be insured by the Queensland Government Insurance Fund.

(6) Clause (1) of this condition will be satisfied if the lessee is the Commonwealth of Australia or a statutory authority eligible for

CONDITIONS

cover under the Comcover Insurance Fund and is insured and continues to be insured by Comcover.
L110
The lessee must, to the satisfaction of the Minister administering the Land Act 1994, maintain all improvements on the leased land in a good and substantial state of repair.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Lease No. 40063072

2. EASEMENT IN GROSS No 713599141 30/11/2010 at 15:51
   burdening the land
   ERGON ENERGY CORPORATION LIMITED A.C.N. 087 646 062
   over
   EASEMENT B ON SP235835

3. AMENDMENT OF LEASE CONDITIONS No 717355593 30/06/2016 at 05:00
   THE CONDITIONS OF THE WITHIN TENURE ARE HEREBY AMENDED.

4. MORTGAGE No 721771699 20/06/2022 at 10:03
   WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
   UNDER INSTRUMENT 721771699

5. MORTGAGE No 722404777 11/04/2023 at 15:52
   STANWELL CORPORATION LIMITED A.C.N. 078 848 674

6. MORTGAGE No 722661958 07/08/2023 at 08:38
   GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
   A.C.N. 608 945 008 TRUSTEE
   UNDER DOCUMENT 722661958

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
719767646	EXEMPT CONS SEC 322AA LAND ACT 1994	02/12/2019 08:28	CURRENT

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832639
Search Date: 30/10/2024 10:06 Title Reference: 40078369
Date Created: 15/02/2021

Previous Title: 40034671

DESCRIPTION OF LAND

Tenure Reference: TL 0/241879

Lease Type: TERM

LOT 2 CROWN PLAN HT606
Local Government: CENTRAL HIGHLANDS
LOT 4 CROWN PLAN HT607
Local Government: CENTRAL HIGHLANDS

Area: 7741.175100 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
INDUSTRIAL

TERM OF LEASE

Term and day of beginning of lease

Term: 20 years commencing on 01/01/2021

Expiring on 31/12/2040

REGISTERED LESSEE

CORONADO CURRAGH PTY LTD A.C.N. 009 362 565

CONDITIONS

CONDITIONS

A131 SPECIFIED CONDITIONS FOR: Lease for a Term of Years
PURPOSE: Industrial

STATUTORY CONDITIONS:
Statutory conditions are the mandatory conditions of a lease in accordance with Part 2 Division 1 of the Land Act 1994 and other specific requirements of the Land Act 1994.

1. Permitted Use: The lessee must use the land only for the purpose for which the tenure was issued under the Land Act 1994.
2. Duty of Care: The lessee has the responsibility for a duty of care, for the land under the Land Act 1994.
3. Rent/Instalment: The lessee must pay the annual rent/instalment in accordance with the Land Act 1994 and the Land Regulation 2020. For further information on how annual rent is determined, refer to the department's website at www.dnrme.qld.gov.au.
4. Noxious plants: The lessee must keep noxious plants on the land under control. If the lessee does not comply with this condition, the Chief Executive may bring the noxious plants under control, the cost of which will be recovered from the lessee.
5. Information to Chief Executive: The lessee must give the Chief Executive administering the Land Act 1994, information the Chief Executive asks for about the tenure.
6. Monies for Improvements: No money for improvements is payable by the State on the forfeiture, cancellation, surrender or expiry of this lease but money may be payable if the State receives payment from an incoming lessee or buyer for the improvements on the land. However, the previous lessee may apply to the Minister / Chief Executive administering the Land Act 1994 to remove the improvements that belong to the lessee, within a period of 3 months from the date of the forfeiture, surrender, or expiry of this lease. The lessee may only undertake the removal of the improvements in the presence of an authorised representative of the department, if required by the Minister / Chief Executive administering the Land Act 1994. The lessee may only remove those improvements if all monies due from the lessee to the department under this lease have been paid.
7. Conditions relating to buildings and other structures: The lessee must to the satisfaction of the Minister administering the Land Act 1994 keep all buildings and other structures on the land in a good and substantial state of repair and must not erect a building or other structure on the land that is not consistent with the purpose of the lease.

REGULATORY CONDITIONS; OR IMPOSED CONDITIONS - SECTION 210:

A regulatory condition relates to a lease, in accordance with the Land Regulation 2020 - Chapter 5 Part 2 Division 3A of the Land Act 1994. Section 210 of the Land Act 1994 provides for Imposed conditions to be changed. Where a lease is not subject to the regulated conditions, the (wording of the) regulated conditions may be included as imposed conditions under section 210.

CONDITIONS

1. Indemnity: The lessee indemnifies and agrees to keep indemnified the State, the Minister, and their representatives, (all the Indemnified parties) against all liability, costs, loss and expenses including claims in negligence (including any claims, proceedings or demands brought by any third party, and any legal fees, costs and disbursements on an indemnity basis) arising from or incurred in connection with:
   a. the granting of this lease to the lessee; or
   b. the lessee's use and occupation of the land subject to the lease; or
   c. personal injury (including sickness and death) or property damage or loss in connection with the performance (or attempted or purported performance or non-performance) of the lease or a breach of the lease by the lessee.

   The lessee hereby releases and discharges to the full extent permitted by law, the Indemnified parties from all actions, claims, proceedings or demands and in respect of any loss, death, injury, illness or damage (whether personal or property and whether special, direct, indirect or consequential, including consequential financial loss) arising out of the use and occupation of the lease.
   To the full extent permitted by law, the State, the Minister and their representatives will not be liable to the lessee for any special, indirect or consequential damages, including consequential financial loss arising out of the use and occupation of the lease.
2. Public Liability: The lessee must take out a public liability insurance policy with a general insurer authorised under the Insurance Act 1973 (Cwlth) or, if not so authorised then only with the Minister's approval, which can be given or withheld in the Minister's sole discretion, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the land or any improvements thereon and against all claims, demands, proceedings, costs, charges, and expenses whatsoever (including claims in negligence). The policy must:
   a. be for an amount of at least $20 million or a higher amount as the Minister may reasonably require; and
   b. have no sublimit for each event; and
   c. be effected on a "claims occurring" basis; and
   d. be maintained at all times during the currency of the lease.

   On receipt of any notice of cancellation, the lessee must immediately take out another public insurance policy in accordance with the terms of the lease
   The lessee must, as soon as practicable, inform the Minister, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the Minister is kept fully informed of subsequent actions and developments concerning the claim.
   The lessee must renew the policy, at the lessee's expense, each year

CONDITIONS

during the currency of this lease.
This condition will be satisfied if the lessee is the State or a statutory authority eligible for insurance from the Queensland Government Insurance Fund and is insured, and continues to be insured, by the Queensland Government Insurance Fund.
This condition will be satisfied if the lessee is the Commonwealth or a statutory authority eligible for insurance from Comcover and is insured and continues to be insured by Comcover.

3. Access: The provision of access, further access or services to the land will not be the responsibility of the State.
4. Survey Costs: If the land needs to be surveyed or re-surveyed the lessee must do this at their own cost under the Survey and Mapping Infrastructure Act 2003. This survey plan must be lodged in the land registry within the specified time.
5. Jurisdiction: The lessee is subject to the Land Act 1994 and all other relevant Queensland and Commonwealth legislation.
6. Compliance with Laws: The lessee must comply with all lawful requirements of -
   a. the local government for each local government area in which the land subject to the lease is situated; and
   b. any department of the State or Commonwealth, or local authority or statutory instrumentality having jurisdiction over the land, or the development, use and occupation of the land, in regard to its use, occupation and development of the land.

IMPOSED CONDITIONS:

These imposed conditions relate to this lease - Chapter 5 Part 2 Division 2 of the Land Act 1994.
Cancellation/Forfeiture

1. The lease may be forfeited/cancelled if not used for the purpose for which it was issued or any subsequent additional purpose, defaults payment of the annual rent or by breach of a condition of the tenure.

Improvements or development on or to the land

1. The lessee must , to the satisfaction of the relevant authorities, maintain improvements on the land in a good and substantial state of repair.
2. The lessee must remove the improvements and rehabilitate the area to the satisfaction of the Minister / Chief Executive of the Land Act 1994 within six (6) months, from the date of termination of the tenure.
3. If the lessee fails to remove the improvements and rehabilitate the area as above, the Minister / Chief Executive administering the Land Act 1994 within six (6) months, can remove the improvements and is hereby authorised to do whatever is necessary to effect the said removal. The department may recover from the lessee the total cost incurred in the said removal.
4. The lessee must ensure that the development and use of the land meets with the Planning Scheme, Local Laws and requirements of the

CONDITIONS

Central Highlands Regional Council, binding the lessee.

Provision of reasonable services, roads and infrastructure external to but servicing the land

1. The provision of access or further access or services to the land will not be the responsibility of Central Highlands Regional Council and the State.

Quarry Material and Forest Products

1. The lessee must allow any person authorised under the Forestry Act 1959 access to the land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the land.
   The lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the land without the permission of the Minister / Chief Executive administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements of a permit, licence, agreement or contract granted or made under the Forestry Act 1959.

Other conditions the Minister considers appropriate

1. The lessee must, at all times during the currency of the lease, allow any person authorised by the Minister administering the Land Act 1994 free free and unrestricted access to/from and across the leased land for the purpose of constructing, maintaining and/or repairing their installations on land adjoining or adjacent thereto.
2. This Lease is issued in accordance with the provisions of Section 24IC of the Native title Act 1993 (Cth). In accordance with Section 24IC of the Native Title Act 1993 (Cth), the non-extinguishment principle applies.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Lease No. 40078369

2. EASEMENT No 602810534 (A2700) 10/07/1990
   EASEMENT IN PURSUANCE OF AN AGREEMENT DATED THE 6TH DAY OF JUNE, 1990 BETWEEN THE LESSEE OF THE WITHIN-DESCRIBED HOLDING AND
   CAPRICORNIA ELECTRICITY BOARD
   FOR THE PURPOSES AS DEFINED IN SUCH AGREEMENT

3. MORTGAGE No 719146132 06/12/2018 at 09:54
   STANWELL CORPORATION LIMITED A.C.N. 078 848 674

ENCUMBRANCES AND INTERESTS

4. COVENANT No 720621193 01/03/2021 at 13:47
   restricts dealings over
   LOT 9 ON SP141303 AND
   LOT 2 ON CROWN PLAN HT606 AND
   LOT 4 ON CROWN PLAN HT607 AND
   LOT 7 ON CROWN PLAN HT607

5. MORTGAGE No 720798770 18/05/2021 at 13:17
   WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
   UNDER INSTRUMENT 720798770

6. MORTGAGE No 722662102 07/08/2023 at 09:55
   GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
   A.C.N. 608 945 008 TRUSTEE
   UNDER DOCUMENT 722662102

7. MORTGAGE No 723268324 20/05/2024 at 14:33
   MINUMBRA BLACKWATER PTY LTD A.C.N. 663 164 770
   LOT 4 ON CP HT607

8. SUB LEASE No 723476621 20/08/2024 at 15:19
   to
   MINUMBRA BLACKWATER PTY LTD A.C.N. 663 164 770
   OF LEASE B ON SP334564 IN LOT 10 ON CP HT607
   TERM: 16/05/2024 TO 16/05/2039 OPTION: NIL

9. SUB LEASE No 723476622 20/08/2024 at 15:19
   SUB LEASE: 723476621
   CORONADO CURRAGH PTY LTD A.C.N. 009 362 565
   OF LEASE B ON SP334564 IN LOT 10 ON CP HT607
   TERM: 16/05/2024 TO 15/05/2039 OPTION: NIL

10. MORTGAGE No 723476625 20/08/2024 at 15:19
    GLOBAL LOAN AGENCY SERVICES AUSTRALIA SPECIALIST ACTIVITIES
    PTY LIMITED A.C.N. 635 992 308
    over
    SUB LEASE: 723476621

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
719767646	EXEMPT CONS SEC 322AA LAND ACT 1994	02/12/2019 08:28	CURRENT
722874384	RT NOTING LAND TITLE ACT 1994	13/11/2023 09:39	CURRENT

UNREGISTERED DEALINGS - NIL

Request No: 49832639
Search Date: 30/10/2024 10:06 Title Reference: 40078369
Date Created: 15/02/2021

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act (1994) or
section 281 Land Act (1994)

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832510
Search Date: 30/10/2024 10:02 Title Reference: 40079658
Date Created: 12/04/2022

Previous Title: 40065374

DESCRIPTION OF LAND

Tenure Reference: TL 0/242428

Lease Type: TERM

LOT 17 CROWN PLAN HT628
Local Government: CENTRAL HIGHLANDS

Area: 2.860000 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
RESIDENTIAL

TERM OF LEASE

Term and day of beginning of lease

Term: 16 years 7 months 11 days commencing on 21/03/2022

Expiring on 31/10/2038

REGISTERED LESSEE

CURRAGH QUEENSLAND MINING PTY LTD A.C.N. 095 450 418

CONDITIONS

CONDITIONS

A139 SPECIFIED CONDITIONS FOR: Lease for a Term of Years
PURPOSE: Residential

MANDATORY CONDITIONS:
Statutory conditions are the general mandatory conditions of a lease and binds the lessee in accordance with Chapter 5 Part 2 Division 1 of the Land Act.

1. Permitted Use: The lessee must use the land only for the purpose for which the tenure was issued under the Land Act 1994.
2. Duty of Care: The lessee has the responsibility for a duty of care, for the land under the Land Act 1994.
3. Rent/Instalment: The lessee must pay the annual rent/instalment in accordance with the Land Act 1994 and the Land Regulation 2020. For further information on how annual rent is determined, refer to the department's website at www.resources.qld.gov.au.
4. Noxious plants: The lessee must keep noxious plants on the land under control. If the lessee does not comply with this condition, the Chief Executive may bring the noxious plants under control, the cost of which will be recovered from the lessee.
5. Information to Chief Executive: The lessee must give the Chief Executive administering the Land Act 1994, information the Chief Executive asks for about the tenure.
6. Monies for Improvements: No money for improvements is payable by the State on the forfeiture, cancellation, surrender or expiry of this lease but money may be payable if the State receives payment from an incoming lessee or buyer for the improvements on the land. However, the previous lessee may apply to the Minister / Chief Executive administering the Land Act 1994 to remove the improvements that belong to the lessee, within a period of 3 months from the date of the forfeiture, surrender, or expiry of this lease. The lessee may only undertake the removal of the improvements in the presence of an authorised representative of the department, if required by the Minister / Chief Executive administering the Land Act 1994. The lessee may only remove those improvements if all monies due from the lessee to the department under this lease have been paid.
7. Conditions relating to buildings and other structures: The lessee must to the satisfaction of the Minister administering the Land Act 1994 keep all buildings and other structures on the land in a good and substantial state of repair and must not erect a building or other structure on the land that is not consistent with the purpose of the lease.

REGULATORY CONDITIONS; OR IMPOSED CONDITIONS - SECTION 210:

A regulatory condition relates to a lease, in accordance with the Land Regulation 2020.

1. Indemnity: The lessee indemnifies and agrees to keep indemnified the State, the Minister, and their representatives, (all the Indemnified parties) against all liability, costs, loss and expenses including claims in negligence (including any claims, proceedings or

CONDITIONS

demands brought by any third party, and any legal fees, costs and disbursements on an indemnity basis) arising from or incurred in connection with:

a. the granting of this lease to the lessee; or
b. the lessee's use and occupation of the land subject to the lease; or
c. personal injury (including sickness and death) or property damage or loss in connection with the performance (or attempted or purported performance or non-performance) of the lease or a breach of the lease by the lessee.

The lessee hereby releases and discharges to the full extent permitted by law, the Indemnified parties from all actions, claims, proceedings or demands and in respect of any loss, death, injury, illness or damage (whether personal or property and whether special, direct, indirect or consequential, including consequential financial loss) arising out of the use and occupation of the lease.

To the full extent permitted by law, the State, the Minister and their representatives will not be liable to the lessee for any special, indirect or consequential damages, including consequential financial loss arising out of the use and occupation of the lease.

2. Public Liability: The lessee must take out a public liability insurance policy with a general insurer authorised under the Insurance Act 1973 (Cwlth) or, if not so authorised then only with the Minister's approval, which can be given or withheld in the Minister's sole discretion, naming the lessee as the insured covering legal liability for any loss of, or damage to any property and for the injury (including death) to any person arising out of anything done or omitted on or about the land or any improvements thereon and against all claims, demands, proceedings, costs, charges, and expenses whatsoever (including claims in negligence).

The policy must:

a. be for an amount of at least $20 million or a higher amount as the Minister may reasonably require; and
b. have no sublimit for each event; and
c. be effected on a "claims occurring" basis; and
d. be maintained at all times during the currency of the lease.

The lessee must, as soon as practicable, inform the Minister, in writing, of the occurrence of any event that the lessee considers is likely to give rise to a claim under the policy of insurance effected and must ensure that the Minister is kept fully informed of subsequent actions and developments concerning the claim.

The lessee must renew the policy, at the lessee's expense, each year during the currency of this lease.

This condition will be satisfied if the lessee is the State or a statutory authority eligible for insurance from the Queensland Government Insurance Fund and is insured, and continues to be insured, by the Queensland Government Insurance Fund.

This condition will be satisfied if the lessee is the Commonwealth or a statutory authority eligible for insurance from the Comcover

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and is insured and continues to be insured by Comcover.

3. Survey Costs: If the land needs to be surveyed or re-surveyed the lessee must do this at its own cost under the Survey and Mapping Infrastructure Act 2003. This survey plan must be lodged in the land registry within the specified time.
4. Jurisdiction: The lease is subject to the Land Act 1994 and all other relevant Queensland and Commonwealth legislation.
5. Compliance with Laws: The lessee must comply with all lawful requirements of -
   a. the local government for each local government area in which the land subject to the lease is situated; and
   b. any department within the State or Commonwealth, or local authority or statutory instrumentality having jurisdiction over the land, or the development, use and occupation of the land, in regard to its use, occupation and development of the land.

IMPOSED CONDITIONS:

These conditions relate to this lease.

Cancellation/Forfeiture

1. The lease may be forfeited/cancelled if not used for the purpose for which it was issued or any subsequent additional purpose, defaults payment of the annual rent or by breach of a condition of the tenure.

Improvements or development on or to the land

1. The lessee must , to the satisfaction of the relevant authorities, maintain all improvements on the land in a good and substantial state of repair.
2. The lessee must ensure that the development and use of the land meets with the Planning Scheme, Local Laws and requirements of the Central Highlands Regional Council, binding the lessee.

Care, sustainability and protection of the land

1. The lessee must ensure that each and every activity undertaken on the leased land which has the potential to pollute and/or contaminate is carried out in such a manner as to prevent this from occurring.

Quarry Material and Forest products

1. The lessee must allow any person authorised under the Forestry Act 1959 access to the land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the land.
   The lessee must not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mineral Resources Act 1989) or other material upon the land without the permission of the Chief Executive administering the Land Act 1994 except under the authority of and in compliance in every respect with the requirements of a permit, licence, agreement or contract granted or made under the Forestry Act 1959.

CURRENT STATE TENURE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832510
Search Date: 30/10/2024 10:02 Title Reference: 40079658
Date Created: 12/04/2022

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Lease No. 40079658

2. MORTGAGE No 721771732 20/06/2022 at 10:21
   WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
   UNDER INSTRUMENT 721771732

3. MORTGAGE No 722404778 11/04/2023 at 15:52
   STANWELL CORPORATION LIMITED A.C.N. 078 848 674

4. MORTGAGE No 722661982 07/08/2023 at 09:05
   GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
   A.C.N. 608 945 008 TRUSTEE
   UNDER DOCUMENT 722661982

5. MORTGAGE No 723268332 20/05/2024 at 14:33
   MINUMBRA BLACKWATER PTY LTD A.C.N. 663 164 770

6. SUB LEASE No 723332738 18/06/2024 at 10:20
   MINUMBRA BLACKWATER PTY LTD A.C.N. 663 164 770
   OF THE WHOLE OF THE LAND
   TERM: 16/05/2024 TO 16/05/2039 OPTION NIL

7. SUB LEASE No 723335928 19/06/2024 at 11:49
   SUB LEASE: 723332738
   CURRAGH QUEENSLAND MINING PTY LTD A.C.N. 095 450 418
   OF THE WHOLE OF THE LAND
   TERM: 16/05/2024 TO 15/05/2039 OPTION NIL

8. MORTGAGE No 723363079 28/06/2024 at 15:28
   GLOBAL LOAN AGENCY SERVICES AUSTRALIA SPECIALIST ACTIVITIES
   PTY LTD A.C.N. 635 992 308
   over
   SUB LEASE: 723332738

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
719767646	EXEMPT CONS SEC 322AA LAND ACT 1994	02/12/2019 08:28	CURRENT
722899824	RT NOTING LAND TITLE ACT 1994	23/11/2023 11:48	CURRENT

UNREGISTERED DEALINGS - NIL

Request No: 49832510
Search Date: 30/10/2024 10:02 Title Reference: 40079658
Date Created: 12/04/2022

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act (1994) or
section 281 Land Act (1994)

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT RESERVE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832690
Search Date: 30/10/2024 10:08 Title Reference: 49016601
Date GAZETTED: 23/01/1982
PAGE: 152-3

Opening Ref: GHFL 3733 SPRINGSURE
Purpose: QUARRY
Sub-Purpose:
Local Name:
Address:
County (R) No: R204
File Ref: RES 21952

TRUSTEES

THE STATE OF QUEENSLAND (REPRESENTED BY DEPARTMENT OF AGRICULTURE AND FISHERIES) AMENDED on 15/12/2014

LAND DESCRIPTION

LOT 12 CROWN PLAN HT493 GAZETTED ON 23/01/1982 PAGE 152-3
Local Government: CENTRAL HIGHLANDS

Area: 65.810000 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current Reserve Search **

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832804
Search Date: 30/10/2024 10:11 Title Reference: 50804353
Date Created: 08/03/2010

Previous Title: 50351635

REGISTERED OWNER

Dealing No: 718836344 27/06/2018

CORONADO CURRAGH PTY LTD A.C.N. 009 362 565

ESTATE AND LAND

Estate in Fee Simple

LOT 2 SURVEY PLAN 223677
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 30516157 (POR 9)

2. MORTGAGE No 719146134 06/12/2018 at 09:55
   STANWELL CORPORATION LIMITED A.C.N. 078 848 674

3. MORTGAGE No 720798761 18/05/2021 at 13:15
   WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
   UNDER INSTRUMENT 720798761

4. MORTGAGE No 722658673 04/08/2023 at 09:04
   GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
   A.C.N. 608 945 008 TRUSTEE
   UNDER INSTRUMENT 722658673

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711867411	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	19/08/2008 15:39	CURRENT

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: D-ENQ INFOTRACK PTY LIMITED

CURRENT TITLE SEARCH
QUEENSLAND TITLES REGISTRY PTY LTD

Request No: 49832704
Search Date: 30/10/2024 10:08 Title Reference: 50919293
Date Created: 18/07/2013

Previous Title: 50804354

REGISTERED OWNER

Dealing No: 718836344 27/06/2018

CORONADO CURRAGH PTY LTD A.C.N. 009 362 565

ESTATE AND LAND

Estate in Fee Simple

LOT 35 SURVEY PLAN 247242
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 30516157 (POR 9)

2. COVENANT No 715961461 19/08/2014 at 12:53
restricts dealings over
LOT 35 ON SP247242 AND LOT B ON CROWN PLAN AP19980

3. MORTGAGE No 719146134 06/12/2018 at 09:55
STANWELL CORPORATION LIMITED A.C.N. 078 848 674

4. MORTGAGE No 720798761 18/05/2021 at 13:15
WILMINGTON TRUST, NATIONAL ASSOCIATION TRUSTEE
UNDER INSTRUMENT 720798761

5. MORTGAGE No 722658673 04/08/2023 at 09:04
GLOBAL LOAN AGENCY SERVICES AUSTRALIA NOMINEES PTY LTD
A.C.N. 608 945 008 TRUSTEE
UNDER INSTRUMENT 722658673

ADMINISTRATIVE ADVICES

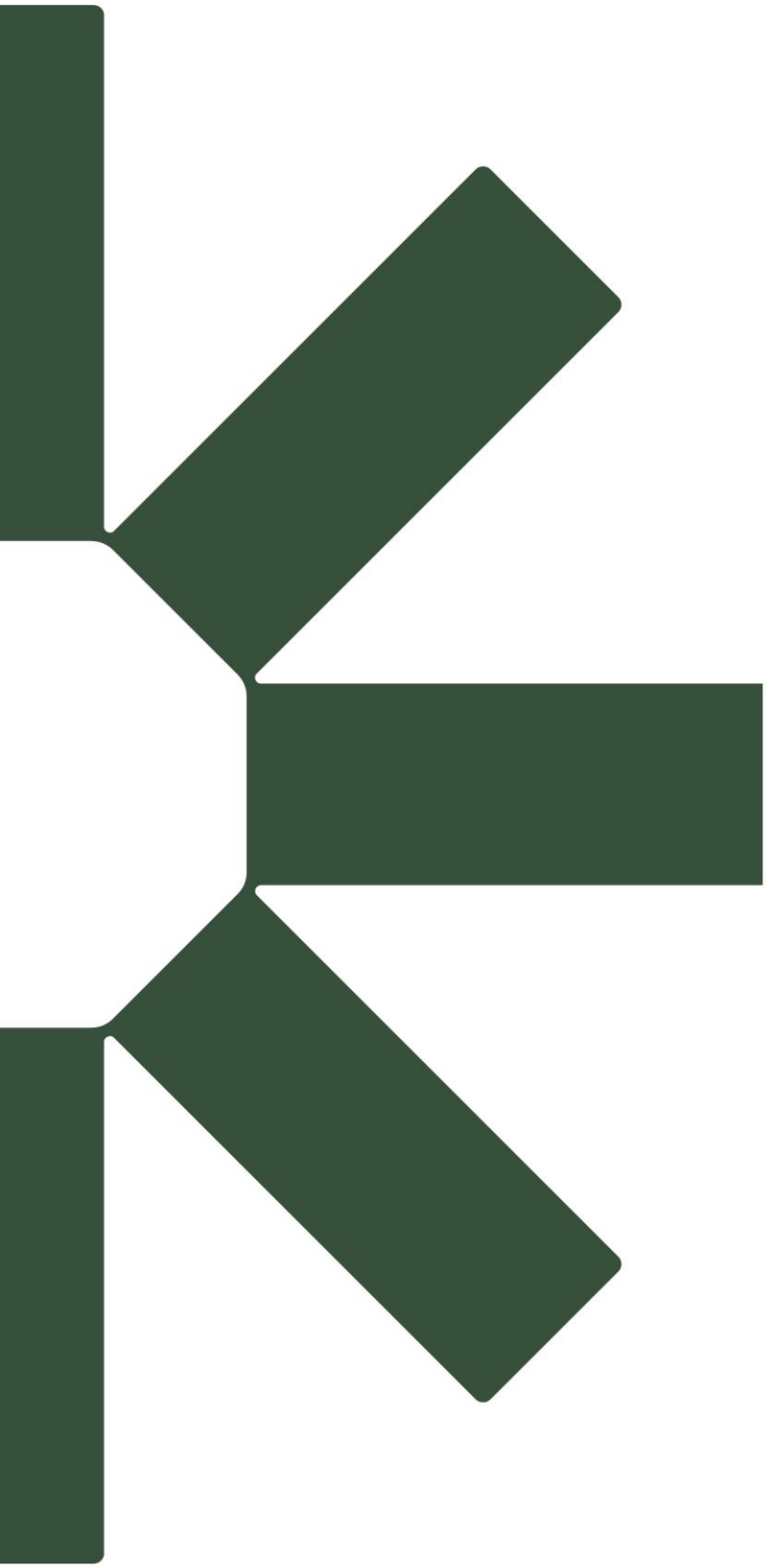
Dealing	Type	Lodgement Date	Status
711867411	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	19/08/2008 15:39	CURRENT

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: D-ENQ INFOTRACK PTY LIMITED



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