

**Regional Interests Development Approval
Application: LW500**

Supporting Information

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Abbreviations

AARC	AARC Environmental Solutions Pty Ltd
ACARP	Australian Coal Association Research Program
ASRIS	Australian Soil Resource Information System
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning
DNRM	Department of Natural Resources and Mines
DSITI	Department of Science, Information Technology, and Innovation
EA	Environmental Authority
GDP	Ground Disturbance Permit
Kestrel Mine	Kestrel Coal Mine
Kestrel Coal Resources	Kestrel Coal Resources Pty Ltd
Mitsui	Mitsui Coal Pty Ltd
ML	Mining Lease
PED	Personal Emergency Device
RIDA	Regional Interests Development Approval
RPI Act	<i>Regional Planning Interests Act 2014</i>
RPI Regulation	Regional Planning Interests Regulation 2014
RUSLE	Revised Universal Soil Loss Equation
SC Act	<i>Soil Conservation Act 1986</i>
SCA	Strategic Cropping Area
SCL	Strategic Cropping Land

1 Introduction

This report has been prepared in support of a regional interests development approval (RIDA) application under Part 3 Division 2 of the *Regional Planning Interests Act 2014* (RPI Act).

The purpose of this report is to provide an overview of proposed activities associated with a single longwall mining panel (LW500) for Kestrel Coal Resources and to assess the potential impacts of those activities on the Strategic Cropping Area (SCA). The SCA is an area of regional interest identified under the RPI Act and consists of the areas shown on the Strategic Cropping Land Trigger Map as strategic cropping land (SCL) (DILGP 2014).

Kestrel Coal Resources operates on ML70481 under an existing RIDA (RPI16/002) relating to proposed disturbance on SCA in ML70481. Through ongoing resource optimisation planning, an additional longwall panel, longwall panel 500 (LW500), was identified to support ongoing operations.

LW500 will have a total disturbance footprint of 88.0 ha, of which 85.9 ha is currently trigger-mapped SCL.

1.1 The applicant

The applicant for the Project is:

Kestrel Coal Resources Pty Ltd
 Level 22, 10 Eagle Street, Brisbane City, QLD 4000
 ACN 079044689

The mine is held as a joint venture of Kestrel Coal Resources (80%) and Mitsui Coal Pty Ltd (20%), with Kestrel Coal Resources as the operations entity.

1.2 Project description

The Kestrel Coal Mine (Kestrel Mine) is located in the Bowen Basin, approximately 51 km northeast of Emerald in central Queensland, Australia – refer Figure 1. The mine is an underground operation producing predominantly high quality coking coal for export using longwall mining methods. Coal is mined from the German Creek coal seam. The mine commenced production in 1992 and, apart from a closure period from October 1997 to February 1999, has since remained operational.

Currently, within the 400-series panels, coal extraction and production occurs at depths of 300–450 m, with production rates of 8–10 Mt run of mine coal per year. The current approved life of mine includes mining of a further series of longwall panels, referred to as the 500 series, which extends into ML70481 at depths of between 360 m and 470 m. Typical mining seam thickness ranges between 2.5–3.1 m with the longwall minimum extraction height being 2.6 m

Mining operations up to and including the 400 series longwall panels have occurred on ML1978, ML70301, ML70302, and ML70330, none of which have been subject to RPI Act approval requirements.

In 2016, ML70481 was granted to enable operation of the 500 series longwall panels. An SCL protection decision (SCLRD2012/000090) was issued for ML70481; one of the first issued under the new SCL regulatory environment. In March 2016, the SCL protection decision was transitioned to a RIDA under Section 53 of the RPI Act, referred to as RPI16/002/Rio Tinto - Kestrel Extension #4 Coal Project (RPI16/002).

To optimise coal resource recovery, an additional longwall panel (LW500) is proposed covering an additional area of 88.0 ha of ML70481 (Figure 2). Longwall mining of LW500 is planned to commence in August 2023 and be complete by mid-2024.

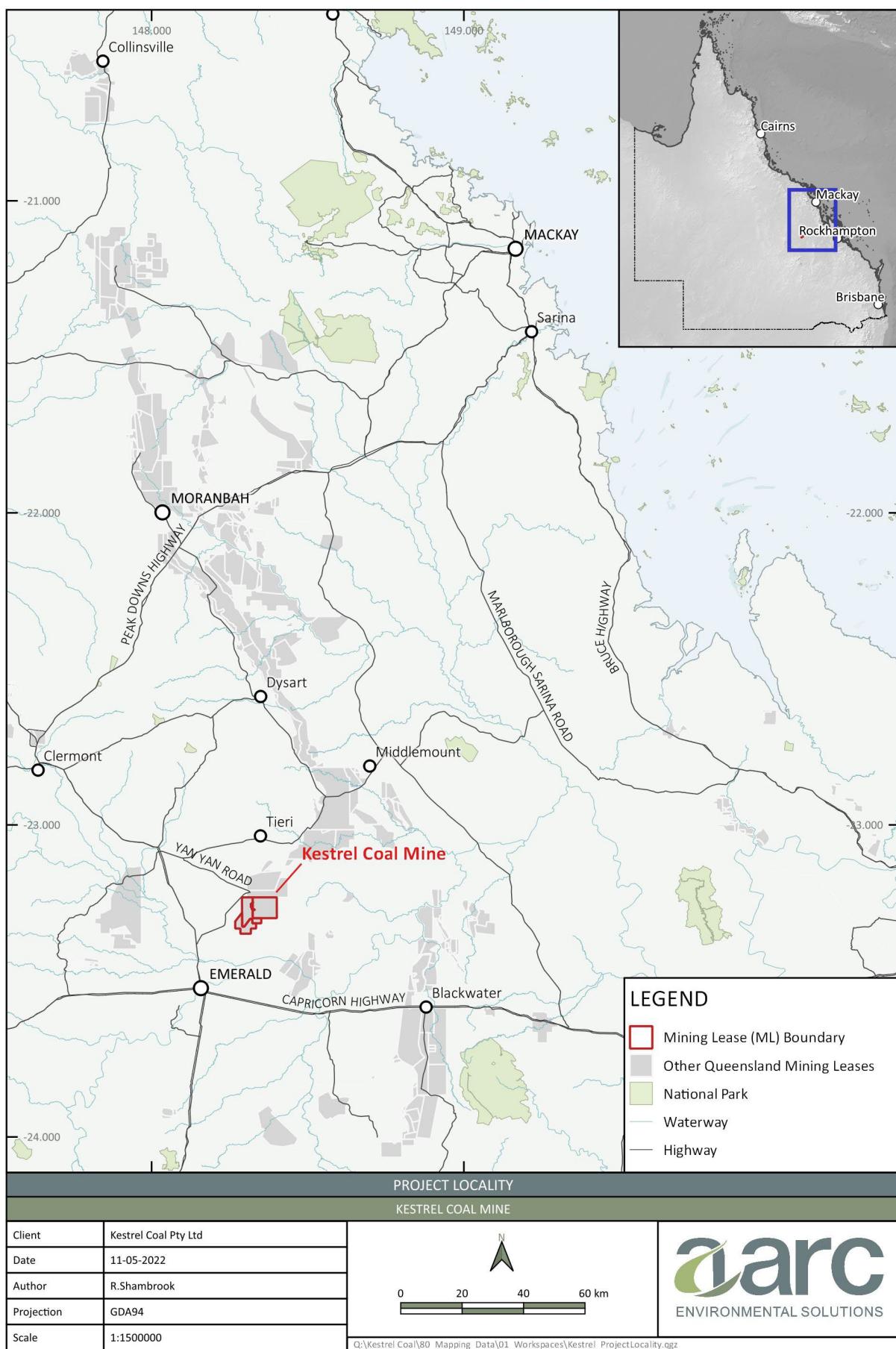


Figure 1: Project location

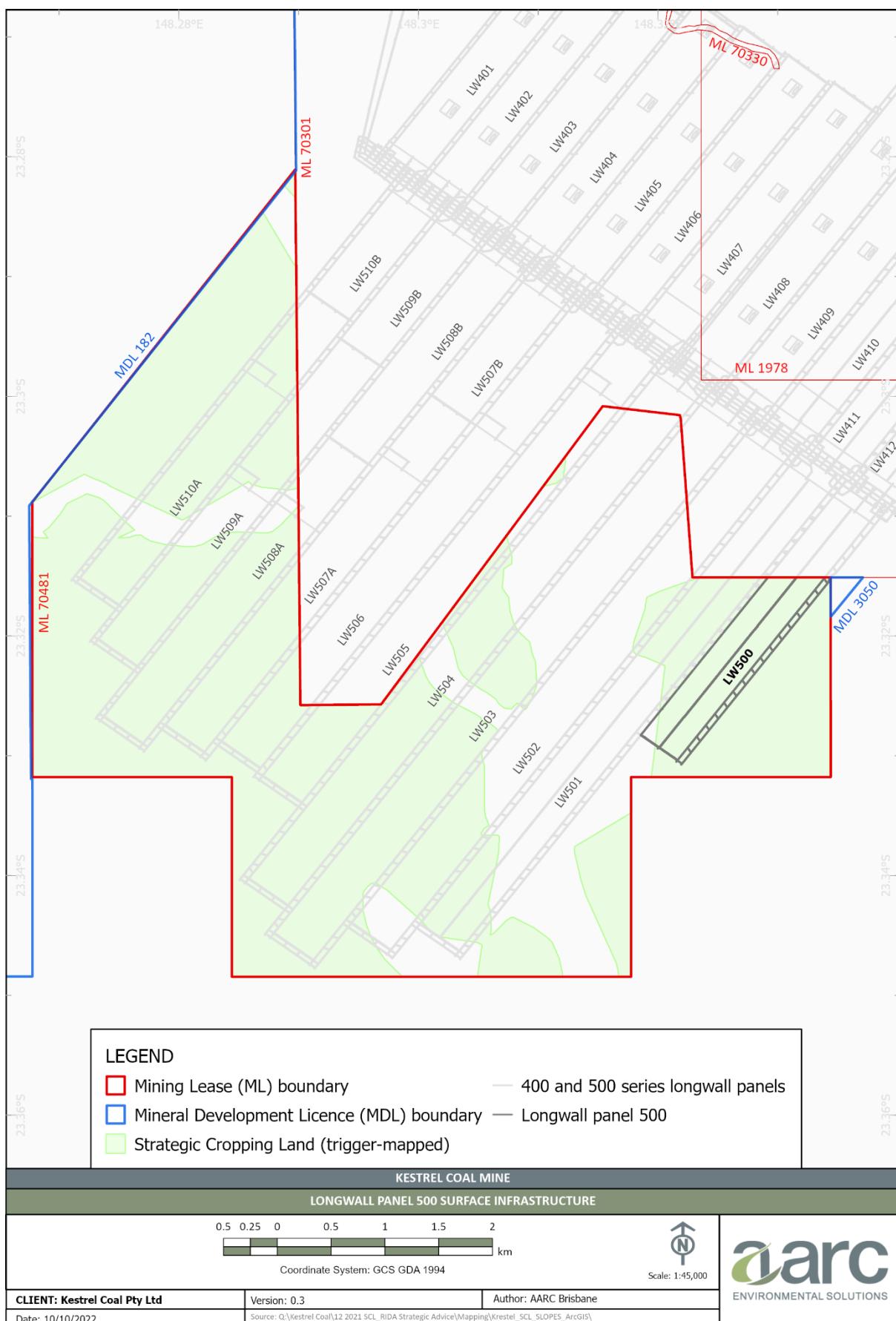


Figure 2: 500 series mine plan showing LW500

The area of trigger-mapped SCL associated with LW500 is the subject of this RIDA application.

Kestrel holds the freehold title for the surface properties associated with LW500, and manages agricultural lessees conducting pastoral activities across all freehold lands not utilised for mining activities.

1.3 RPI Act exemption provisions

Division 2 of Part 2 of the RPI Act provides a number of exemption provisions available to resource activities. While earlier mining activities are exempted through these provisions, the proposed activities are not considered to be exempt resource activities under Sections 22 to 25 of the RPI Act.

1.4 Application details

To satisfy the requirements for the RIDA assessment application, the application is supported by the approved form, the applicable fee and this report which:

- assesses the proposed activity's impact on the area of regional interest; and
- identifies any constraints on the configuration / operation of the activity.

Table 1 provides a summary of the assessment application details.

Table 1: Summary of the RIDA assessment application

Parameter	Description
Applicant	Kestrel Coal Resources
Application type	Assessment application for RIDA
Application fee	\$14,061.98 (application with an expected area of impact greater than 30 ha but less than 100 ha)
Area of regional interest	Strategic Cropping Area
Address	Lilyvale Road
Real property description	Lot 11 SP 178401
Landowner details	Mitsui Kestrel Coal Investment Pty Limited and Kestrel Coal Resources Pty Ltd
Tenements	ML70481
Application area	85.9 ha
Applicant contact details	Colleen Fish, Principal Sustainability, Level 2, 10 Eagle Str, Brisbane, QLD 4000

2 Proposed resource activities

Resource activities associated with LW500 having the potential to cause land disturbance include:

- surface subsidence resulting from underground longwall panel progression; and,
- disturbance associated with supporting surface infrastructure development and operation.

Exempt resource activities associated with LW500 have also been identified, as detailed below:

- the disturbance footprint of LW500 that extends to the north, beyond the boundary of ML70481 (Figure 3), is exempt by virtue of being a pre-existing resource activity as defined by Section 24 of the RPI Act; and,
- the small area (<5ha) of potential subsidence on MDL3050 (Figure 3), is addressed under a separate EA (P-EA-100207898). If impacted at all, this small area will be restored within 12 months, and is therefore exempt under Section 23 of the RPI Act.

2.1 Supporting surface infrastructure

Underground mining operations at Kestrel Mine are supported by a range of surface-located services and infrastructure, however, the LW500 application area only includes the proposed following infrastructure types:

- Exploration and pre-production drilling;
- Pre-drainage and dewatering infrastructure consisting of vertical production wells and flaring infrastructure, end of hole and laterals drill locations;
- Post production gas drainage consisting of vertical goaf wells, goaf reticulation pipelines and access roadway; and,
- PED surface lines installed along the line of the longwall panel.

The indicative surface infrastructure required for LW500 activities is shown on **Figure 3**.

Potential surface disturbance activities have been or will be subject to an internal environmental management approval process (Ground Disturbance Permit), as such, the location and installation of surface infrastructure is managed to minimise any potential impacts.

Surface infrastructure will remain either for the life of mine, the life of the panel series, or the life of the panel. Removal of surface infrastructure will be undertaken once the service life of the infrastructure has passed and the mining area is rehabilitated and returned to its former productive capacity.

2.2 Activities not related to resource activities

Where land is not required for mining purposes, the land continues to be operated as pastoral stock farming or dryland agricultural farming.

Kestrel Mine currently leases all lands to a large reputable, commercial agricultural enterprise. The lease requires regular property maintenance, weed control and land improvement programs.

2.3 Site selection and assessment of alternatives

The proposed LW500 activity is constrained by the current mining lease boundary, underlying geology, and the definition of the coal resource. The LW500 area that is subject to this application is located within the north-eastern boundary of ML70481 and is an extension from the longwall panel within ML70301 (Figure 2).

The target coal seam at the Kestrel Mine is the German Creek Seam, which lies at the base of the German Creek Formation. The German Creek Formation consists of interbedded and laminated sandstones, shales, and mudstones, as well as several thinner coal seams, within 100 m of the German Creek Seam. These Permian age geological units, as well as the coal barren MacMillan Formation and the Fairhill Formation are collectively referred to as the Permian coal measures.

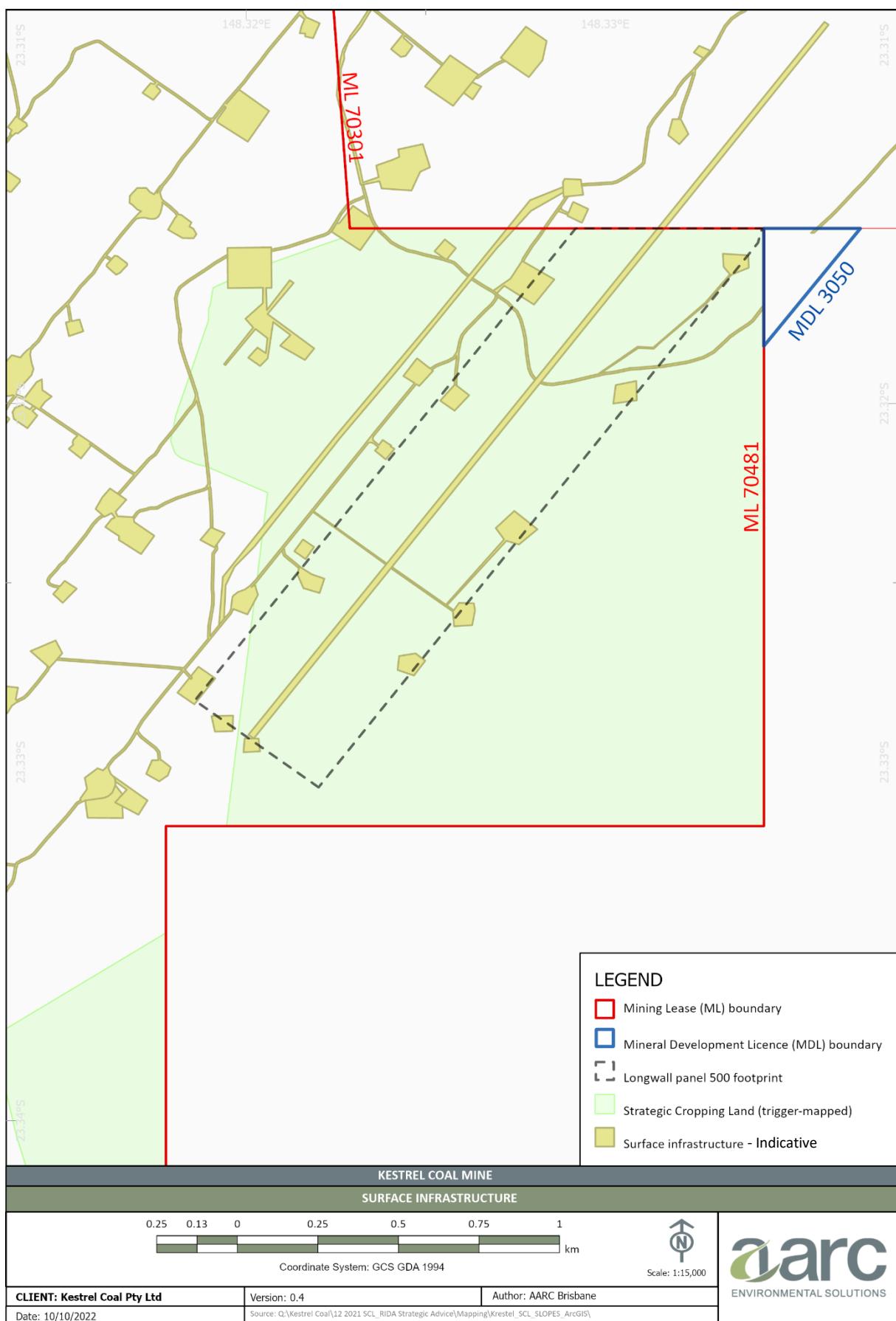


Figure 3: Indicative Surface infrastructure for LW500

3 Pre-activity site description

3.1 Current land use

3.1.1 Land use

The *Central Highlands Regional Council Planning Scheme 2016* (CHRC 2016) includes Kestrel Mine and the surrounding region within the Rural zone code which has as its purpose to:

- provide for rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities;
- provide opportunities for non-rural uses that are compatible with agriculture, the environmental features, and landscape character of the rural area where the uses do not compromise the long-term use of the land for rural purposes; and
- protect or manage significant natural resources and processes to maintain the capacity for primary production.

Prior to mining, regional, and local land use comprised grazing of native and improved pastures, and cropping. In 1983 approximately 4% of ML70481 was subject to cropping activity, increasing in 1993 to approximately 13% and again in 2004 to approximately 21%. Since 2004, cropping activity has diminished such that there is not currently any cropping activity occurring in ML70481. The property is now predominantly used for grazing based on native and naturalised grasses, as well as the forage crop *Leucaena leucocephala*.

The majority of Kestrel mining area land (outside of infrastructure areas) operates as an independent, productive pastoral beef property. Kestrel Coal Resources manages grazing practices through commercial agreements with the lessee, including requirements for responsible land management.

The most recent land capability study to assess the ML70481 area was undertaken by MWH (2011). This assessment was integrated with an earlier 2002 study (MWH 2002) to cover the whole of ML70481. Table 2 indicates the areas and relative proportions of the various land capability classes assessed as occurring within the area of SCL located within the additional LW500 disturbance area.

Table 2: Assessed land capability classes- LW500 SCL disturbance area (based on EMM 2012)

Land use capability class	Pre-mining area (ha)	Post-mining area (ha)	Proportion of total SCL disturbance
Class III	75.5	75.5	88%
Class IV	-	-	0%
Class V	-	-	0%
Class VI	7.1	7.1	8%
Class VII	3.3	3.3	4%

4 Areas of Regional Interest

The RPI Act identifies and protects areas of regional interest throughout Queensland. The RPI Act outlines the requirements for a RIDA application for resource activities carried out in areas of regional interest, which includes SCA. Of the areas of regional interest protected by the RPI Act, only SCL is mapped within the application footprint of LW500.

The LW500 footprint is wholly situated on Lot 11 SP178401 (a current title search is provided at Appendix A), which has an area of 9,135 ha (refer Figure 4). However, Kestrel owns a number of contiguous properties that are managed as a single enterprise (defined as an SCL Property under the RPI Act) totalling 17,707 ha and containing 14,000 ha of trigger-mapped SCL (refer Figure 5). As such, the maximum proportion of SCL disturbed by virtue of LW500 constitutes 0.6% of the total Kestrel SCL Property area.

4.1 Geology and landform

Kestrel Mine extracts coal from the German Creek coal seam, which is part of the Bowen Basin, a significant Permian coal basin stretching 600 km long and 250 km wide. The mine is situated within a predominant north-south trending syncline. A series of faults form boundaries to the coal resources with the Woolshed Fault to the west and Boundary Fault to the east. The solid geology of the mine area comprises of Permian to late Permian stratified sedimentary sequences. The surface geology around the mine is primarily Tertiary to Quaternary stratified colluvium as well as volcanic sequences.

Regionally, the topography surrounding Kestrel Mine gently undulates with moderate relief and drains to shallow ephemeral creeks. Existing land uses are described in section 3.1.1.

4.2 Soils

Kestrel is undertaking a detailed soil survey against relevant RPI Act Statutory Guidelines over the entire LW500 panel area, and all of the additional 500 series longwall panels. However, due to ongoing laboratory delays this submission is being provided based on the previous soils work that has been undertaken, and in accordance with the existing SCL Trigger map.

Kestrel will provide the final soils report as required, once laboratory results have been received, assessed and incorporated into a final report.

4.2.1 Previous soils studies

Current soils knowledge is based on a number of soil surveys that have been undertaken across the various Kestrel Mining Leases (MLs) as follows:

- 1993 (Emmerton): conducted a soils and land suitability assessment for dryland cropping in the Gordonstone West area (1:25,000 scale). Note that the prior name of Kestrel Mine was the Gordonstone Mine;
- 1996 (Cannon): addressed soils and land suitability for the Gordonstone Mine, Gordonstone Extension and Gordonstone West Mines (1:25,000 scale);
- 2002 (MWH): conducted a pre-mining condition soil and land capability study of Gordon Downs; effectively covering ML1978, ML70301, ML70302, ML7030 and parts of ML70481 excluding the immediate area of existing surface infrastructure, and improving the mapping scale to 1:10,000; and
- 2011 (MWH): surveyed the remainder of ML70481 at 1:10,000 scale as part of the *Environmental Assessment Report Kestrel Extension #4 November 2012* (EMM 2012). This study also addressed land capability, land suitability and SCL aspects.

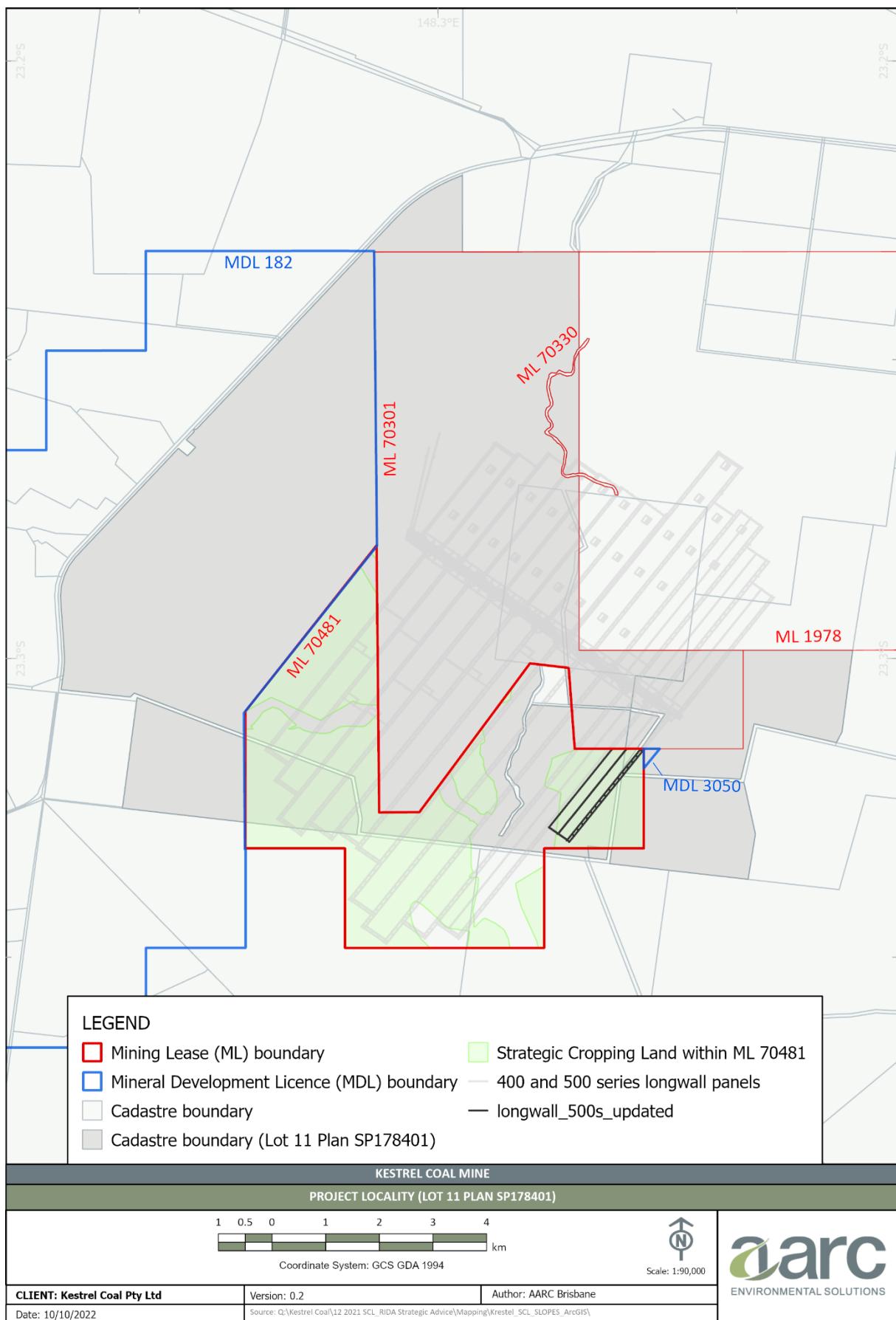


Figure 4: LW500 Trigger-mapped SCL in relation to Lot 11 SP178401

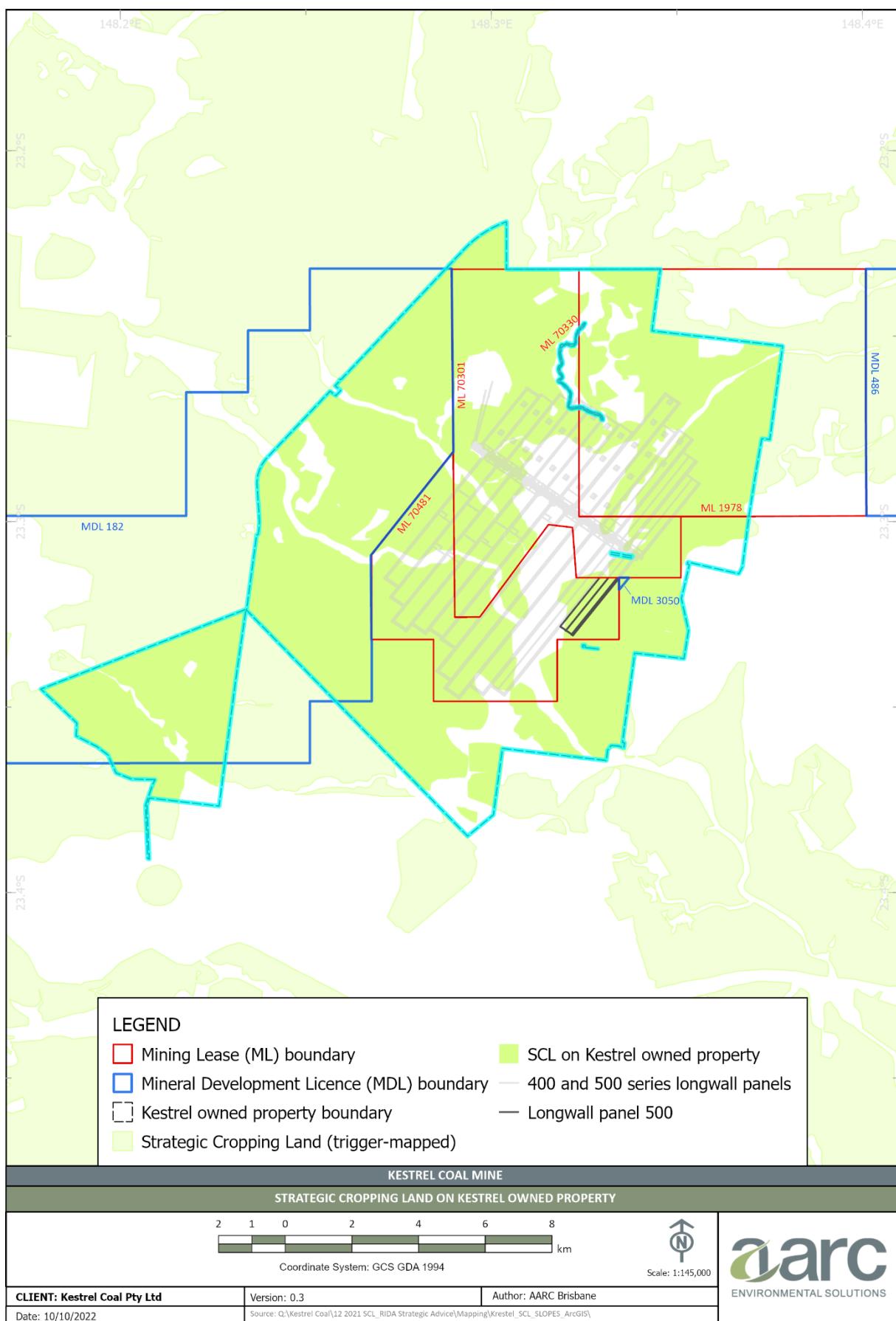


Figure 5: Kestrel-owned properties and trigger-mapped SCL

4.2.2 Soil characterisation

Based on the 2002 and 2011 MWH studies which are relevant to the ML70481 area, the distribution of soil types within Kestrel Mine includes soils formed on:

- alluvium (Quaternary Alluvium);
- Cainozoic Sediments;
- Tertiary Basalt;
- Colluvium (mainly basalt derived); and
- highly calcareous materials.

Specifically, the soils of LW500 are formed on Tertiary Basalt, and are shown in Figure 6 and described in Table 3.

Table 3: *Soil types - MLs to ML70481 (MWH 2002; 2011)*

Soil and classification	Brief description
Soils formed in situ on Basalt	
B – Basalt Black, Brown, and Grey Vertosols	Strongly self-mulching black or occasionally grey or brown medium to medium heavy clay or occasionally light medium clay A horizon over black medium heavy clay or occasionally medium clay B horizon. Alkaline to strongly alkaline throughout or alkaline soil reaction trend. Carbonate nodules or soft segregations may occur throughout the profile. Massive or occasionally weakly lenticular pan present in upper B horizon in intensively cultivated situations. Weathered basalt. C horizon not encountered before 0.6m.
Bs – Shallow Basalt Black, Brown and Grey Vertosols	Strongly self-mulching black or occasionally brown medium clay to medium heavy clay or occasionally light medium clay A horizon over black medium heavy clay or occasionally medium clay B horizon. Alkaline or occasionally neutral soil reaction trend. Carbonate nodules or soft segregations may occur below about 0.2m. Massive or occasionally weakly lenticular pan present in upper B horizon in intensively cultivated situations. Weathered basalt C horizon encountered at or below 0.45m but before 0.6m.
Bvs – Very Shallow Basalt, Black or Brown Dermosols and Black or Brown Vertosols	Strongly self-mulching black or brown medium clay or occasionally light medium clay or medium heavy clay A horizon over black medium to medium heavy clay B horizon. Profile neutral to alkaline. Massive pan present in intensively cultivated situations. Weathered basalt C horizon encountered before 0.45 m.
Bvbs – Brown Very Shallow Basalt, Brown Dermosols or Brown Tenosols	Weakly crusting brown, reddish brown or occasionally black light clay to light medium clay A horizon over brown or occasionally black moderately structured light clay to light medium clay. Profile neutral or alkaline. Weathered or hard basalt C horizon encountered before 0.45 m.

4.2.3 Soil erodibility

For the soil types within LW500, the estimated pre-mining soil loss ranges from 0.74–1.09 t/ha/year. By way of comparison, the mean pre-disturbance soil loss across the whole of the ML70481 area is 1.02 t/ha/year.

Figure 7 indicates the mean soil loss estimates for the various soil types identified within the LW500 area within ML70481. Post-mining erosion rates are not anticipated to change from the estimated pre-disturbance rates.

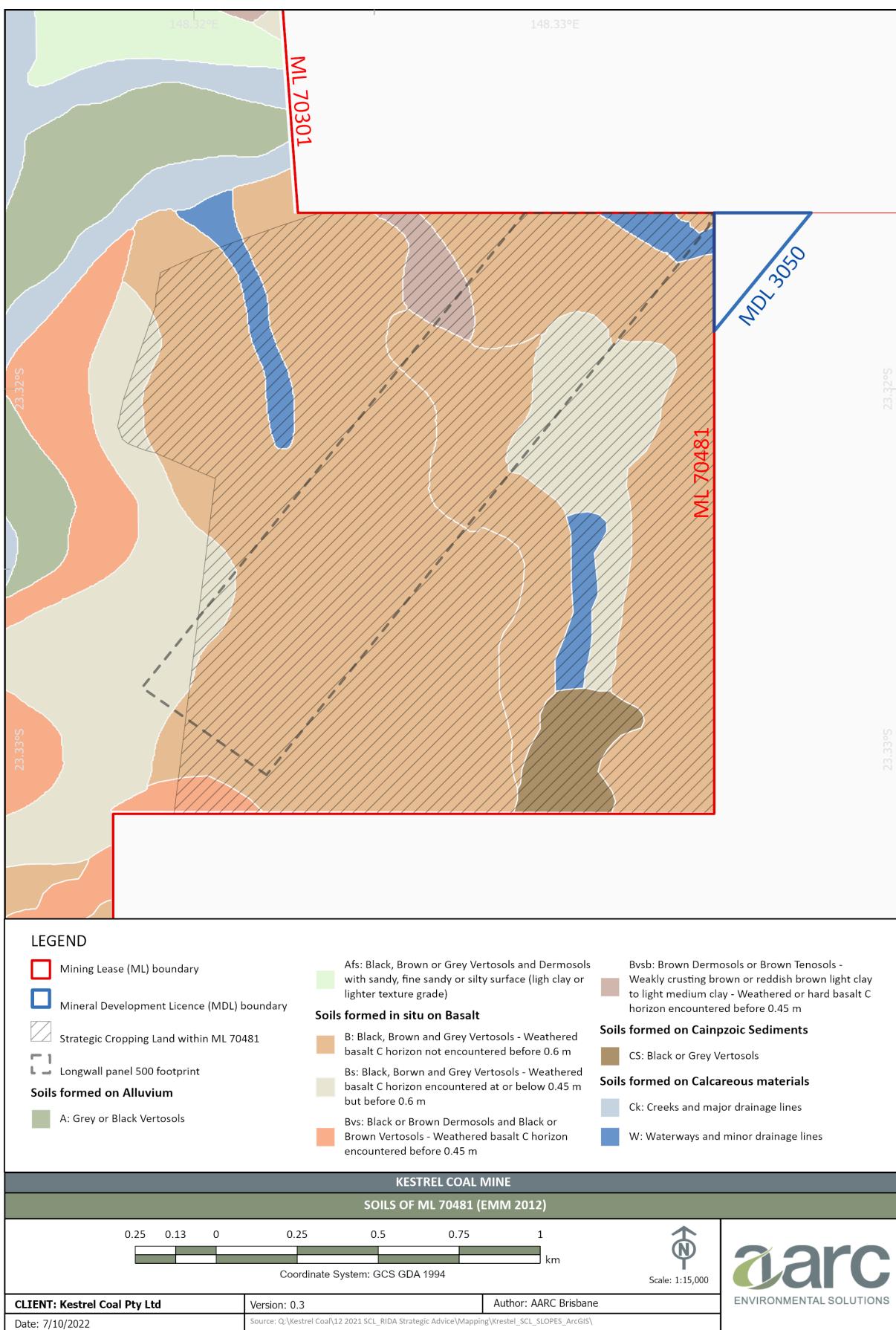


Figure 6: Soils of ML70481 (EMM 2012)

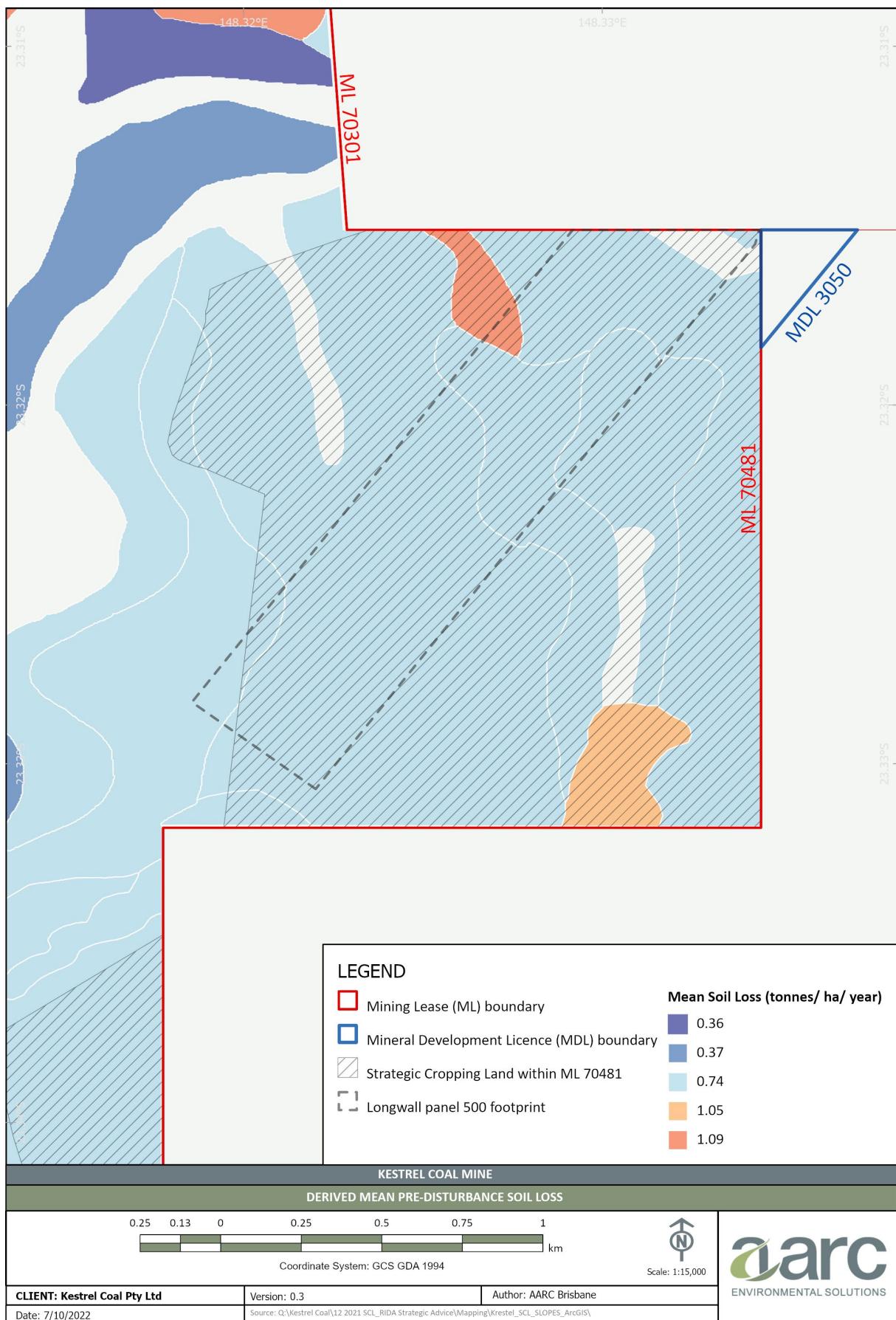


Figure 7: Derived mean pre-mining soil loss (tonnes/ha/yr.)

An assessment of these soil erosion rates is considered best guided by Lu *et al.* (2001) and Roswell (1996), which have attempted to quantify erosion rates across Australia. Against an average Australian erosion rate of 6.3 t/ha/year, the study suggested that:

- a low rate of erosion could be defined as less than 0.5 t/ha/year; and
- a high erosion rate could be defined as greater than 10 t/ha/year.

This suggests that erosion rates for the LW500 area would be categorised as moderate to low for both pre- and post-disturbance scenarios, and well below the average Australian erosion soil loss rate.

Despite the favourable inherent erodibility characteristics of the soils, localised instances of erosion and/or increases in erosion rates occurring post-disturbance is still a risk that requires monitoring and may in some cases require remediation.

4.3 Land suitability assessment

Relevant land suitability assessments have been undertaken in 1996 and 2002 and summarised for the ML70481 area in MWH (2011), considering both pre-mining and post-mining scenarios. For the LW500 panel, the available data does not indicate whether the deeper soils formed on Basalt (B type soils) in the LW500 area have a land suitability of 3, 4 or 5. However, the combined land suitability assessments do identify at least 10.4 ha of land having both pre- and post-mining land suitability classifications of '5' for both winter and summer rainfed cropping. Limitations are annotated as being shallow soil depths and/or surface rock presence.

5 Potential impacts to areas of regional interest: SCA

5.1 Temporary disturbance area, extent, and duration

The area of potential disturbance associated with the proposed resource activities is identified as the LW500 panel footprint beyond the mining footprint already approved under RPI16/002. This additional mining area constitutes 88.0 ha, of which 85.9 ha is indicated as trigger-mapped SCL (refer Figure 2).

In accordance with the definitions provided in RPI Guideline 11/16, as potential impacts are confined to the application area, they are considered to be only of a property-scale; in other words, no SCA impacts occur at a regional scale.

As detailed in the following sections, all mining areas will be subject to appropriate management and restoration measures with the objective of restoring any disturbed land to its pre-activity condition (refer to Sections 6 to 8).

5.2 Nature and risk of potential property-scale impacts

5.2.1 Longwall panel subsidence

The principal land disturbance associated with underground mining activities at Kestrel Mine is subsidence arising as the longwall progressively extracts the coal seam. Subsidence predictions have been undertaken for LW500 showing the maximum vertical subsidence is predicted to range from between 1.6 m mid-panel to 0.1 m over longwall inter-panel pillars.

Timing of subsidence at Kestrel Mine is well understood from subsidence monitoring undertaken across the prior series longwall footprints. Monitoring indicates that at mining rates of 80–100 m per week, the majority of the subsidence on the surface occurs about 300 m behind the mining face with minor residual subsidence (subsoil settlement) of approximately 20–30 mm shortly thereafter. At these rates of longwall retreat, 97% of maximum subsidence is achieved between four and six weeks of the longwall face retreating past any given point on the surface.

Maximum slopes arising from subsidence typically occur within 100–150 m of the panel edge. Subsidence predictions for LW500 indicate maximum predicted slopes resulting from LW500 as approximately 1.5–2% (or approximately 1°) – refer Figure 8 (AARC 2022).

The results of subsidence at Kestrel Mine are subtle and not easily distinguishable from the surrounding topography, as the range of movement associated with subsidence is within the range of natural elevation variation. In other words, the topography of subsided areas is consistent with the surrounding un-subsided topography (i.e. gently rolling country with low relief).

Potential land impacts associated with subsidence-induced changes in elevation and slope may include changed erosion rates, changes to soil physical and/or chemical characteristics, localised surface tensile cracking, and changed drainage systems, sometimes including localised ponding.

These potential impacts are discussed in the subsections following, with conclusions drawn on the extensive experience associated with subsidence impacts on all Kestrel MLs. As per RPI Act Statutory Guideline 03/14 (DSMIP 2019b), the impacts associated with longwall panel subsidence for the LW500 area are not expected to have a significant impact on the overlying area of SCA, and will be subject to management and restoration measures.

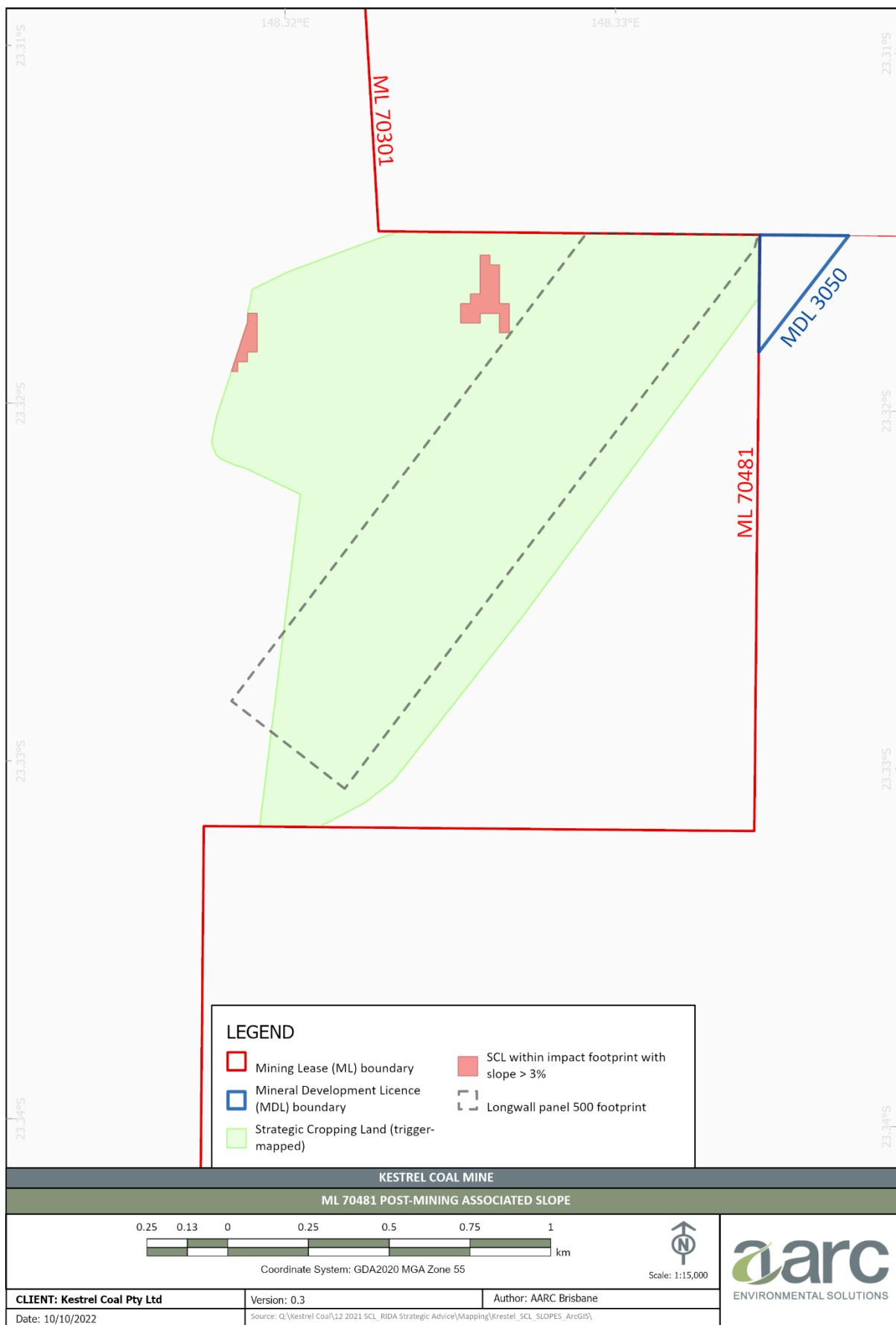


Figure 8: Inferred slopes >3% post-mining (MSEC [2022] predicted subsidence DEM)

Appropriate restoration processes are described later in this document (refer to Section 6) but typically, any area subject to subsidence, is allowed to ‘rest’ for two to three wet seasons to allow for any settlement to finalise and any minor surface cracking to self-heal. Assessments of any potential impacts are undertaken through this period prior to targeted restoration activities being planned and implemented as required.

5.2.1.1 Erosion

With respect to slope change impacts to SCL, an assessment by AARC (2022) comparing actual pre-mining slopes and predicted post-mining slope indicates that post-mining, the area of LW500 subject to this application **will not** exceed the 3% Western Cropping Zone slope criteria as a direct consequence of subsidence – refer Figure 8.

5.2.1.2 Hydrological

Kestrel Mine is located in the upper to mid reaches of the Crinum Creek catchment and is drained by a number of small ephemeral gullies and tributaries of Crinum, Belcong and Homestead Creeks. It should be noted that watercourses and riparian zones are not mapped as SCL.

Predictions of subsidence changes on the existing topography provide an indication of areas where ponding may occur, and indicates that no ponding is predicted (AARC 2022) to occur in response to resource activities associated with LW500.

It is noted there are no waterways contained within the LW500 application area, therefore no specific consideration is given to waterways within this application.

5.2.1.3 Subsidence-induced surface cracking

Surface tension cracks may occur as a result of longwall panel subsidence. Tension cracks are more likely to occur along the line of the inter-panel pillars and at the ends of each longwall panel. For previous, shallower Kestrel Mine panel series, a very limited number of minor tension cracks were observed over the 300 series longwall panels in areas with Vertosols. These areas were monitored and observed to self-heal over two to three wet seasons.

LW500 soils are dominated by Vertosols, characterised as expansive soils with a high shrink-swell potential that change volume with changes in soil water content. The nature of these expansive cracking clays is such that, within one to two wet seasons, natural soil movement will compensate for any subsidence-induced cracking, resulting in no measurable impact on the soil.

In summary, the soils contained within LW500 are Vertosols considered to be at low risk of any residual impact from subsidence-induced surface cracking.

5.2.1.4 Subsidence-induced changes to soil physical characteristics

Subsidence monitoring was undertaken at Kestrel Mine in August 2008 as part of ACARP project C15013 (ACARP 2010), designed to quantify the impacts of mine subsidence on the production and quality of agricultural vegetated environments. Monitoring was undertaken above longwall panels 301 to 305, comparing pillars, transition areas and areas of maximum subsidence within the panels. The research program utilised a variety of traditional ground-based sampling techniques including biomass harvests and techniques, Leaf Area Index, pasture height, species composition and soil sampling along with proximal sensor data capture using a proximal crop reflectance sensor. Satellite imagery was also collected, and the high-resolution imagery used to monitor large areas of subsidence-affected areas and adjacent unmined land. A forage Sorghum site and an improved pasture were monitored.

The outcomes of the research concluded there was no significant variance between subsided and unmined areas with respect to soil physical and chemical characteristics.

5.2.2 Supporting surface infrastructure

Activities having the potential to cause temporary disturbance are described at section 2.1. Potential surface impacts associated with these activities is confined to clearing of vegetation and, in some cases the stripping of topsoil with windrowing for re-use as part of restoration activities.

If not appropriately managed, vegetation and topsoil clearing has the potential to result in localised impacts to land; most commonly soil erosion or degradation of land suitability classification as a consequence of topsoil loss or compaction and a consequential loss of condition. For the LW500 panel application area, disturbance is superficial and readily able to be restored. To facilitate this, topsoil is removed and windrowed for replacement.

5.2.3 Land management activities not related to resource activities

Unless lands are actively required for mining, Kestrel Coal Resources preferred land management approach is to maintain agricultural production. Once mining and associated land management activities are complete, the land is returned to the lessee's usual agricultural operations.

6 LW500 application area restoration

Restoration activities have been developed having the objective of returning the mining areas to their pre-disturbance condition, capacity and/or productivity. Restoration activities will also be carried out with regard to the Kestrel Mine Environmental Authority.

Subsided areas are considered as ‘active mining areas’ until exposed to at least two to three wet seasons to ensure subsidence has stabilised. Any impacts identified as having potential for causing environmental harm are then addressed as soon as practicable.

The general procedure for restoring land to pre-disturbance condition includes:

- infrastructural removal;
- landform reprofiling;
- surface preparation;
- revegetation (where required);
- ongoing monitoring (refer section 6.4); and
- assessment against restoration criteria (refer section 6.5).

From experience with previous longwall panel series, and where subsidence has occurred on similar soils, there are no observable subsidence impacts on soil characteristics. In almost all prior mining areas, the pre-existing activity has resumed, with no observable change in productive capacity.

6.1 Management measures

6.1.1 Ground disturbance permit (GDP)

The management of land disturbance by surface infrastructure development and operation is controlled through the Kestrel Mine GDP system (PA-SH-0065). The GDP system is designed to ensure that all statutory compliance and environmental risks are properly assessed, and that targeted management measures are developed and implemented. Relevant key components assessed by GDP process include:

- Disturbance location: confirming that any proposed disturbance only occurs within the approved area, and applicable permitting conditions e.g. EA conditions, RIDA conditions, EPBC conditions.
- Communication: ensuring that all relevant parties (including the agricultural lessee) are aware of the proposed disturbance and have been adequately consulted.
- Environmental aspects: ensuring that environmentally sensitive locations (e.g. watercourses) have been identified and appropriate mitigation measures instigated.
- Cultural heritage (CH) aspects: specific focus is given to ensure that appropriate cultural heritage management activities (including CH surveys, salvage of identified artefacts, protection zones around areas of high significance) are undertaken and that Clearance Notices are provided where required by the recognised Native Title applicants, the Western Kangoulu people.
- Permitting:
- Operational aspects, for example:
 - ensuring that topsoil is recovered, stockpiled, and managed in accordance with site procedures; and
 - ensuring that all relevant requirements of Kestrel’s Erosion and Sediment Control Plan (KES-0000-PL-OC-0009) are adhered to.

6.1.2 Topsoil management

Topsoil is managed to leading Industry practice, and in accordance with the Environmental Authority (EPMLO00693413) and existing RIDA for ML70481 (RPI16/002/Rio Tinto).

For surface infrastructure associated with the LW500 area, topsoil stripping will be minimised. If topsoil stripping is required for drill pads or related infrastructure, topsoil will be windrowed adjacent to the infrastructure area and allowed to revegetate. Topsoil will be replaced as soon as practicable after the activity has been completed.

6.2 Restoration

Restoration is not directly defined within the RPI Act or RPI Regulation except in relation to the issue of ‘restoration notices’ which are indicated under the repealed Soil Conservation Act 2014 as being required where a person has committed, is committing, or is likely to commit an SCL offence. The restoration notice may be issued to “rectify” the matter (section 160 (2)). Offences under the RPI Act are:

- 1) Section 19 requirements to hold a RIDA when carrying out a resource activity in an area of Regional Interest; and
- 2) Section 20 requirements to comply with the conditions of a RIDA.

However, Section 1 of Schedule 2 of the RPI Regulation defines ‘permanent impact’ as where land cannot be ‘restored’ to its pre-activity condition by virtue of the relevant activity. Restoration is defined within RPI Act Statutory Guideline 09/14 (DSDMIP 2019c) as:

Restoring the land means that the land is not only returned to its pre-activity use but that it is also returned to its pre-activity productive capacity or potential productive capacity.

Productive capacity is then further defined (DSDMIP 2019c) as:

in the context of SCL, the productive capacity refers to the intrinsic capability of the land and soil to store and supply the water and nutrients required to sustain crops in the future.

Therefore, the objective for any restoration activity is to be able to demonstrate that the land has been returned to its pre-activity use and to its pre-activity productive capacity and potential productive capacity. Criteria able to demonstrate the satisfaction of this objective are outlined in section 6.5.

6.2.1 Longwall panel subsidence

For the LW500 panel area, by virtue of the existing environmental factors and management measures outlined within section 6.2, longwall panel subsidence is not anticipated to trigger restoration requirements. The LW500 panel area however, will be closely monitored to ensure that any unanticipated impacts are mitigated promptly.

6.2.2 Supporting surface infrastructure disturbance

Once surface infrastructure is no longer required, the GDP process identifies the restoration requirements specific to that development. Typical restoration requirements that might be utilised include:

- regrading of the disturbed area to pre-disturbance grades;
- respreading of recovered topsoil, followed by topsoil surface preparation activities and revegetation;
- implementation of any required erosion and sediment control works (e.g. silt fences, sediment traps etc.) as per Kestrel’s existing Erosion and Sediment Control Plan (KES-0000-PL-OC-0009); and

- temporary or permanent fencing to enable stock exclusion and manage stock re-introduction during the restoration process.

Where supporting surface infrastructure occurs within mapped SCL areas, restoration monitoring activities will be undertaken to verify that land has been able to be restored to the original condition of the land, including its pre-activity potential productive capacity.

6.3 Monitoring program

6.3.1 Restoration monitoring

Where active restoration activities are undertaken, relevant monitoring activities will be carried out as follows:

Hillslope erosion

Identification of active erosion, and instances of tension cracking will be based on regular observations of subsided areas over the identified 12 – 36 month period following the passage of a longwall face. Where subsidence-induced erosion is observed to have initiated, and assessed to be deteriorating, a restoration plan will be developed and implemented. Mitigated areas will be monitored until stabilisation has been achieved.

Landform change

Landform change is monitored in the annual subsidence report which assesses the predicted subsidence profiles and potential impacts on land. LW500 will be inspected prior to mining, during mining and for an appropriate period following mining, by a suitably qualified and experienced person (EA condition G6). Impacts on slope are identified by ground survey traverses and LiDAR (remote light detection and ranging sensing technology) to provide high accuracy topographic survey that enables landform changes to be tracked over time, including slope changes and ponding.

6.3.2 Land management activities not related to resource activities

Non-mined land management activities will be monitored in accordance with requirements of the current lease agreement and Kestrel land productivity approaches.

6.4 Restoration criteria

As per the definition provided by RPI Act Statutory Guideline 09/14 (DSDMIP 2019c):

Restoring the land means that the land is not only returned to its pre-activity use but that it is also returned to its pre-activity productive capacity or potential productive capacity.

Further, Section 1 of Schedule 2 of the RPI Regulation defines pre-activity condition, for land in the SCA as:

the condition of the land's soil as identified and analysed within 1 year before the making of an assessment application for a resource activity or regulated activity to be carried out on the land.

For the LW500 area, sufficient soils and topographic studies have been undertaken to enable a full physical and chemical characterisation of the resident soils. Within 36 months of completion of the resource activity, a post-disturbance soils characterisation assessment, in accordance with relevant RPI Guidelines, will be undertaken to provide a comparison with the pre activity condition of the soils.

To address the pre-activity condition requirement, an assessment of the productive capacity of the land will be undertaken over the operational portion of the property within which panel LW500 sits, prior to

commencement of mining. A further assessment of productive capacity will be undertaken within 36 months of the completion of the resource activity.

This will provide sufficient information to demonstrate achievement of pre-activity condition.

7 Landholder consultation

The proponent is the owner of the freehold land on which the LW500 longwall panel is situated, as such consultation with underlying landholder is not required. However, Kestrel is aware of the responsibility and accountability of its position as a local and regional community member. Consultation regarding operations, environmental performance, restoration, and closure is undertaken as part of our community engagement activities.

The majority of Kestrel-owned land across our mining tenements, not required for mining activities, are leased to a commercial pastoral company. With respect to soil conservation management practices and activities the pastoral lessee is both a neighbour and a key stakeholder. Kestrel Mine coordinates regular meetings with the current lessee to discuss mine plans and discuss land management actions as an ongoing part of property management.

8 Application assessment criteria

This section provides an overview of the legislation and guidelines relevant to assessing impacts to SCL. It also demonstrates how the assessment criteria contained in the RPI Regulation are met.

8.1 RPI Act and RPI Regulation

The RPI Act has as its purpose, management of the impact of certain activities on areas of the state that contribute, or are likely to contribute, to Queensland's economic, social and environmental prosperity.

The outcomes of the Act are achieved by:

- identifying and protecting areas of Queensland that are of regional interest ('areas of regional interest')
- applying a land use and development assessment framework for resource activities and regulated activities
- providing an appropriate balance between priority land uses (and other policies).

The RPI Act restricts the carrying out of resource or regulated activities where the activity is not exempt from the provisions of the RPI Act, or a RIDA has not been granted.

The RPI Act and RPI Regulation provides an assessment and management process to consider each proposed resource activity or regulated activity on its merits.

For disturbance associated with the LW500 longwall panel, SCA is the only area of regional interest impacted. An assessment against the SCA criteria has been undertaken in the following subsections.

8.2 RPI Act Guidelines

This RIDA application has been informed by the RPI Act, the RPI Regulation and the RPI Act Guidelines. The RPI Act Guidelines considered relevant include:

- RPI Act Guideline 01/14 – How to make an assessment application for a regional interests development approval under the RPI Act (DSDMIP 2019a).
- RPI Act Guideline 03/14 – Carrying out resource activities in the Strategic Cropping Area (DSDMIP 2019b).
- RPI Act Guideline 09/14 – How to determine if an activity has a permanent impact on strategic cropping land (DSDMIP 2019d).

8.3 SCA criteria assessment

Schedule 2 of the RPI Regulation details the Required Outcomes and Prescribed Solutions for impacts to areas of regional interest. Only the applicable Required Outcomes and Prescribed Solutions are required to be addressed. Based on the assessment criteria this RIDA application is only subject to assessment against Required Outcome 2. The required outcomes, prescribed solutions and demonstrated compliance with the prescribed solutions for mining activities in LW500 are provided in Table 4.

Table 4: Response to SCA assessment criteria

Required outcome	Prescribed solution	Response
<p>Required outcome 1—no impact on strategic cropping land</p> <p>The activity will not result in any impact on strategic cropping land in the strategic cropping area.</p>	<p>The application demonstrates the activity will not be carried out on strategic cropping land that meets the criteria stated in Schedule 3, part 2 of the RPI Regulation</p>	<p>The activity will result in impact on SCL in the SCA, although this is not expected to be of a material (significant) impact.</p>
<p>Required outcome 2—managing impacts on strategic cropping land on property (SCL) in the strategic cropping area</p> <p>(1) This section applies if the activity—</p> <p>a) does not meet required outcome 1; and</p> <p>b) is being carried out on a property (SCL) in the strategic cropping area.</p> <p>(2) The activity will not result in a material impact on strategic cropping land on the property (SCL)</p>	<p>The application demonstrates all of the following:</p> <ul style="list-style-type: none"> a) if the applicant is not the owner of the land and has not entered into a voluntary agreement with the owner—the applicant has taken all reasonable steps to consult and negotiate with the owner of the land about the expected impact of carrying out the activity on strategic cropping land b) the activity cannot be carried out on land that is not strategic cropping land, including, for example, land elsewhere on the property (SCL), on adjacent land or at another nearby location c) the construction and operation footprint of the activity on strategic cropping land on the property (SCL) is minimised to the greatest extent possible d) if the activity will have a permanent impact on strategic cropping land on a property (SCL)—no more than 2% of the strategic cropping land on the property (SCL) will be impacted 	<p>Kestrel Coal Resources and Mitsui, the applicant, are the owners of the freehold property Lot 11 on SP178401.</p> <p>The alignment for the proposed activity is constrained in location due to the ML boundary, the underlying geology and definition of the resource boundary (refer Section 2.3). Further, the proposed activity represents a logical location that aligns with the arrangement of the current mining activities on ML70481 and adjacent mining tenements (ML70301).</p> <p>ML70481 was granted by the Queensland government for the express purpose of mining coal. For the disturbance footprint associated with LW500, the mining of coal by underground methods is not anticipated to have a material impact on SCL. Impacted areas will be subject to restoration measures with the objective of returning the land to its pre-activity condition.</p> <p>Any impacts to SCL are to be restored such that permanent impact as defined by Schedule 2, Part 1, Section 1 of the RPI Regulation is avoided. If this objective is not met, the maximum proportion of SCL disturbed constitutes 0.8% of the total SCL on Kestrel properties.</p>

Required outcome	Prescribed solution	Response
Required outcome 3—managing impacts on strategic cropping land for a region	(1) The application demonstrates all of the following—	
(1) This section applies if the activity— a) does not meet required outcome 1 ; or b) is being carried out on 2 or more properties (SCL) in the strategic cropping area.	a) the activity cannot be carried out on other land in the area that is not strategic cropping land, including, for example, land elsewhere on the property (SCL), on adjacent land or at another nearby location;	The alignment for the proposed activity is constrained in location due to the ML boundary, the underlying geology and definition of the resource boundary (refer Section 2.3). Further, the proposed activity represents a logical location that aligns with the arrangement of the current mining activities on ML70481 and adjacent mining tenements (ML70301)
(2) The activity will not result in a material impact on strategic cropping land in an area in the strategic cropping area.	b) if there is a regional plan for the area in which the activity is to be carried out—the activity will contribute to the regional outcomes, and be consistent with the regional policies, stated in the regional plan	There is no regional plan for the relevant area.
	c) the construction and operation footprint of the activity on strategic cropping land is minimised to the greatest extent possible;	Surface disturbance is minimised to the greatest possible extent.
	d) either— (i) the activity will not have a permanent impact on the strategic cropping land in the area; or (ii) the mitigation measures proposed to be carried out if the chief executive decides to grant the approval and impose an SCL mitigation condition.	The activity is not anticipated to have a material impact on the SCL in the area, as the relevant land will be restored to its pre-activity condition.
	(2) Subsection (3) applies for each property (SCL) on which the activity is to be carried out if the applicant is not the owner of the land and has not entered into a voluntary agreement with the owner.	The activity is only being carried out on a single property. Kestrel Coal Resources and Mitsui, the applicant, are the owners of the freehold property Lot 11 on SP178401.
	(3) The application must demonstrate the matters listed in this Schedule, Section 11 for a prescribed solution for required outcome 2 for the property (SCL)	Not applicable – refer to response to prescribed solution (2)

9 RIDA approval and mitigation

The activities associated with longwall panel LW500 are required to achieve optimal resource utilisation for ML70481 under the *Mineral Resources Act 1989*, as well as support current mining activities at Kestrel Mine.

This RIDA Application Report provides an assessment of the pre-activity characteristics of the soils and land, and a description of the potential impacts associated with LW500 on the SCA. An assessment against the legislated criteria for SCA as per Schedule 2, Part 4 of the RPI Regulation is also included, with the findings of the assessment provided in Section 8.3.

The findings from this report are that the mining of LW500 can meet the prescribed solutions for required outcomes two and three; and therefore, that the application should be approved.

While the management and restoration activities proposed have the objective of restoring the land to its pre-activity condition, Kestrel understands the requirement to demonstrate that restoration of all areas of the proposed disturbance can be achieved. Therefore, for this application, Kestrel would like to propose that a contingent approach to mitigation be included within the issued RIDA.

This approach proposes that Kestrel Coal Resources and the Regulator negotiate a mitigation deed that:

- Identifies any areas of SCL to be mitigated through an assessment of pre- and post-mining soil characteristics and land activity condition in accordance with relevant RPI Guidelines; and,
- Where land is demonstrated not to have achieved restoration, that mitigation measures be identified, proposed and implemented that meet the mitigation value of the mitigated SCL, as well as the mitigation criteria in Section 65 of the RPI Act.

10 References

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DSDMIP 2019c, *RPI Act Statutory Guideline 09/14 How to determine if an activity has a permanent impact on Strategic Cropping Land*, State of Queensland, Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP), Brisbane.

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Rosewell CJ 1993, 'SOLOSS – A program to assist in the selection of management practices to reduce erosion', Technical Handbook No. 11, *Soil Conservation Service of NSW*, Sydney.

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Yang X (2014), 'Deriving RUSLE cover factor from time-series fractional vegetation cover for hillslope erosion risk monitoring in New South Wales'. *Soil Research* Vol. 52, pp. 253–261.

Appendix A. Title Search



Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Current Title Search

Title Reference:	50605947	Search Date:	10/10/2022 15:41
Date Title Created:	26/04/2006	Request No:	42486568
Previous Title:	40051277		

ESTATE AND LAND

Estate in Fee Simple

LOT 11 SURVEY PLAN 178401
Local Government: CENTRAL HIGHLANDS

For exclusions / reservations for public purposes refer to Plan SP 178401

REGISTERED OWNER	INTEREST
Dealing No: 719070667 26/10/2018	
MITSUI KESTREL COAL INVESTMENT PTY LIMITED A.C.N. 002 429 763 KESTREL COAL RESOURCES PTY LTD A.C.N. 624 245 325	1/5 4/5
	AS TENANTS IN COMMON

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 10306211 (PP 19)
Deed of Grant No. 10308156 (PP 19A)
Deed of Grant No. 10312040 (POR 5)
Deed of Grant No. 10312041 (POR 6)
Deed of Grant No. 10312043 (POR 9)
Deed of Grant No. 10312046 (POR 4)
Deed of Grant No. 10312047 (POR 3)
(POR 6)
Deed of Grant No. 30149102 (POR 16)
Deed of Grant No. 30149103 (POR 17)
Deed of Grant No. 30584078 (Lot 21 on CP TT424)
2. EASEMENT IN GROSS No 601070321 (C545032R) 14/01/1988
Burdening
THE LAND TO
THE CAPRICORNIA ELECTRICITY BOARD
OVER EASEMENT B ON RP615895
3. EASEMENT IN GROSS No 601371875 (C545039K) 14/01/1988
BURDENING THE LAND
TO THE CAPRICORNIA ELECTRICITY BOARD
OVER EASEMENTS A AND B ON RP615896

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713456980	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	10/09/2010 10:21	CURRENT
721537465	CON COM AGMT MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014	11/03/2022 11:15	CURRENT
721537468	CON COM AGMT MINERAL AND ENERGY RESOURCES (COMMON PROVISIONS) ACT 2014	11/03/2022 11:15	CURRENT

UNREGISTERED DEALINGS

NIL



Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Current Title Search

Title Reference: 50605947

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **