

Capricorn Stone Products Pty Ltd Progressive Rehabilitation Closure Plan



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Capricorn Stone Products Pty Ltd – Progressive Rehabilitation
Closure Plan - Capricorn Sandstone Quarries, 227 Power
Station Road, Stanwell QLD 4702

Applicant Name: Capricorn Stone Products Pty Ltd

AR #:

Project #: Progressive Rehabilitation Closure Plan

EA Application #:

Existing EA Permit #: EPML04041216

Report Prepared by: STEER Environmental Consulting

25 January 2022

Document Status

Report Type: Report – Progressive Rehabilitation Closure Plan

Project: Progressive Rehabilitation Closure Plan - Capricorn Sandstone Quarries, 227 Power Station Road Stanwell 4702

Client: Capricorn Stone Products Pty Ltd

Document Version	Date	Author	Checked	Approved
FINAL V2	25.01.2022	Scott Botting	Phil Steer	Phil Steer
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Abbreviations

- | | |
|------------------------|---|
| • CSQ | - Capricorn Sandstone Quarries Pty Ltd |
| • CSP | - Capricorn Stone Products Pty Ltd |
| • DES | - Department of Environment and Science |
| • DoR | - Department of Resources |
| • EA | - Environmental Authority |
| • EP Act | - <i>Environmental Protection Act 1994</i> |
| • EPA | - Environmental Protection Agency |
| • ERA | - Environmentally Relevant Activity |
| • MERFP Act | - <i>Mineral and Energy Resources (Financial Provisioning) Act 2018</i> |
| • NUMA | - Non use mining area |
| • PMLU | - Post Mining Land Use |
| • PRC Plan | - Progressive Rehabilitation and Closure Plan |
| • PRCP Schedule | - Progressive Rehabilitation and Closure Plan Schedule |
| • RMP | - Rehabilitation Management Plan |
| • The Application Form | - Submission of progressive rehabilitation and closure plan (ESR/2019/4957) |
| • The Guideline | - Progressive Rehabilitation and Closure Plans (ESR/2019/4964) |
| • The Site | - Capricorn Sandstone Quarries, 227 Power Station Road Stanwell, QLD 4702 |

Document Purpose

Capricorn Sandstone Quarries Pty Ltd (CSQ) operates an environmentally relevant activity (ERA) at 227 Power Station Road, Stanwell 4702 (the site) the conditions of Environmental Authority (EA) EPML04041216 (Appendix A) which is held by Capricorn Stone Products Pty Ltd (CSP). CSQ has a formal agreement with CSP to undertake the ERA at the site. The specific ERA undertaken at the site is as follows:

Schedule 3 20:

Clay pit mining, dimension stone mining or mining gemstones (including the material from which gemstones are extracted) (b) more than 100,000t but not more than 1,000,000t in a year

The *Mineral and Energy Resources (Financial Provisioning) Act 2018* (MERFP Act) was passed by Parliament on 30 November 2018. The MERFP Act amended the *Environmental Protection Act 1994* (EP Act) to include new requirements for progressive rehabilitation and closure of mined land. The amendment to the EP Act requires EA holders to develop and submit a progressive rehabilitation and closure plan. A progressive rehabilitation and closure plan consists of two parts:

1. The rehabilitation planning part (PRC plan), and
2. A progressive rehabilitation and closure plan schedule (PRCP schedule).

This document forms the rehabilitation planning part of the progressive rehabilitation and closure plan.

PRC Plan Structure

This PRC plan is structured to comply with section five of the application form “*Submission of progressive rehabilitation and closure plan*” (ESR/2019/4957) (the application form) which states:

Section 5 – PRC plan structure

The PRC plan must be prepared in accordance with the structure/format shown in Appendix 1 of this application form.

Section 6 of the application form states the following:

Section 6 – PRC plan Checklist

The PRC plan must meet the information requirements stated in section 3 of the Guideline – Progressive Rehabilitation and Closure Plans (ESR/2019/4964), and sections 126C and 126D of the EP Act (note there is a limited exception for transitional PRC plans).

This PRC plan is structured to comply with the requirements of section 5 of the application form and includes the information required in section 3 of the Guideline – “*Progressive Rehabilitation and*

Closure Plans” (ESR/2019/4964) (the Guideline), and sections 126C and 126D of the EP Act, except where exemptions apply for transitional applications.

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Document title - Capricorn Stone Products Pty Ltd – Progressive Rehabilitation Closure Plan.

Version number – V2

Document ID number - CSP PRCP 2022

Date of submission – 26 January 2022

Tenure numbers – ML7341, ML80102.

EA Holder – Capricorn Stone Products Pty Ltd.

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3 Rehabilitation Planning Part

The following sections follow the structure required by Appendix 1 of the application form and contains the information required in section 3 of the Guideline and sections 126C and 126D of the EP Act, except where exemptions apply for transitional applications.

3.1 Project planning

3.1.1 Baseline information

The mining activity at the site dates to the late 1800s and the current activity dates to the mid-1990s. Given the length of time since mining began in the 1800s and from when the original approval was granted, baseline data is unable to be located. The following sections do however provide baseline information where available.

3.1.1.1 Site topography - Local topography

The site consists of a sandstone outcrop which rises to an elevation of approximately 140 m at the eastern side of the activity down to 60 m on the western side of the activity (Figure 1).



Figure 1. Topography around the site (image QLD Globe ©).

3.1.1.2 Site topography - Regional topography

In a regional context, the topography consists of extensive rugged/mountainous areas interspersed with lower lying areas associated with watercourses. Elevations reach a height of 470 m in the Dee Range to the south-east, 400 m in the Moonlight Ranges to the north-west and the Native Cat Range to the west, and 500 m in the Berserker Range to the north-east (Figure 2). The Fitzroy River runs to the east of the site through the regional centre of Rockhampton into an extensive floodplain and ultimately discharges into the Pacific Ocean (Figure 2).

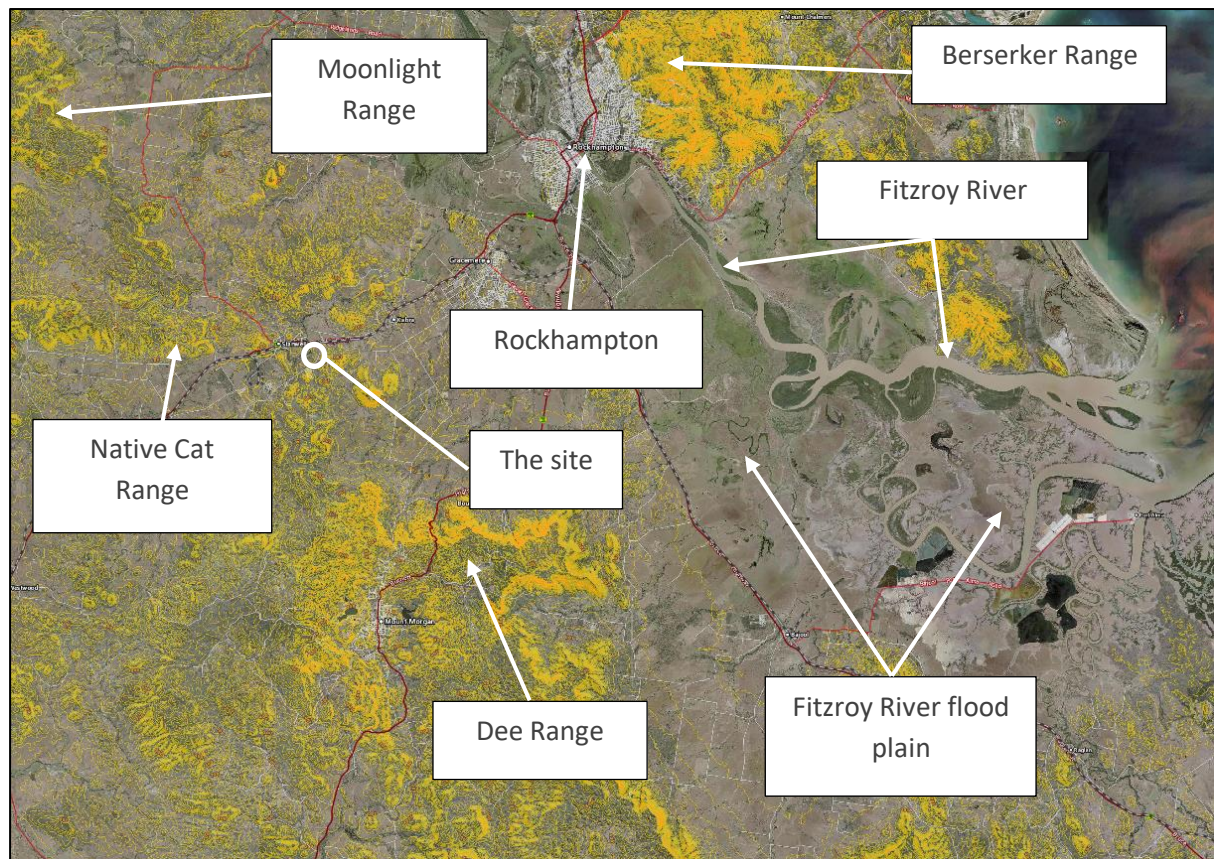


Figure 2. Regional topography (Image Qld Globe ©).

3.1.2 Climate

3.1.2.1 Rainfall and temperature

The average annual rainfall is 773 mm with the majority falling between October and March (Figure 3). Average temperature ranges from 32.2 °C in January to 9.7 °C in July. Note, climate data is from Rockhampton Aero approximately 17 km north-east of the site.

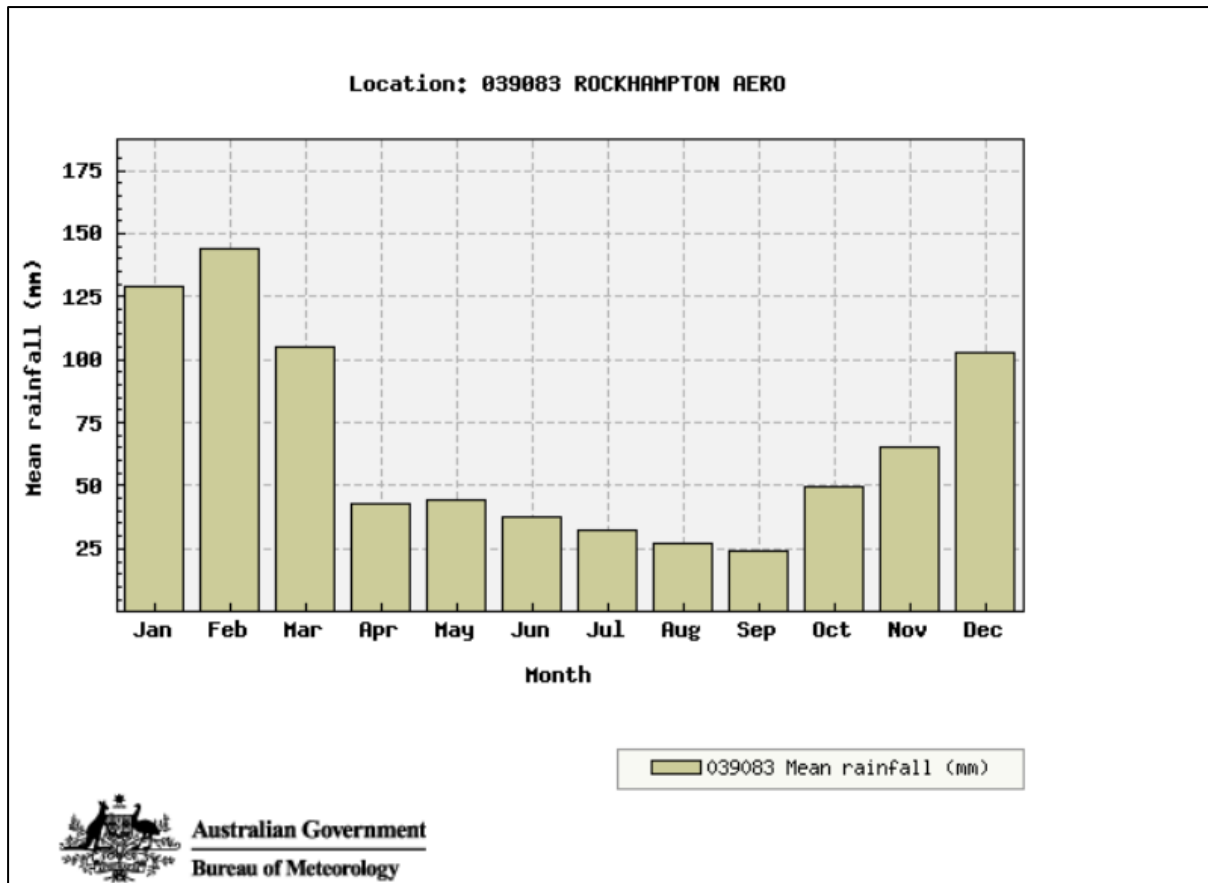


Figure 3. Average rainfall in the area (Source Australian Government Bureau of meteorology).

3.1.2.2 Evaporation

Annual evaporation for the area is between 2,000 mm and 2,400 mm (Figure 4).

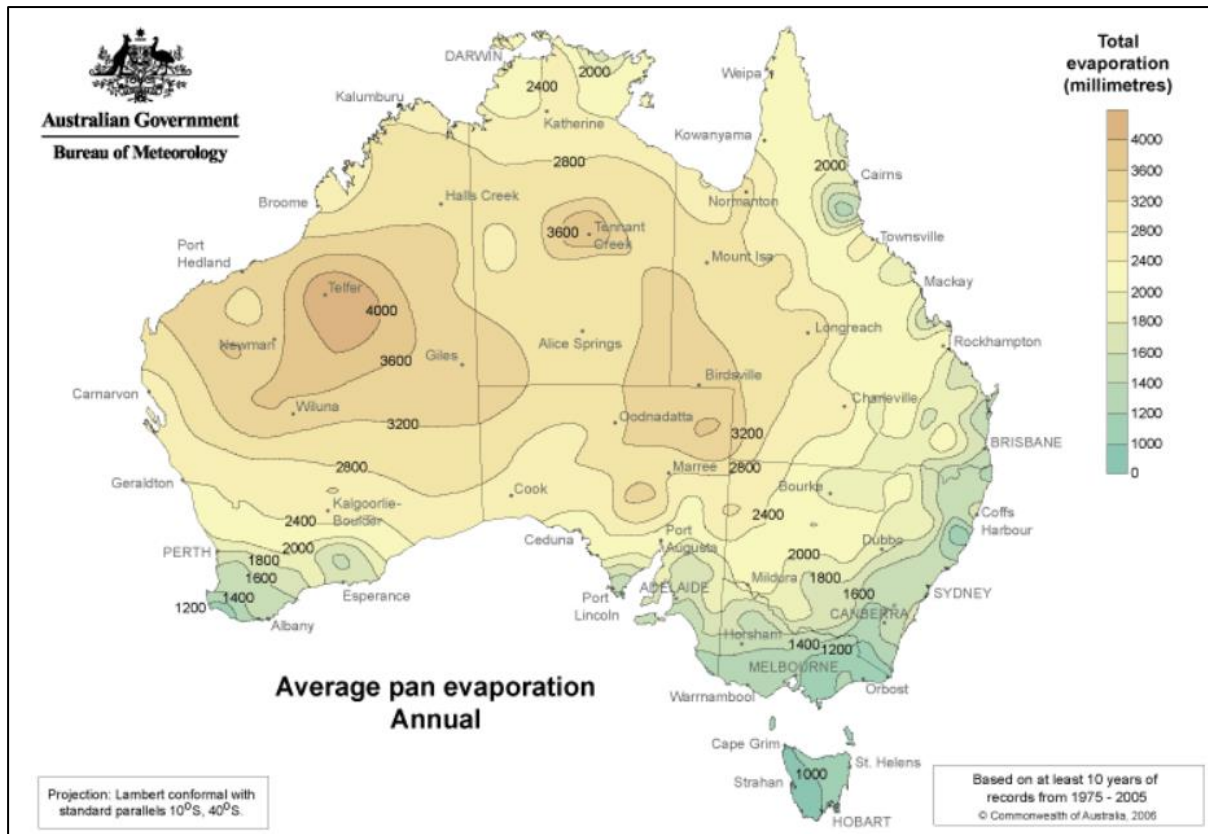


Figure 4. Average annual evaporation (Source Australian Government Bureau of meteorology).

3.1.3 Geology

A representation of geological formations in the area can be seen in Figure 5. A description of the geology of the site is as follows:

- Rock unit name:
 - Stanwell Formation.
- Lithological summary:
 - Mudstone, sandstone, siltstone, minor coal.
- Dominant Rock:
 - Arenite-Mudrock.
- Rock type:
 - Stratified unit (including volcanic and metamorphic).
- Age:
 - Early Cretaceous.

Geological information sourced from QLD Globe.

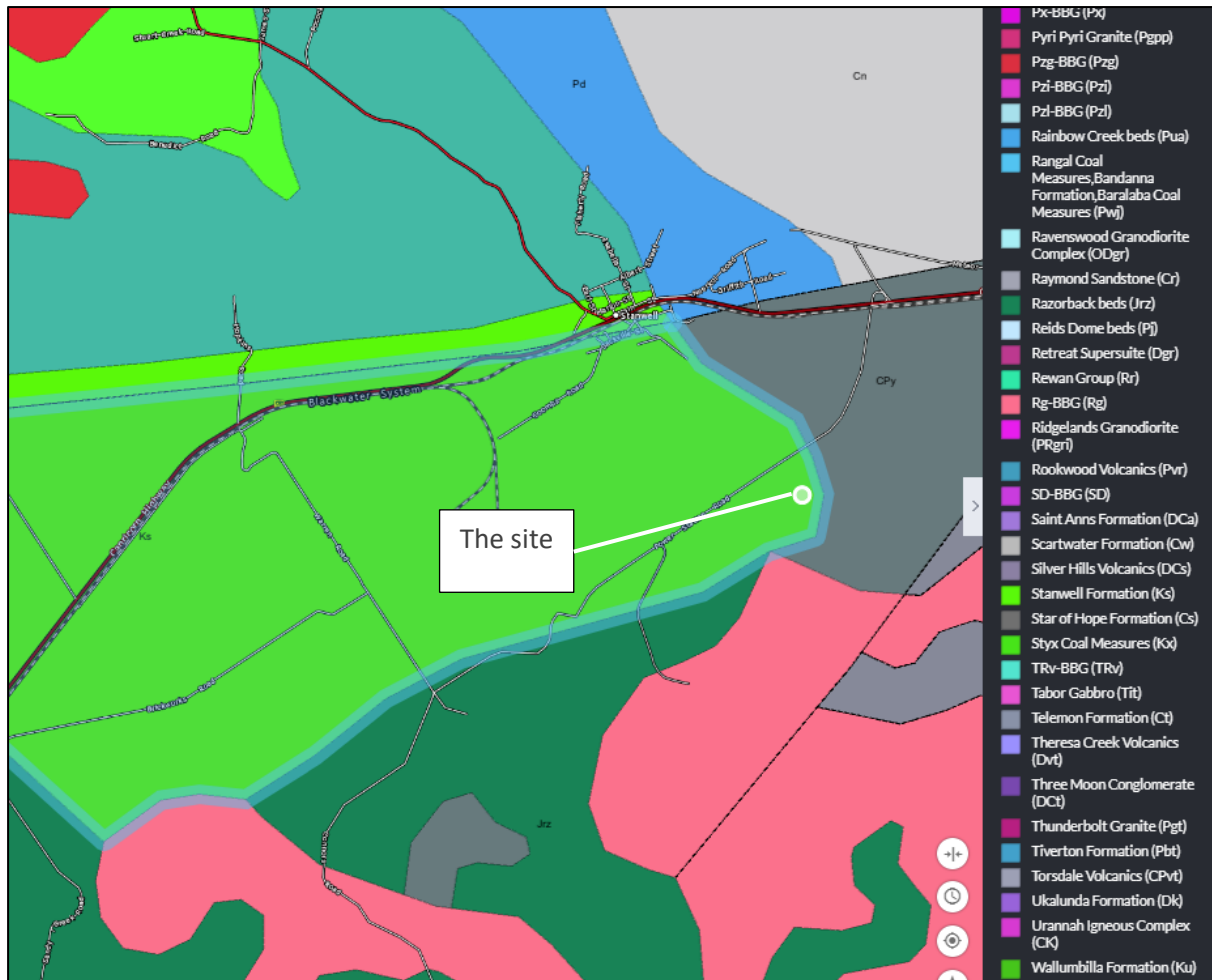


Figure 5. Local geology (Source QLD Globe).

3.1.4 Site hydrology and fluvial networks

3.1.4.1 Site hydrology

As the original approval for this site dates to the mid-1990s, no information regarding assessment of site hydrology is available.

3.1.4.2 Fluvial networks

Neerkol Creek is located approximately 800 m to the north and two ephemeral tributaries are located approximately 550 m to the west and 400 m to the east (Figure 6).

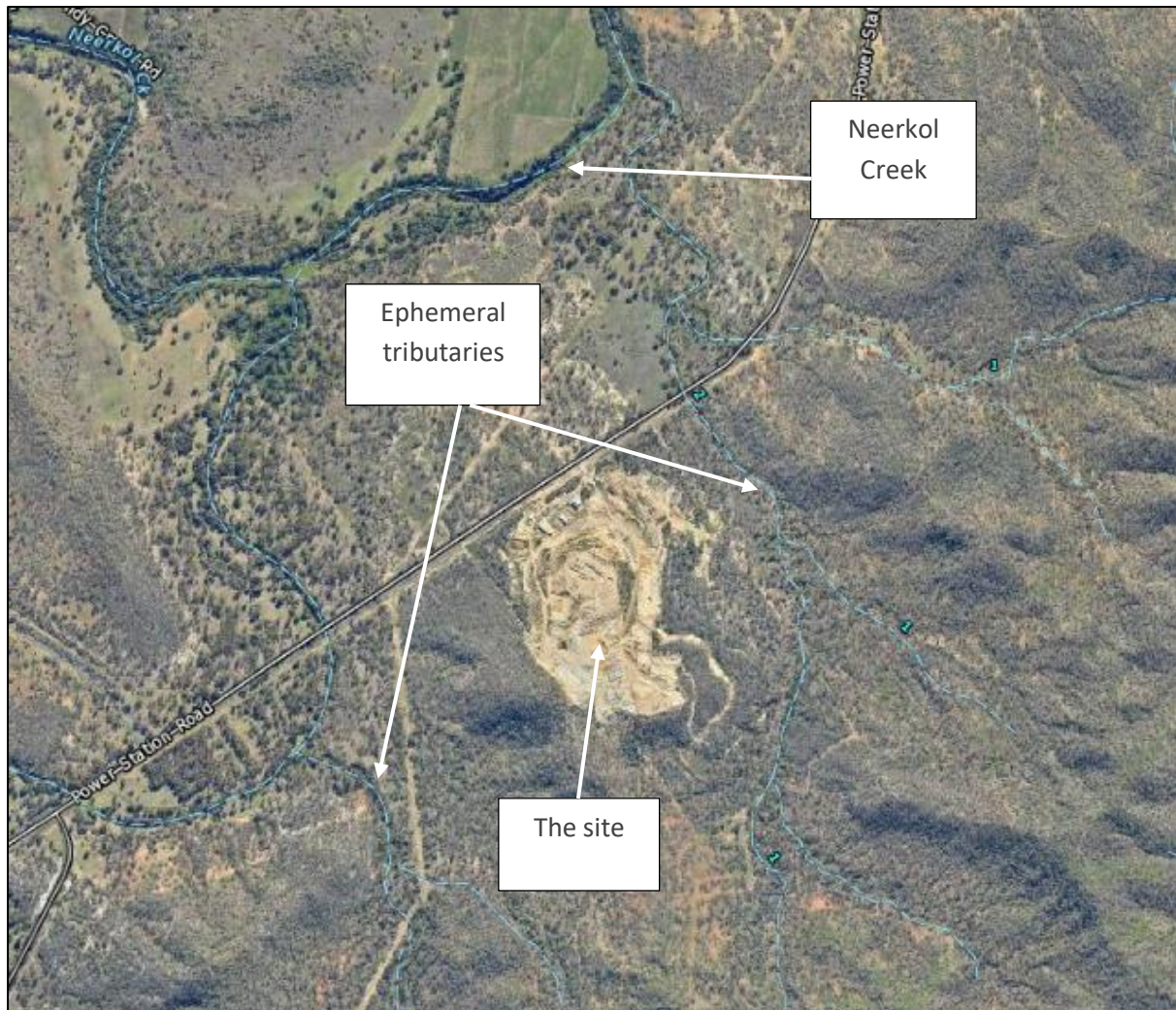


Figure 6. Fluvial networks near the site (Image Qld Globe ©).

3.1.5 Groundwater levels and properties

The closest bores to the site are located approximately 1.4 km to the west (RN 111668) and 1.7 km to the north (RN 91227). The bore report for RN 111668 contains no information regarding water level or quality. The bore report for RN 91227 indicates a water level of -6.0 m, however no information regarding water quality is included. As the original approval for this site dates to the mid-1990s, no information regarding assessment of groundwater is available.

3.1.6 Soil types, properties and productivity

The soils in the area are composed of weathered sandstone mixed with organic matter. As the original approval for this site dates to the mid-1990s, no information regarding assessment of soils at the site is available.

3.1.7 Land stability, vegetation communities and ecological data

3.1.7.1 *Land stability (pre-existing land degradation/erosion and predisposition to ongoing stability issues)*

The area is characterised by valleys alternating with sharply rising hills and ridges up to 150 m. The valleys are relatively stable with native ecosystems stabilising soils and preventing erosion. The steep, sharply rising hills and ridges are also stabilised by native vegetation; however the steepness of the area and the nature of the sandstone substrate render some areas relatively unstable from the perspective of potential erosion from rain events and the possibility of rockfalls. Much of the surrounding area is not considered appropriate for human traffic. The final landform design of the site will be inherently more stable than much of the surrounding area and will have no predisposition to ongoing stability issues.

3.1.7.2 *Vegetation communities and ecological data (including existing regional ecosystem mapping)*

The document “*Ecological Assessment Supporting Information Report Capricorn Stone Products Pty Ltd*” includes an assessment of vegetation communities and ecological data in the area and is included as Appendix B.

Regional ecosystem mapping is included as Appendix C.

3.1.8 Fauna presence and populations

The document “*Ecological Assessment Supporting Information Report Capricorn Stone Products Pty Ltd*” includes an assessment of fauna in the area and is included as Appendix B.

3.1.9 Pre-mining land use

The pre-mining land use was natural ecosystem.

3.1.10 Identification of underlying landholders.

Capricorn Stone Products Pty Ltd are freehold owners of the following Lots on Plans:

- 179 LN2465.
- 252 SP275125.

The following Lots on Plans are state owned reserve parcels:

- 184 LIV40877.
- 1 LIV40877.

The following Lots on Plans are state land parcels:

- 1 LIV40877.
- 2 LIV40877.

- 3 LIV40877.
- 4 LIV40877.
- 5 LIV40877.
- 6 LIV40877.

The location of the Lots on Plan can be viewed in Figure 7.

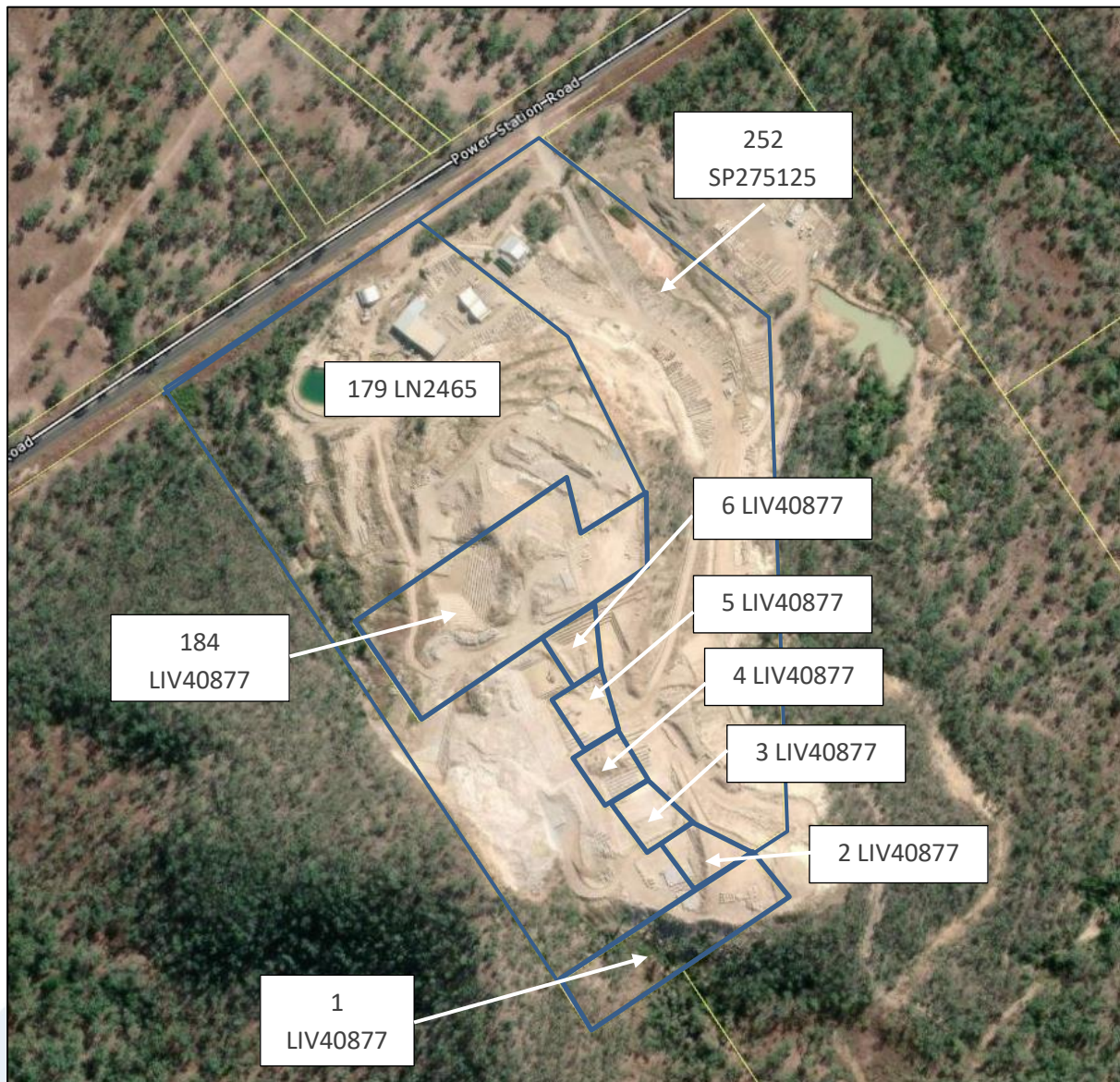


Figure 7. Lots on Plan at the site (Image QLD Globe ©).

3.1.11 Project description

The following sections provide a description of the project as per the Guideline.

3.1.11.1 Mining tenements

The mining leases on the subject parcels of land are ML 80102 (18.84 ha) and ML 7341 (5.97 ha). The extent of these leases can be seen in Figure 8.



Figure 8. Mining leases at the site (Image QLD Globe ©).

3.1.11.2 *Primary mine features*

The mining operation consist of mechanically sawing sandstone blocks from the hillside. There are no chemical processes used at any point in the mining process. The resource being extracted exists as a sandstone outcrop rising to approximately 140 m. As such there is no interference with any aquifers (saline or otherwise) and there is no interaction with acid forming rock or acid sulphate soils. Given these characteristics, there are no waste rock dumps, heap leach pads, contaminated water storages, tailings dams, pits, voids or any other hazardous features associated with the mine.

Primary mine features include the following:

- Buildings including.
 - Staff amenities.
 - Administration.
 - Workshops.
 - Processing.
- Stormwater management dams.
- Minor fuel storage (max 12,000 L).

The location of these items as well as the approximate location of the extraction and laydown areas can be seen in Figure 9.



Figure 9. Approximate locations of stormwater management dams (blue polygons), buildings (purple polygons), lay down areas (white polygon), extraction area (yellow polygon) and minor fuel storage (red circle) (Image QLD Globe ©).

3.1.11.3 Type of mining operation

The mining operation at the site is a simple process. The resource which is being extracted is purely sandstone which exists as an outcrop that rises from the surrounding area to a height of approximately 140 m. The sandstone is cut into large blocks using large circular saws mounted on excavators (Figures 10 and 11). The sandstone blocks may be sold whole or further processed into smaller value-added products (Figure 12). The further processing of sandstone blocks is essentially identical to the

extraction process as it consists of mechanically sawing larger sandstone blocks into smaller ones. There are no chemical processes involved at any stage of the activity and therefore there is no production of contaminants which have the potential to cause environmental harm. The only contaminant produced as a result of the mining process is sediment from disturbed areas and from the sawing of sandstone blocks. Sediment from disturbed areas and from the sawing of sandstone blocks is managed by onsite stormwater management infrastructure.

There are no exploration permits, mineral development licences, mining claims or petroleum tenures associated with the activity.



Figure 10. Excavator mounted saw.



Figure 11. Excavator mounted saw cutting blocks at the site.



Figure 12. Smaller value added products in storage at the site.

3.1.11.4 Proposed duration of operation as a whole

The sandstone resource at the site is a highly valuable commodity which is extracted at an extremely slow rate. At current extraction rates the mine is expected to have a lifespan of between 80 and 100 years.

3.1.12 Design for closure

The Guideline identifies one of the main purposes of the PRC plan is for applicants to plan how ERAs will be carried out in way that maximises progressive rehabilitation. The characteristics of the resource and the mining activity at the site makes planning for progressive rehabilitation impractical. This is explained in detail in section 3.1.13.1 “Maximising progressive rehabilitation”.

In regard to design for closure, the Guideline states the following:

*To demonstrate that rehabilitation will be maximised for the mine site, the rehabilitation planning part of the PRC plan **for new or expanding sites** must include a description of how the following aspects have been designed for closure:*

- *location of mine features/infrastructure, having regard to the following considerations:*
 - *protection of environmental values of the site and receiving environment, including matters of National Environmental Significance, matters of State Environmental Significance and matters of Local Environmental Significance*
 - *surrounding land uses and proximity to sensitive receptors*
 - *proximity to the open-pit exit or exits*
 - *the gradient of the footprint area, both for the direction of drainage from the landform and for the dumping costs*
 - *local and regional topography*
 - *surface and ground water features (quality, quantity and seasonal variation)*
 - *geotechnical conditions (i.e. soil/rock characteristics) and suitability for the structure type (i.e. presence of structural features that may transmit seepage)*
 - *competing water and land uses*
 - *visual impact*
- *size, shape and design of mine features/infrastructure (e.g. waste rock dump design)*
- *mining methods (such as utilising underground methods versus extraction via an open cut pit).*

As the site is **neither new nor expanding**, information regarding these items has not been included.

3.1.12.1 Maximising progressive rehabilitation

The sandstone resource which is the focus of the mining activity at the site is highly variable, with different colours and grades of sandstone existing at different locations across the site. This results in multiple active extraction faces existing simultaneously across the site (Figure 13) as operations constantly move between different areas depending on customer requirements. This results in the entire extractive area being active for the entire life of the mine. As discussed in section 3.1.12.4

“Proposed duration of operation as a whole”, the volume of available material at the site will last for approximately 80 to 100 years. There is no realistic way to know what customer demands will be that far into the future, therefore there is no realistic way to know in which order different areas will be exhausted. This makes planning for progressive rehabilitation impractical until the activity draws closer to exhausting the resource. The maximum approved disturbance area at the site is only 23 hectare’s which is extremely small for a mining operation. Given there will be no exhausted areas available for rehabilitation until many decades into the future and the relatively small size of the disturbed area, rehabilitation will be planned for the entire site upon exhaustion of all winnable resource.

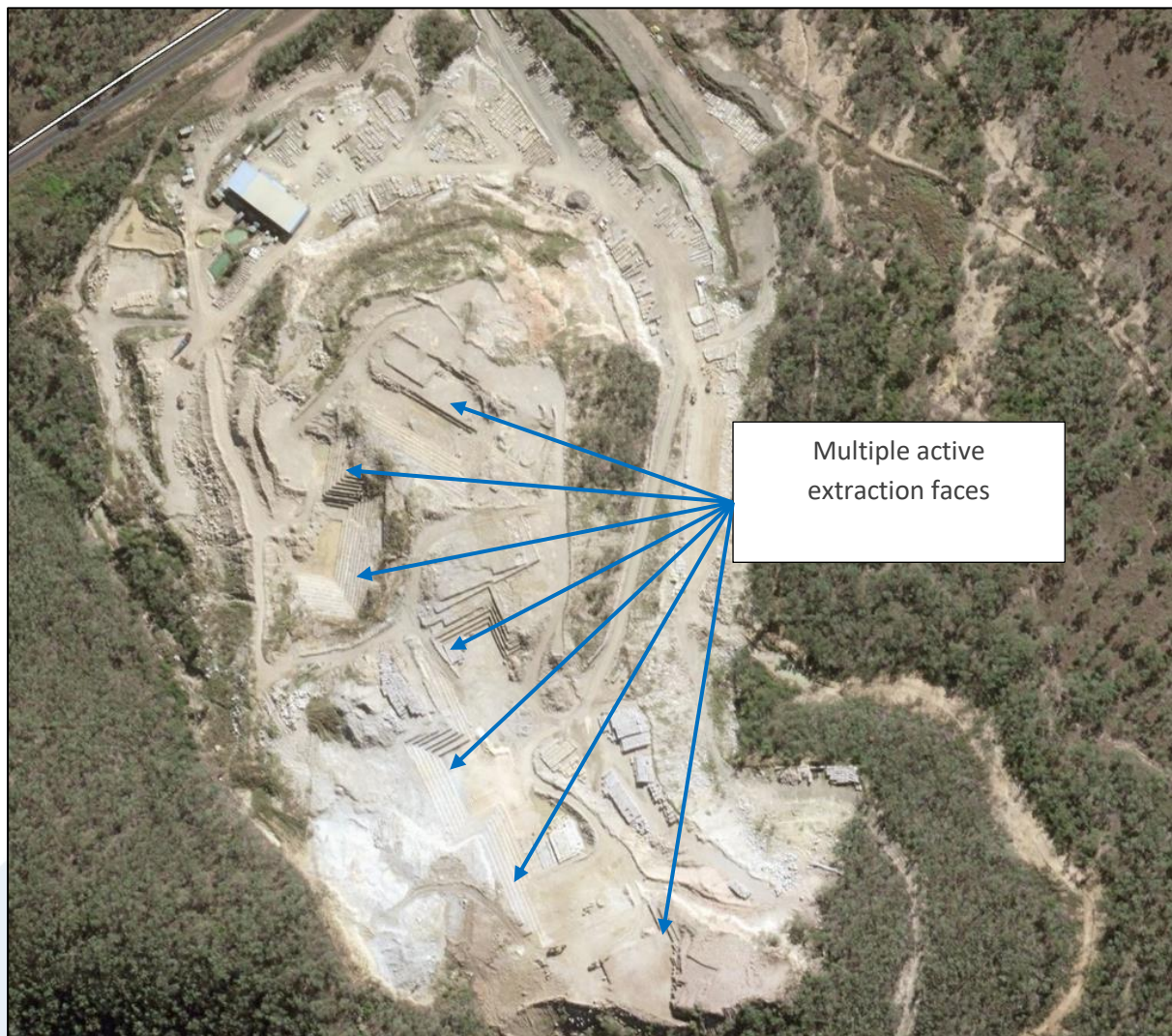


Figure 13. Multiple active extraction faces at the site (Image QLD Globe ©).

3.1.13 Rehabilitation/improvement planning

As discussed in section 3.1.12.1 “*Maximising progressive rehabilitation*”, the characteristic of the resource and the resulting multiple active extraction faces across the site makes progressive rehabilitation of the site impractical. Given this, the current PRC plan will consider the site as a whole for rehabilitation purposes.

The Guideline states:

In order to meet the legislative requirements in sections 126C(1)(b) and (c)(ii) of the EP Act, the rehabilitation planning part must include:

- *identification of all relevant activities on the mine site*
- *the predicted duration of each of the relevant activities proposed for the mine site*
- *the size/extent of the relevant activities*
- *whether the different relevant activities can be progressively rehabilitated.*

The activities at the mine site are relatively simple and include the following:

- Extraction areas.
- Lay down areas.
- Administration and staff amenities.
- Workshops and processing area.
- Stormwater management infrastructure.

All of the above activities will continue for the entire duration of the mine site which is estimated to be approximately 80 to 100 years. The size/extent of these activities can be seen in section 3.1.12.2 “*Primary mine features*”. As previously stated, the multiple active extraction faces at the site does not allow for the progressive rehabilitation of the site.

3.1.14 Spatial information

Spatial information for the following has been provided:

- The location and maximum extent of disturbance footprint for the mine life.
- The post mining land uses (PMLU) for the area within the resource tenures.

Spatial information which has not been included and justification for doing so is as follows:

- Spatial information for non use mining areas (NUMA) has not been included as there are no NUMAs associated with the activity.
- Spatial information for sensitive receptors has not been included as the nearest sensitive receptor is approximately 1.7 km from the site.
- Spatial information for floodplains has not been included as there are no floodplains associated with the site.
- Spatial information for existing rehabilitation areas has not been included as there is no existing rehabilitation associated with the site.

The mining activity at the site is an extremely slow process with all extraction areas expected to remain active for the entire life of the mine which is approximately 80 to 100 years. Given this, no spatial information regarding rehabilitation for the next ten years has been included.

3.2 Community consultation

3.2.1 Community consultation register

Section 126C (1)(c)(iii) of the EP Act requires a proposed PRC plan include details of consultation undertaken by the applicant in developing the proposed PRC plan. Section 3.5 of the Guideline requires the rehabilitation planning part must include a community consultation register identifying the consultation which was carried out. The Guideline requires the community consultation register include the following details:

- consultation date(s)
- identification of each community member
- description of consultation type (workshop, quarterly meetings, etc.)
- information provided to the community
- issues raised/discussed by the community
- how issues have been considered
- decisions/outcomes of engagement
- commitments made by the applicant.

The mining operation at the site began in the late 1800s and has continued intermittently from this time. As the current mining activity was approved in the mid-1990s, no specific details regarding community consultation which was undertaken at the time is available. A summary of the consultation which would have been necessary to gain approval for the project is as follows:

- Consultation with local government to secure land use approvals as required by the relevant planning instrument of the time.
- Consultation with DES (then EPA) to secure approval for the activity.
- Consultation with local government to secure a compensation agreement.
- Consultation with the state to secure a sales permit for resources and to negotiate royalties payable for extraction of resources.

Consultation with DES resulted in the land use document EA EPML0401212 being approved on 4 August 2016. Condition C4 required a Rehabilitation Management Plan (RMP) be developed and submitted to DES by 9 November 2016. The RMP was submitted as per the requirements of the EA and subsequently accepted by DES. The PMLUs in this PRC plan are consistent with the PMLUs identified in the RMP which was provided to DES on 9 November 2016.

3.2.2 Community consultation plan

Section 126C (1)(c)(iv) of the EP Act requires a proposed PRC plan include details of how the applicant will undertake ongoing consultation in relation to the rehabilitation to be carried out under the plan.

This community consultation plan is intended to address the requirements of Section 126C (1)(c)(iv) of the EP Act.

The Guideline includes information regarding items which the applicant of a PRC plan is expected/must address as part of the community consultation plan. These items are as follows:

- Identification relevant members of the community.
- Objectives of community consultation.
- Proposed consultation frequency.
- Information to be released for community consultation.
- How feedback/comments will be considered.

The following sections will address the items information required by the Guideline.

3.2.2.1 Community identification

Identified relevant members of the community are as follows:

- Rockhampton Regional Council.
 - CSP has a compensation agreement with RRC for ML7341.
- Stanwell Corporation
 - Operators of the Stanwell Power Station which is approved by EA EPPR00708913 on the adjoining Lot on Plan 177 LN2465.
 - Stanwell corporation also own adjoining Lots on Plan which are not associated with EA EPPR00708913. These are as follows:
 - Lot 1 SP140242.
 - Lot 3 RP604041.
 - Lot 3 RP604044.
- Traditional owners.
 - Darumbal People Aboriginal Corporation Registered Native Title Body.
- Capricorn Conservation Council.
 - Local community environmental advocacy group.
- Fitzroy Basin Association.
 - Non-profit natural resource management organisation operating in the Fitzroy Region. The Fitzroy Basin Association provides environmental advice and assistance to landholders, community members and organisations, traditional owners, and government agencies.

3.2.2.2 Objectives of community consultation

The objectives of the community consultation include the following:

- Inform community members of the intended rehabilitation activities at the site.
- Address concerns which community members may have regarding rehabilitation activities.
- Access local knowledge from community members regarding enhancements which could be made to proposed rehabilitation activities.
- Inform community members of any proposed changes to rehabilitation at the site.

3.2.2.3 Proposed consultation frequency

The mining operation at the site will continue for the next 80 to 100 years, and there is currently no intention to alter the approved rehabilitation plan for the site. As rehabilitation of the site will not occur for another 80 to 100 years, a community consultation frequency of every fifteen years is proposed. Significant areas of land to the north, west and northeast are zoned as high, medium and low impact industry. There is the potential for significant industrial activities to occur in the area over the life of the mine. Given the length of time the mine will be operational, the potential for considerable change in the makeup of the local community and environmental values, and the intention for the rehabilitation plan for the site to remain unchanged, there is little to be gained by frequent community consultation at this time. Considering this, a fifteen year consultation frequency will allow CSP to consider any changes in the community and industry in the local area over the life of the mine and make appropriate adjustments to the rehabilitation plan if required.

3.2.2.4 Information to be released

Information to be released will include the following:

- Details of the approved rehabilitation plan.
- Details of any proposed changes to the approved rehabilitation plan.
- Details of comments or submissions from previous community consultation.
- Details of any actions/proposed actions resulting from comments or submissions from previous community consultation.

3.2.2.5 How feedback/comments will be considered.

Feedback/comments will be considered using the following criteria:

- Is the source of feedback/comments considered to be a reliable source?
- Can the content of feedback/comments be verified using appropriate scientific principles?
- Are recommendations contained in feedback/comments likely to enhance rehabilitation outcomes?
- Are recommendations contained in feedback/comments likely to have a positive or negative impact on adjacent or downstream land uses and environmental values?
- Are recommendations contained in feedback/comments likely to be cost effective?

3.2.2.6 Community consultation tables

The information sheet 'Common Issues with Progressive Rehabilitation and Closure Plan Applications (PRCP applications)' published by DES contains advice regarding the recommended format of a community consultation register and plan. The information sheet highly recommends providing both the community consultation register and plan in tables and provides examples of appropriately formatted tables. As discussed in section 3.2.1, the current activity was approved in the mid 1990s and no specific information regarding community consultation from that time is available. Given this, there is no information available to populate a community consultation register table with therefore, no table has been included for a community consultation register. As the community consultation plan relates to future activities, a table containing the proposed details of the community consultation plan is included as Appendix D.

3.3 Post mining land use

Land outcome documents for the site include the following:

- EA EPML04041216 (Appendix A).
- Capricorn Stone Products PL Rehabilitation Management Plan (9.11.16) (Appendix E).
- Landholder Agreement (Appendix F).

EA EPML04041216 includes conditions relating to rehabilitation at the site. Condition C3 of the EA states the following:

Rehabilitation

A Rehabilitation Management Plan (RMP) must be developed by an appropriately qualified person and include at least the following;

- a) The post-mining land use;*
- b) Rehabilitation must comply with the Guideline Resource Activities — Rehabilitation requirements for mining resources activities (EM1122);*
- c) State the rehabilitation objectives proposed to achieve the rehabilitation goals of;*
 - i. safe to humans and wildlife;*
 - ii. non-polluting;*
 - iii. stable;*
 - iv. able to sustain an agreed post-mining land use;*
- d) Describe the methods of rehabilitation needed to achieve the rehabilitation objectives and goals;*
- e) State the completion criteria proposed to measure the success of rehabilitation objectives and goals.*

Condition C4 of EA EPML04041216 states the following:

The RMP must be submitted to the administering authority by 9 November 2016.

The RMP was submitted as per conditions C3 and C4 of the EA on 16 November 2016 and subsequently accepted by the administering authority.

Regarding PMLUs, the Guideline states the following:

Where a PMLU has been previously addressed in a land outcome document and is able to be transitioned into the PRCP schedule, the holder is not required to complete the information requirements under section 126C(1)(j) of the EP Act in this section for those PMLUs.

The RMP which was provided to the administering authority on 16 November 2016 identifies and addresses the PMLUs which are applicable to the site. Given this, there is no requirement to complete the information requirements under section 126C(1)(j) of the EP Act for those PMLUs.

The PMLUs for the site include native ecosystem and future industry. The site is located at 227 Power Station Road, Stanwell 4702. This site is within the special management area directly adjacent to the Stanwell-Gladstone Infrastructure Corridor State Development Area. The area is zoned to allow for

future development of high and low impact industry with the Stanwell Power Station already operating in the special industry zone immediately to the west of the site (Figure 14). The PMLU of future industry is consistent with local and state government plans.

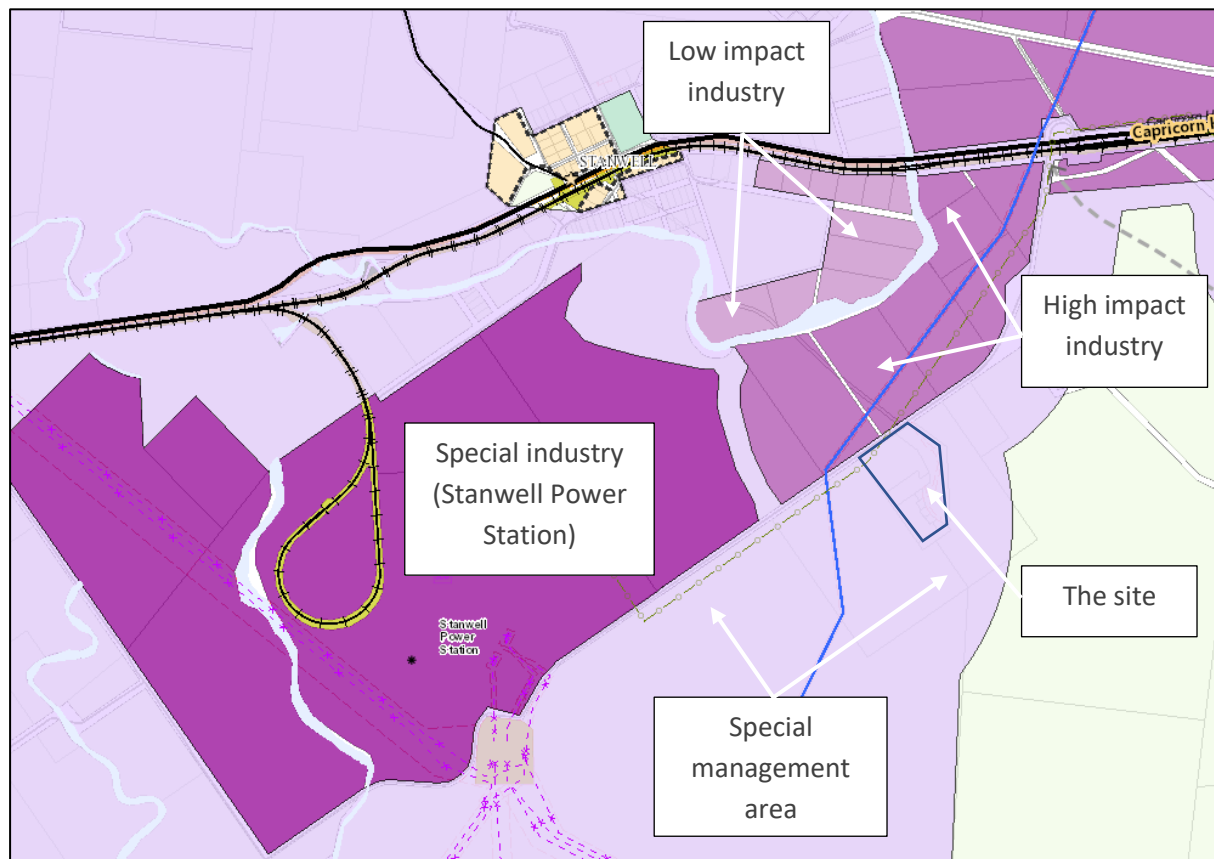


Figure 14. Zones within the Stanwell-Gladstone Infrastructure Corridor State Development Area surrounding the site.

3.4 Non-use management areas

There are no non-use management areas associated with the project.

3.5 Rehabilitation management methodology

See RMP – Appendix D.

3.6 Risk assessment

See Appendix G.

3.7 Monitoring and maintenance

See RMP – Appendix D.

4 Appendices

Appendix A – EA EPML04041216

Permit

Environmental Protection Act 1994

Environmental authority EPML04041216

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Environmental authority number: EPML04041216

Environmental authority takes effect on 13 April 2021

Environmental authority holder(s)

Name(s)	Registered address
CAPRICORN STONE PRODUCTS PTY LTD	227 Power Station Road STANWELL QLD 4702

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 20: Clay pit mining, dimension stone mining or mining gemstones (including the material from which gemstones are extracted) (b) more than 100,000t but not more than 1,000,000t in a year	ML7341 ML80102
Ancillary 16 - Extraction and Screening 2: Extracting, other than by dredging, in a year, the following quantity of material (b) more than 100,000t but not more than 1,000,000t	Lot 1 on LIV40877, Lot 179 on LN2465, Lot 184 on LIV40877, Lot 2 on LIV40877, LOT 252 on SP275125, Lot 3 on LIV40877, Lot 4 on LIV40877, Lot 5 on LIV40877, Lot 6 on LIV40877
Ancillary 16 - Extraction and Screening 3: Screening, in a year, the following quantity of material (b) more than 100,000t but not more than 1,000,000t	

Additional information for applicantsEnvironmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

- a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or
- b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
- c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Sustainable Planning Act 2009* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

Rebecca McAuley
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
Department of Environment and Science

Phone: 07 4222 5352
Email: ESCairns@des.qld.gov.au

Date issued: 13 April 2021

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority

Location: ML7341 & ML80102

Relevant activities: Schedule 3 of the *Environmental Protection Regulation 2019*; ERA 20(b) - Dimension stone mining, if the activity involves mining a quantity of material of more than 100,000t but not more than 1,000,000t in a year.

Schedule 2 of the *Environmental Protection Regulation 2019*; ERA 16(2)(b) Extracting, other than by dredging, in a year, the following quantity of material - more than 100,000t but not more than 1,000,000t.

Schedule 2 of the *Environmental Protection Regulation 2019*; ERA 16(3)(b)—Screening, in a year, the following quantity of material—more than 100,000t but not more than 1,000,000t.

The environmentally relevant activities conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

Environmental authority EPML04041216

Part 1 - Mining Activities	
Schedule A - General	
Condition number	Condition
A1	Conditions contained in Part 1 — Mining Activities of this environmental authority only apply to the mining activities conducted on ML7341 and ML-80102.
A2	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A3	In carrying out the relevant activity authorised by this environmental authority, the holder of this environmental authority must comply with the approved site plans (Attachment 1 — Approved site plans) and must not exceed the area of disturbance specified in Table A1 — Areas of disturbance on site (in ha) .
A4	The holder of this environmental authority must: a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; b) maintain such measures, plant and equipment in a proper and efficient condition; c) operate such measures, plant and equipment in a proper and efficient manner; and d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Table A1 – Table 1 – Areas of disturbance on site (in ha)

Domain Description	Disturbance Domain	Approximate Area (ha)
Total area of allotments under EA		24
Domains	Active mining	12
	Processing, set-down, overburden	10
	Stormwater management	0.9
	Buildings, structures, fuel/oil store	0.1

Environmental authority EPML04041216

Total area of disturbance	23
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A5	Monitoring Except where specified by another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years.
A6	Financial assurance The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the <i>Environmental Protection Act 1994</i> .
A7	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.
A8	Financial assurance must be lodged with the administering authority in the amount, the form and within the time required by the administering authority.
A9	Risk management The holder of this environmental authority must develop and implement a risk management system for relevant activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, within 90 business days of the environmental authority effective date.
A10	Notification of emergencies, incidents and exceptions The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency, monitoring result or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

Environmental authority EPML04041216

A11	Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a) results and interpretation of any samples taken and analysed; b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and proposed actions to prevent a recurrence of the emergency or incident.
A12	Complaints The holder of this environmental authority must record all environmental complaints received about the relevant activities including: a) name, address and contact number for of the complainant; b) time and date of complaint; c) reasons for the complaint; d) investigations undertaken; e) conclusions formed; f) actions taken to resolve the complaint; g) any abatement measures implemented; and h) the person responsible for resolving the complaint.
A13	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
A14	Third-party reporting The holder of this environmental authority must: a) within one year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority; b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above; and c) provide each report to the administering authority within 90 days of its completion.

A15	Amendments to standards, policies or guidelines Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a) comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation; and b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
Schedule B: Air	
Condition number	Condition
B1	Dust and particulate matter monitoring The EA holder must ensure that the dust and particulate matter emissions generated by the relevant activities do not cause exceedances of the following levels when measured at any sensitive or commercial place: a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter — Gravimetric method. b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM 10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either: 1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet — Gravimetric method, or 2. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM 10 low volume sampler—Gravimetric method. A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.

Environmental authority EPML04041216

B2	The environmental authority holder must implement a dust management plan that ensures all reasonable and feasible avoidance and mitigation measures are employed so that dust and particulate emissions generated by the relevant activities do not migrate beyond the boundaries of mining leases ML7341 & ML80102.
Schedule C: Land	
Condition number	Condition
C1	Chemicals and flammable or combustible liquids All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods and flammable and combustible liquids, including petroleum products, must be stored and handled in accordance with the current Australian standard.
C2	The environmental authority holder must minimise the potential for contamination of land and waters by diverting uncontaminated stormwater around contaminated areas and facilities used for the storage of chemicals and flammable or combustible liquids.
C3	Rehabilitation A Rehabilitation Management Plan (RMP) must be developed by an appropriately qualified person and include at least the following; a) The post-mining land use; b) Rehabilitation must comply with the Guideline Resource Activities — Rehabilitation requirements for mining resources activities (EM1122); c) State the rehabilitation objectives proposed to achieve the rehabilitation goals of; i. safe to humans and wildlife; ii. non-polluting; iii. stable; iv. able to sustain an agreed post-mining land use; d) Describe the methods of rehabilitation needed to achieve the rehabilitation objectives and goals; e) State the completion criteria proposed to measure the success of rehabilitation objectives and goals.
C4	The RMP must be submitted to the administering authority by 9 November 2016 .

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C5	Rehabilitation objectives must be successfully implemented by the holder of the environmental authority in accordance with the RMP prior to surrender of the EA.
C6	Contaminated Land Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
C7	The environmental authority holder must minimise the potential for contamination of land by hazardous contaminants.
Schedule D: Noise	
Condition number	Condition
D1	Noise limits The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 — Noise limits to be exceeded at a sensitive place or commercial place.

Table D1 – Noise Limits

Noise level dB(A) measured as:	Monday to Saturday			Sundays and Public Holidays		
	7am to 6pm	7am to 6pm	7am to Gpm	7am to 6pm	7am to Gpm	7am to 6pm
	Noise Measured at the nearest sensitive place					
L_{Aeq}, adj, 15 mins	CV = 50 AV = 5	CV = 45 AV = 5	CV = 40 AV = 0	CV = 45 AV = 5	CV = 40 AV = 5	CV = 35 AV = 0
L_{A1}, adj, 15 mins	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
	Noise Measured at the nearest commercial place					

L_{Aeq, adj, 15 mins}	CV = 55 AV = 10	CV = 50 AV = 10	CV = 45 AV = 5	CV = 50 AV = 10	CV = 45 AV = 10	CV = 40 AV = 5
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Table D1 - Noise limits notes:

- 1 CV = Critical Value
- 2 AV = Adjustment Value
- 3 To calculate noise limits in Table D1:
 - i. If $bg \leq (CV - AV)$: Noise limit = $bg + AV$
 - ii. If $(CV - AV) < bg \leq CV$: Noise limit = CV
 - iii. If $bg > CV$: Noise limit = $bg + 0$
- 4 In the event that measured bg ($L_{A90, adj, 15 mins}$) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level
- 5 bg = background noise level ($L_{A90, adj, 15 mins}$) measured over 3-5 days at the nearest sensitive receptor
- 6 If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.

D2	Monitoring and reporting Noise monitoring and recording must include the following descriptor characteristics and matters: a) LAN, T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins); b) background noise LA90; c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels; d) atmospheric conditions including temperature, relative humidity and wind speed and directions; e) effects due to any extraneous factors such as traffic noise; f) location, date and time of monitoring; and g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 — 200 1-1/3 range.
D3	Restrictions The environmental authority holder is not permitted to undertake explosive blasting on the site.
Schedule E: Groundwater	
Condition number	Condition

Environmental authority EPML04041216

E1	No Release to groundwaters The holder of this environmental authority must not release contaminants to groundwater.
E2	The environmental authority holder must develop a Groundwater Management Plan (GMP) sufficient to prevent any impacts to groundwater.
Schedule F: Waste	
Condition number	Condition
F1	Waste All waste generated in carrying out the activities permitted on this environmental authority must be reused, recycled or lawfully disposed of offsite.
Schedule G: Water	
Condition number	Condition
G1	Stormwater and water sediment controls An Erosion and Sediment Control Plan (ESCP) must be developed by a Certified Professional in Erosion and Sediment Control' and implemented by the environmental authority holder. The ESCP must be submitted to the administering authority by 9 November 2016. <i>Note: For all stages of the mining activities on the site, the ESCP must minimise erosion and the release of sediment to receiving waters and contamination of stormwater.</i>
G2	The stormwater runoff from disturbed areas, generated by (up to and including) a 24 hour storm event with an average recurrence interval of 1 in 5 years must be retained on site or managed to remove contaminants before release.
G3	The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the administering authority's Water Quality Sampling Manual.

G4	Contaminants released from site Contaminants released from site must not exceed the limits defined in Table G3 - Contaminant release point and receiving waters limits when released from the points prescribed in Table G1 — Release points for contaminants released from site. <i>Note: A figure depicting release point locations is to be provided with the ESCP submitted in accordance with condition G1.</i>
G5	Contaminants released to receiving waters Contaminants released to receiving waters must not exceed the limits defined in Table G3 Contaminant release points and receiving waters limits when monitored at the points prescribed in Table G2 — Receiving waters monitoring points.
G6	During a release event parameters specified in Table G3 - Contaminated water release point and receiving waters limits must be monitored at the locations and frequencies specified in Table G1 — Release points for contaminant released from site and Table G2 - Receiving waters monitoring points, and illustrated in Figure 1 - Areas of disturbance on site. <i>Note: A figure depicting monitoring point locations is to be provided with the ESCP submitted in accordance with condition G1.</i>
G7	If any parameter monitored at the locations specified in Table G1 — Release points for contaminants released from site and Table G2 - Receiving waters monitoring points exceed the limits specified in Table G3 - Contaminant release points and receiving waters limits, the environmental authority holder must compare the downstream monitoring results to the upstream monitoring results, and: 1. If the downstream monitoring result is less than or equal to the upstream monitoring result and the receiving water limit, then no action is to be taken; 2. If the downstream monitoring result is greater than the receiving water limit, complete an investigation into the exceedances and the potential for environmental harm and provide a written report to the administering authority within 28 days of receiving the result, including: a) monitoring data required by conditions G1 and G2; b) details of the investigations into environmental harm; c) recommendations to prevent the exceedance of release limits and/or receiving waters limits; and d) actions taken to prevent environmental harm.

Table G1 — Release points for contaminants released from site.

Release point (RP)	Longitude TBA	Latitude TBA	Contaminated water source and location	Monitoring point	Monitoring frequency
RP2 ¹	TBA ¹	TBA ¹	TBA ¹	At release point during flow event	Within 2 hours of a release then daily during a release
RP2 ¹	TBA ¹	TBA ¹	TBA ¹	At release point during flow event	
RP3 ¹	TBA ¹	TBA ¹	TBA ¹	At release point during flow event	

Table G1 — Release points for contaminants released from site notes:

1. Release point locations and details must be provided with the ESCP which must be submitted to the administering authority in accordance with condition G1.

Table G2 — Receiving waters monitoring points.

Table 22 Receiving water monitoring points				
Monitoring points	Longitude	Latitude	Receiving waters location description	Monitoring frequency
Upstream reference monitoring points				
TBA ¹	TBA ¹	TBA ¹	TBA m upstream of the RPX TBA ¹	Within 2 hours of a release, then daily during a release
TBA ¹	TBA ¹	TBA ¹	TBA m upstream of the RPX TBA ¹	
Downstream compliance monitoring points				
TBA ¹	TBA ¹	TBA ¹	TBA m upstream of the RPX TBA ¹	Within 2 hours of a release, then daily during a release
TBA ¹	TBA ¹	TBA ¹	TBA m upstream of the RPX TBA ¹	

Table G2 — Receiving waters monitoring points notes:

1. Release point locations and details must be provided with the ESCP which must be submitted to the administering authority in accordance with condition G1.

Table G3 — Contaminant release points and receiving waters limits

Monitoring Parameter	Release point limit	Receiving waters limits
Suspended solids (TSS) mg/L	50 ⁴	85 ¹
Electrical conductivity (EC) uS/cm	250 ^{1,5}	445 ^{1,2}
pH	6.5 – 8.5 ¹	6.5 – 8.5 ¹
TBA ³	TBA ³	TBA ³

Table G3 — Contaminant release points and receiving waters limits notes:

1. Based on values for aquatic ecosystem protection, moderately disturbed ecosystems, derived from the Fitzroy River Sub-basin fresh waters, Table 2, Environmental Protection (Water) Policy 2009, Fitzroy River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Fitzroy River Sub-basin September 2011.
2. Base flow electrical conductivity value from the Fitzroy River Sub-basin fresh waters, Table 2, Environmental Protection (Water) Policy 2009, Fitzroy River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Fitzroy River Sub-basin September 2011.
3. Any other water quality parameters that have the potential to exceed the receiving water quality objectives must be provided to the administering authority within 3 months of the environmental authority effective date. The parameters must be based on monitoring data of water storages that release to the receiving environment.
4. Based on values derived from the Best Practice Erosion and Sediment Control (BPESC) document.
5. High flow electrical conductivity value from the Fitzroy River Sub-basin fresh waters, Table 2, Environmental Protection (Water) Policy 2009, Fitzroy River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), includes all waters of the Fitzroy River Sub-basin September 2011.

END OF PART 1

Part 2- Extractive and Screening Activities

Schedule H - General

Condition number	Condition
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Environmental authority EPML04041216

H1	Conditions contained in Part 2 — Extractive Activities of this environmental authority only apply to the extractive activities conducted on the approved land.
H2	Scale and intensity of activity This approval authorises the operation of plant and equipment associated with the extraction. The amount of extracted material from the quarry in any one (1) year is to be no more than 350,000 tonnes.
H4	Approved plans The environmental authority is approved generally in accordance with the plan in Appendix A .
H5	Hours of operation Extraction must only be carried out from Monday to Saturday inclusive (excluding public holidays), between 0600 and 1800 hours .
H6	Prevent and/or minimise likelihood of environmental harm A person carrying out an environmentally relevant activity (ERA) to which this approval relates, must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused.
H7	A copy of this environmental authority must be kept in a location readily accessible to personnel carrying out the activity.
H8	Record keeping The operator of an ERA authorised by this environmental authority must record, compile and keep all data required by this approval. These data must be made available to the administering authority upon request.
H9	All records required by this approval must be kept for five (5) years .

Environmental authority EPML04041216

H10	Notification Any emergency, incident or event, which results in the release of contaminants not in accordance with, or reasonably expected to be in accordance with the conditions of this approval, must be reported by telephone to the administering authorities' Pollution Hotline² or the district office located in the area where the release occurred. Any such release must be reported as soon as the holder of the environmental authority becomes aware of the emergency incident or event. ²At the time of issuing this permit the number for the Pollution Hotline was 1300 130 372. This number may change at any time in the future and should be checked prior to use.
H11	Information to follow notification A written notice detailing the following information must be provided to the administering authority within seven (7) days of any advice provided in accordance with condition H10: a) The name of the operator, including their approval/registration number; b) The name and telephone number of a designated contact person; c) The quantity and nature of the substance released; d) Vehicle and registration details; e) The names of person/s involved in the release and/or cleanup; f) The location and time of the release; g) The suspected cause of the release; h) A description of the effects of the release; i) Details of the area of impact; j) The results of any sampling performed in relation to the release; k) Actions taken to mitigate any environmental harm caused by the release and details of the success of these actions; and l) Proposed actions to prevent a recurrence of the release.
H12	Alterations No change, replacement or operation of any plant or equipment is permitted if the change, replacement or operation of plant or equipment increases, or is likely to substantially increase the risk of environmental harm above that expressly provided by this environmental authority.
H13	Spill Kits An appropriate spill kit must be kept on site.
H14	Anyone operating under this environmental authority must be trained in the use of the spill kit.
Schedule I - Air	

Condition number	Condition
I1	Odour Nuisance The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive place.
I2	Dust Nuisance The release of dust and/or particulate matter resulting from the activity must not cause an environmental nuisance at any nuisance sensitive place.
I3	Dust suppression measure must be implemented and maintained on site to prevent the movement of dust created as a result of the activity past the site boundaries.
I4	Dust emissions from stockpiles of material are to be controlled by reasonable and practicable methods such as the following; a) Water sprays; and b) Covers i.e. artificial covers such as tarpaulins or vegetation matter to prevent emissions.
I5	Release of dust or particulate, exceeding the following levels, when measured at any nuisance sensitive place, is considered as an environmental nuisance: a) Dust deposition of 4.0 grams per square meter per month, when measured in accordance with Australian Standard AS 3580.10:2003 Methods of sampling and analysis of ambient air — Determination of particulate matter — Deposited matter — Gravimetric method (or more recent edition); or b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging period, at a nuisance sensitive place downwind of the site, when monitored in accordance with Australian Standard AS 3580 9.6 'Ambient Air — Particulate Matter — Determination of suspended particulate PM10 high volume sampler with size — selective inlet — gravimetric method'; or an alternative method of monitoring PM10 that may be permitted by the Air Quality Sampling Manual as published periodically by the administering authority.

16	When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable timeframe nominated by the administering authority, to investigate any complaint of environmental nuisance caused by dust and/or particulate matter. The results of the monitoring must be notified to the administering authority within seven (7) days following completion of the monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected nuisance sensitive place and at upwind control sites and must include: a) For a complaint alleging dust nuisance, dust deposition; b) For a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometres (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.
Schedule J - Land	
Condition number	Condition
J1	Topsoil can be removed from site and utilised elsewhere.
J2	Protecting land from contaminants Activities on site must be conducted in a way that prevents any potential or actual release of contaminants to land.
J3	There are to be no fuels or oils stored on site for use with the extractive activity. Extraction equipment will be refuelled by transporting fuel on site.
Schedule J - Water	
Condition number	Condition
K1	Erosion protection measures and sediment control measures must be implemented and maintained to minimise: a) Erosion of soils in areas disturbed by the activity; and b) The release of sediment to any waters. Erosion protection and sediment control measures may include: a) Suitable banks; b) Structures; and c) Diversion drains.

K2	All waters flowing over disturbed areas including but not limited to the extraction area and storage areas, must be diverted to an onsite sediment basin.
K3	Sediment basins must be constructed and maintained: a) So as to minimise the likelihood of any release of contaminants or wastes through the bed or banks of the structure to any waters (including groundwater); b) So that a freeboard of not less than 0.5 meters is maintained at all times, except in the event of exceptional weather conditions where the maintenance of such is impossible.
K4	Contaminants must not be directly or indirectly released to any waters, including groundwater, or the bed or banks of any waters.
K5	Stormwater management Suitable banks and/or diversion drains must be installed and maintained so that all stormwater originating from land up-gradient of disturbed areas, including extraction and storage areas is diverted away from entering these areas and any ponds or other structures used for the storage or treatment of contaminants.
K6	Contaminants other than settled/treated stormwater runoff water must not be released to surface waters or the bed or banks of any watercourse.
Schedule L - Noise	
Condition number	Condition
L1	Nuisance Noise resulting from the activity must not cause an environmental nuisance at any sensitive place.
L2	Noise from the activity must not result in levels greater than those specified in Table L1 — Noise Limits at any noise sensitive place or commercial place.

Table L1: Noise Limits

Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	7am - 6pm	7am - 6pm	7am - 6pm	7am - 6pm	7am - 6pm
	Noise measured at a 'Noise sensitive place'					
L_{A10}, adj, 15 mins	b/g + 5	b/g + 5	b/g + 0	b/g + 5	b/g + 5	b/g + 0
L_{A10}, adj, 15 mins	b/g + 10	b/g + 10	b/g + 5	b/g + 10	b/g + 10	b/g + 5

Noise measured at a 'Commercial place'						
L _{A10, adj, 15 mins}	b/g + 5	b/g + 10	b/g + 5	b/g + 10	b/g + 10	b/g + 5
L _{A10, adj, 15 mins}	b/g + 15	b/g + 15	b/g + 10	b/g + 15	b/g + 15	b/g + 10

Note 1: b/g = background noise level, L_{A90, adj, 15mins} In no case is the background noise level, L_{A90 15mins} to be less than 25dB(A). In the event that measured B/G is less than 25dB(A), then 25 dB(A) is to be used.

Note 2: The noise levels specified for L_{A90, adj, 15mins} are measured outdoors in the field at a location at least 4m from the external façade of a building at the nuisance sensitive or commercial place and 1.2m to 1.5m above ground level.

L3	When requested by the administering authority, noise monitoring must be undertaken within a reasonable timeframe nominated by the administering authority, to investigate any complaint of environmental nuisance caused by noise. The results of the monitoring must be notified to the administering authority within seven (7) days following completion of the monitoring.
L4	The method of measurement and reporting of noise levels in response to any noise monitoring conducted under this approval must be in accordance with the most recent edition of DERM's <i>Noise Measurement Manual</i> .

Schedule M - Social

Condition number	Condition
M1	Complaint response The operator of the activity must record the following details for all complaints received and provide this information to the administering authority on request: - Time, date, name and contact details of the complainant; - The allegation made by the complainant; - Details of communications with the complainant; - Any investigations undertaken; and - Conclusions formed and any actions taken.
M2	The operator of the activity must attempt to make contact with any complainant within 24 hours of a complaint being received and initiate complaint resolution measures.

Schedule N - Waste

Condition number	Condition
N1	All waste (not including overburden) generated in carrying out the activity must be disposed of at a facility that can lawfully accept that waste. No waste is to be disposed of on site.

N2	Waste, including vegetation matter, must not be burnt on site.
N3	Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must not be cleaned up by hosing, sweeping or otherwise releasing such wastes, contaminants or material to any waters.

END OF PART 2

Definitions

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the EP Act 1994 or subordinate legislation, the definition in the EP Act or subordinate legislation must be used.

'activity' means an environmentally relevant activity, or associated auxiliary activity to which this approval relates.

'Administering Authority' is the agency that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

'appropriately qualified person' means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

'background', with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

'blasting' means the use of explosive materials to fracture:

- a) rock, coal and other minerals for later recovery, or
- b) structural components or other items to facilitate removal from a site or for reuse.

'bund' means:

- a) an earth mound or similar structure (e.g. a concrete block wall), whether impervious or not, constructed to contain spilled material (e.g. petrol, diesel, oil, etc.); or
- b) a structure to prevent or reduce soil erosion.

'certified', with respect to watercourse diversions, means assessed and approved by a suitably qualified and experienced person. In relation to 'as constructed' drawings and specifications, the certification must be by the suitably qualified person who supervised the construction of the watercourse diversion, or re-establishment of the watercourse.

'certification', 'certifying' or 'certified' by an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what is being certified and the precise nature of that certification
- b) the relevant legislative, regulatory and technical criteria on which the certification has been based
- c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts
- d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

'Certified Professional in Erosion and Sediment Control', a CPESC is a recognised specialist in soil erosion and sediment control. CPESCs have approved educational training, demonstrated expertise, experience in controlling erosion and sedimentation, and meet certification standards.

'Chemical' means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth), or
- b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council, or
- c) a lead hazardous substance within the meaning of the Workplace Health and Safety Regulation 1997, or
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth, or
- e) any substance used as, or intended for use as:
 - i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product, or
 - ii. a surface active agent, including, for example, soap or related detergent, or
 - iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide, or
 - iv. a fertiliser for agricultural, horticultural or garden use, or
 - v. a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater, or
 - vi. manufacture of plastic or synthetic rubber.

'commercial place' means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

'contaminant', A contaminant can be—

- a) a gas, liquid or solid; or
- b) an odour; or

- c) an organism (whether alive or dead), including a virus; or
- d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
- e) a combination of contaminants.

'contamination', of the environment is the release (whether by act of omission) of a contaminant into the environment.

'deposit' means to drop, place or throw a contaminant in waters or onto a place or releases the contaminant or otherwise cause it to move into waters or onto a place.

'disturbance' of land includes:

- a) compacting, removing, covering, exposing or stockpiling of earth
- b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion
- c) carrying out mining within a watercourse, waterway, wetland or lake
- d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls
- e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed . after the mining activity has ceased
- f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

- a) areas off lease (e.g. roads or tracks which provide access to the mining lease)
- b) areas previously disturbed which have achieved the rehabilitation outcomes
- c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions)
- d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner
- e) disturbance that pre-existed the grant of the tenure.

'effective dust control system' means a method, process, procedure or course of action that if taken, will minimise the likelihood of environmental nuisance being caused.

'environmental authority', an environmental authority issued under section 195 that approves an environmentally relevant activity applied for in an application.

'environmental authority holder', means the holder of an environmental authority issued under section 195 that approves an environmentally relevant activity applied for in an application and any others works conducted by an entity on the approved leases under the environmental authority.

'environmental nuisance' as defined in section 15 of the EP Act.

'groundwater monitoring program', means the holder of the environmental authority must appropriately monitor the potential impacts to groundwater and develop a suitable plan or program that achieves this requirement.

'holder', for a mining tenement, means a holder of the tenement under the Mineral Resources Act 1989, and the holder of the associated environmental authority under the Environmental Protection Act 1994.

'infrastructure' means water storage dams, levees,, roads and tracks, buildings and other structures built for the purpose of the mining activity.

'land' in the 'land schedule' of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the Environmental Protection Act 1994. For the purposes of the Acts Interpretation Act 1954, it is expressly noted that the term 'land' in this environmental authority relates to physical land and not to interests in land.

'land use' —means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

'm' means metres.

'measures' includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

'minimise' is to reduce to the smallest possible amount or degree.

'mining activities' is an activity that is an authorised activity for a mining tenement under the *Mineral Resources Act 1989*. For the purpose of this EA it refers to ERA 20(a) - Dimension stone mining, involving mining a quantity of material of at least 100,000t but not more than 1,000,000t in a year.

'non-polluting' means having no adverse impacts upon the receiving environment.

'offensive' means causing offence or displeasure; is disagreeable to the sense; disgusting; nauseous or repulsive.

'protected area' means — a protected area under the Nature Conservation Act 1992, or

- a) a marine park under the Marine Parks Act 1992, or
- b) a World Heritage Area.

'receiving environment' in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

- a) a watercourse
- b) groundwater

'receiving waters' means the waters into which this environmental authority authorises releases of mine affected water.

'rehabilitation' the process of reshaping and revegetating land to restore it to a stable landform.

'release' of a contaminant includes:

- a) to deposit, discharge, emit or disturb the contaminant; and
- b) to cause or allow the contaminant to be deposited, discharge, emitted or disturbed; and
- c) to allow the contaminant to escape; and
- d) to fail to prevent the contaminant from escaping.

'revegetation' is the re-establishment of vegetation¹ of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or rehabilitation of a watercourse diversion.

'self-sustaining' means not requiring on-going intervention and maintenance to maintain functional riverine processes and characteristics

'sensitive place' means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises, or
- b) a motel, hotel or hostel, or
- c) an educational institution, or
- d) a medical centre or hospital, or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area, or
- f) a public park or gardens.

Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity,

¹ Not including a species declared under the Land Protection (Pest and Stock Route Management) Regulation 2003 as a category class 1 pest, category class 2 pest or category class 3 pest.

protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

'static screens' means any rock screen, rock separator, aggregate separator or similar devices that do not utilise any mechanical screening methods.

'suitably qualified and experienced person' means a person who is a Registered Professional Engineer of Queensland under the provisions of the Professional Engineers Act 2002, who has an **appropriate level of expertise** in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

An **appropriate level of expertise** includes:

- demonstrable competency, experience and expertise in:
 - investigation, design or construction of watercourses diversions
 - operation and maintenance of watercourse diversions
 - geomechanics with particular emphasis on channel equilibrium, geology and geochemistry
 - hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
 - hydraulics with particular reference to sediment transport and deposition and erosion control
 - hydrogeology with particular reference to seepage and groundwater
 - solute transport processes and monitoring thereof, or

- sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise**:
 - they consider it reasonable to rely on that advice and information
 - the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise include:

- Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.
- Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.
- Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains. .
- Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems.
- Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology.
- Engineer: person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Persons Act 2002 or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions.
- Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

'the Act' means the *Environmental Protection Act 1994*.

'topsoil' means the surface layer of a soil profile, which is usually more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.

'water' is defined under Schedule 4 of the *Water Act 2000*.

'watercourse' has the same meaning given in the *Water Act 2000*.

'water quality' means the chemical, physical and biological condition of water.

'waters' includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.

Attachment

Figure 1 – Approved site plan

Areas of Disturbance

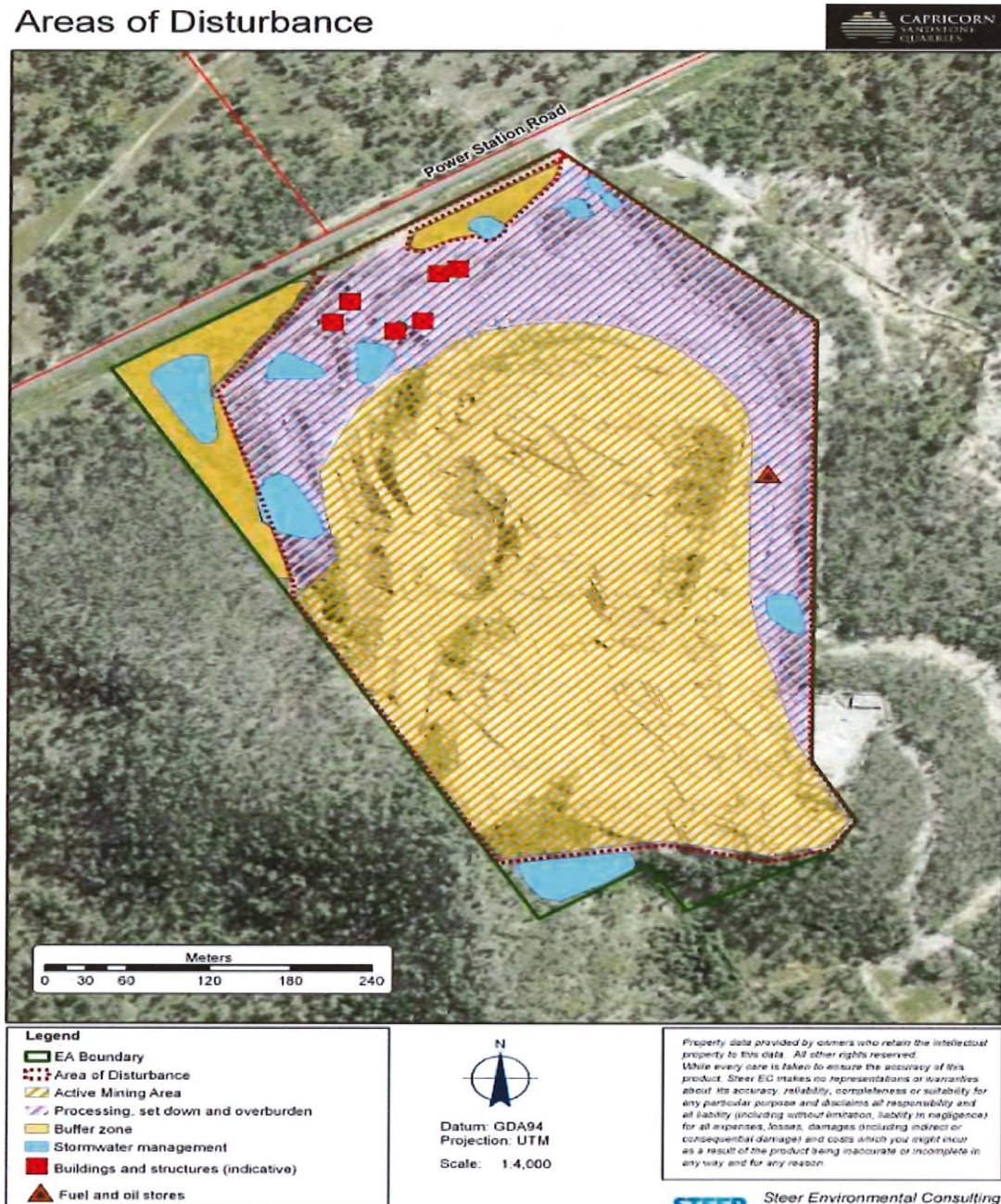
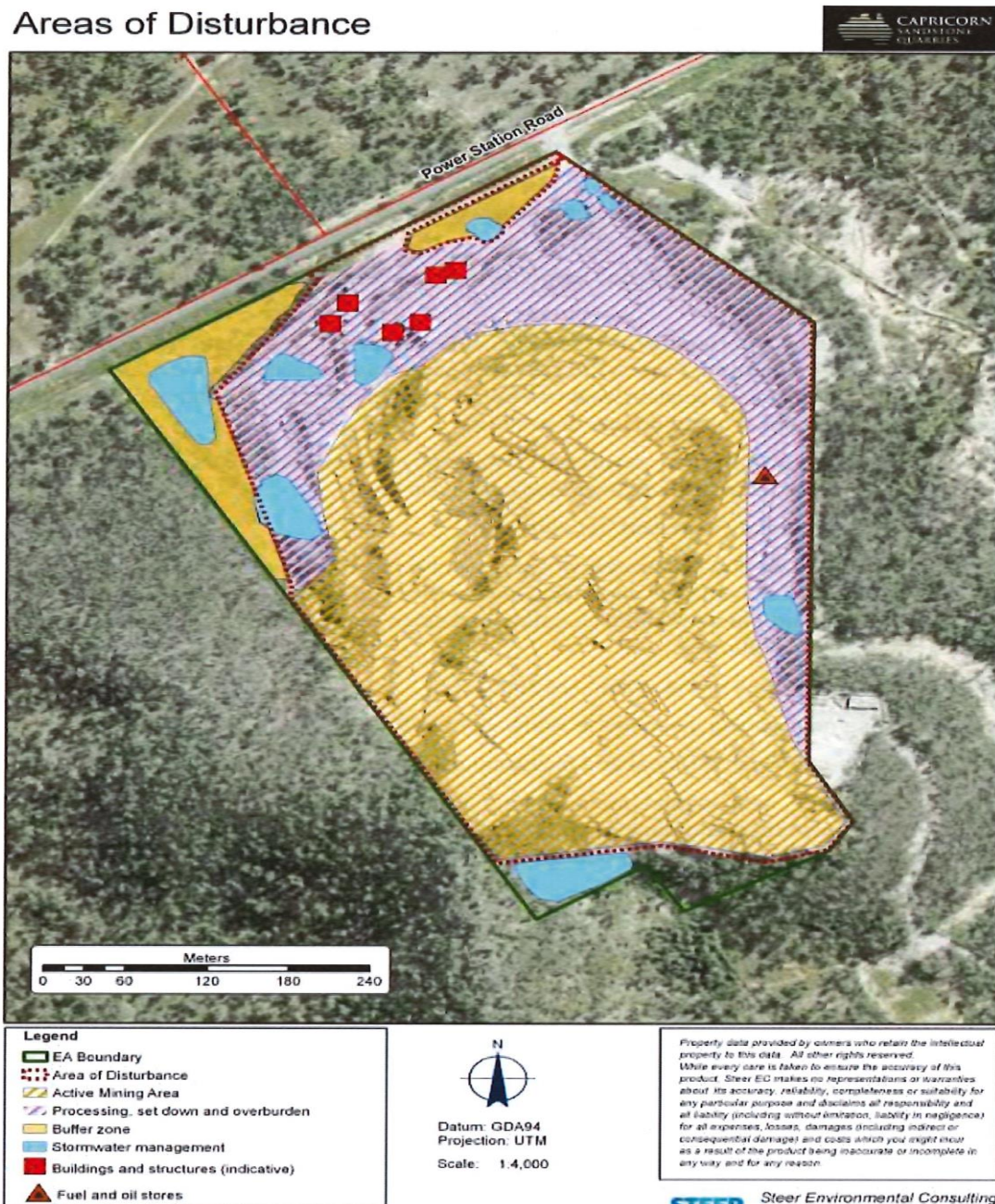


Figure 2 – Release points and monitoring points TBA¹

1 All release and monitoring points are to be provided with the ESCP that must be submitted to the administering authority in accordance with condition H1.

END OF ENVIRONMENTAL AUTHORITY

**Appendix B - Ecological Assessment - Supporting Information Report -
Capricorn Stone Products Pty Ltd, Aurecon, 27 August 2014**

See attached document

Appendix C – Regional Ecosystems Biodiversity Status Report



Queensland Government

Department of Environment and Science

Environmental Reports

Regional Ecosystems

Biodiversity Status

For the selected area of interest

Longitude: 150.34472 Latitude: -23.50123 with 2 kilometre radius

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the input coordinates.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no matters of interest have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Important Note to User

Information presented in this report is based upon the Queensland Herbarium's Regional Ecosystem framework. The Biodiversity Status has been used to depict the extent of "Endangered", "Of Concern" and "No Concern at Present" regional ecosystems in all cases, rather than the classes used for the purposes of the *Vegetation Management Act 1999* (VMA). Mapping and figures presented in this document reflect the Queensland Herbarium's Remnant and Pre-clearing Regional Ecosystem Datasets, and not the certified mapping used for the purpose of the VMA.

For matters relevant to vegetation management under the VMA, please refer to the Department of Resources website <https://www.dnrme.qld.gov.au/>

Please direct queries about these reports to: Queensland.Herbarium@qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.



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Summary Information

The following table provides an overview of the AOI with respect to selected topographic and environmental themes. Refer to **Map 1** for locality information.

Table 1: Area of interest details: Longitude: 150.34472 Latitude: -23.50123 with 2 kilometre radius

Size (ha)	1,256.55
Local Government(s)	Rockhampton Regional
Bioregion(s)	Brigalow Belt
Subregion(s)	Mount Morgan Ranges
Catchment(s)	Fitzroy

The table below summarizes the extent of remnant vegetation classed as "Endangered", "Of concern" and "No concern at present" regional ecosystems classified by Biodiversity Status within the area of interest (AOI).

Table 2: Summary table, biodiversity status of regional ecosystems within the AOI

Biodiversity Status	Area (Ha)	% of AOI
Endangered	0.0	0.0
Of concern	114.51	9.11
No concern at present	575.41	45.79
Total remnant vegetation	689.92	54.91

Refer to **Map 2** for further information.

Regional Ecosystems

1. Introduction

Regional ecosystems are vegetation communities in a bioregion that are consistently associated with particular combinations of geology, landform and soil (Sattler and Williams 1999). Descriptions of Queensland's Regional ecosystems are available online from the Regional Ecosystem Description Database (REDD). Descriptions are compiled from a broad range of information sources including vegetation, land system and geology survey and mapping and detailed vegetation site data. The regional ecosystem classification and descriptions are reviewed as new information becomes available. A number of vegetation communities may form a single regional ecosystem and are usually distinguished by differences in dominant species, frequently in the shrub or ground layers and are denoted by a letter following the regional ecosystem code (e.g. a, b, c). Vegetation communities and regional ecosystems are amalgamated into a higher level classification of broad vegetation groups (BVGs).

A published methodology for survey and mapping of regional ecosystems across Queensland (Neldner et al 2020) provides further details on regional ecosystem concepts and terminology.

This report provides information on the type, status, and extent of vegetation communities, regional ecosystems and broad vegetation groups present within a user specified area of interest. Please note, for the purpose of this report, the Biodiversity Status is used. This report has not been developed for application of the *Vegetation Management Act 1999* (VMA). Additionally, information generated in this report has been derived from the Queensland Herbarium's Regional Ecosystem Mapping, and not the regulated mapping certified for the purposes of the VMA. If your interest/matter relates to regional ecosystems and the VMA, users should refer to the Department of Resources website.

<https://www.dnrme.qld.gov.au/>

With respect to the Queensland Biodiversity Status,

"Endangered" regional ecosystems are described as those where:

- remnant vegetation is less than 10 per cent of its pre-clearing extent across the bioregion; or 10-30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000 hectares, or
- less than 10 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss*, or
- 10-30 per cent of its pre-clearing extent remains unaffected by severe degradation and/or biodiversity loss and the remnant vegetation is less than 10,000 hectares; or
- it is a rare** regional ecosystem subject to a threatening process.***

"Of concern" regional ecosystems are described as those where:

- the degradation criteria listed above for 'Endangered' regional ecosystems are not met and,
- remnant vegetation is 10-30 per cent of its pre-clearing extent across the bioregion; or more than 20 per cent of its pre-clearing extent remains and the remnant extent is less than 10,000 hectares, or
- 10-30 percent of its pre-clearing extent remains unaffected by moderate degradation and/or biodiversity loss.****

and "No concern at present" regional ecosystems are described as those where:

- remnant vegetation is over 30 per cent of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000 hectares, and
- the degradation criteria listed above for 'Endangered' or 'Of concern' regional ecosystems are not met.

**Severe degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 50 years even with the removal of threatening processes; or soil surface is severely degraded, for example, by loss of A horizon, surface expression of salinity; surface compaction, loss of organic matter or sheet erosion.*

***Rare regional ecosystem: pre-clearing extent (1000 ha); or patch size (100 ha and of limited total extent across its range).*

****Threatening processes are those that are reducing or will reduce the biodiversity and ecological integrity of a regional ecosystem. For example, clearing, weed invasion, fragmentation, inappropriate fire regime or grazing pressure, or infrastructure development.*

****Moderate degradation and/or biodiversity loss is defined as: floristic and/or faunal diversity is greatly reduced but unlikely to recover within the next 20 years even with the removal of threatening processes; or soil surface is moderately degraded.

2. Remnant Regional Ecosystems

The following table identifies the remnant regional ecosystems and vegetation communities mapped within the AOI and provides their short descriptions, Biodiversity Status, and remnant extent within the selected AOI. Please note, where heterogeneous vegetated patches (mixed patches of remnant vegetation mapped as containing multiple regional ecosystems) occur within the AOI, they have been split and listed as individual regional ecosystems (or vegetation communities where present) for the purposes of the table below. In such instances, associated area figures have been generated based upon the estimated proportion of each regional ecosystem (or vegetation community) predicted to be present within the larger mixed patch.

Table 3: Remnant regional ecosystems, description and status within the AOI

Regional Ecosystem	Short Description	BD Status	Area (Ha)	% of AOI
11.11.15	Eucalyptus crebra woodland to open woodland on deformed and metamorphosed sediments and interbedded volcanics	No concern at present	469.11	37.33
11.11.3	Corymbia citriodora, Eucalyptus crebra, E. acmenoides open forest on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges	No concern at present	55.19	4.39
11.11.5	Microphyll vine forest +/- Araucaria cunninghamii on old sedimentary rocks with varying degrees of metamorphism and folding	No concern at present	27.59	2.2
11.12.1	Eucalyptus crebra woodland on igneous rocks	No concern at present	23.51	1.87
11.3.2	Eucalyptus populnea woodland on alluvial plains	Of concern	14.94	1.19
11.3.25	Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines	Of concern	76.37	6.08
11.3.4	Eucalyptus tereticornis and/or Eucalyptus spp. woodland on alluvial plains	Of concern	23.2	1.85
non-remnant	None	None	564.8	44.95
water	None	None	1.83	0.15

Refer to **Map 2** for further information. **Map 3** also provides a visual estimate of the distribution of regional ecosystems present before clearing.

Table 4 provides further information in regards to the remnant regional ecosystems present within the AOI. Specifically, the extent of remnant vegetation remaining within the bioregion, the 1:1,000,000 broad vegetation group (BVG) classification, whether the regional ecosystem is identified as a wetland, and extent of representation in Queensland's Protected Area Estate. For a description of the vegetation communities within the AOI and classified according to the 1:1,000,000 BVG, refer to **Table 6**.

Table 4: Remnant regional ecosystems within the AOI, additional information

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.11.15	Pre-clearing 894000 ha; Remnant 2019 521000 ha	13c	None	Low
11.11.3	Pre-clearing 136000 ha; Remnant 2019 98000 ha	10a	None	Medium

Regional Ecosystem	Remnant Extent	BVG (1 Million)	Wetland	Representation in protected estate
11.11.5	Pre-clearing 81000 ha; Remnant 2019 33000 ha	7a	None	Medium
11.12.1	Pre-clearing 1421000 ha; Remnant 2019 854000 ha	13c	None	Low
11.3.2	Pre-clearing 1914000 ha; Remnant 2019 503000 ha	17a	Contains palustrine wetland (e.g. in swales).	Low
11.3.25	Pre-clearing 797000 ha; Remnant 2019 514000 ha	16a	Riverine wetland or fringing riverine wetland.	Low
11.3.4	Pre-clearing 684000 ha; Remnant 2019 180000 ha	16c	Floodplain (other than floodplain wetlands).	Low
non-remnant	None	None	None	None
water	None	None	None	None

Representation in Protected Area Estate: High greater than 10% of pre-clearing extent is represented; Medium 4 - 10% is represented; Low less than 4% is represented, No representation.

The distribution of mapped wetland systems within the area of interest is displayed in **Map 6**.

The following table lists known special values associated with a regional ecosystem type.

Table 5: Remnant regional ecosystems within the AOI, special values

Regional Ecosystem	Special Values
11.11.15	Potential habitat for NCA listed species: Capparis humistrata, Corymbia clandestina, Corymbia xanthope, Cycas megacarpa, Cycas ophiolitica
11.11.3	Potential habitat for NCA listed species: Cycas megacarpa, Cycas ophiolitica, Marsdenia brevifolia, Parsonsia larcomensis, Zieria actites
11.11.5	Potential habitat for NCA listed species: Atalaya collina, Corchorus hygrophilus, Dansiea elliptica, Decaspermum struckoileum, Graptophyllum excelsum, Hernandia bivalvis, Macropteranthes leiocaulis, Macrozamia serpentina, Solanum sporadotrichum, Zieria verrucosa
11.12.1	Potential habitat for NCA listed species: Acacia islana, Capparis humistrata, Corymbia petalophylla, Cycas megacarpa, Cycas ophiolitica, Macrozamia crassifolia, Sannantha brachypoda, Solanum graniticum
11.3.2	Habitat for threatened flora species Homopholis belsonii. This ecosystem is also known to provide suitable habitat for koalas (Phascolarctos cinereus).
11.3.25	Shown to be associated with a high fauna species richness in the Taroom area (Venz et al. 2002). Within parts of the Fitzroy catchment, this RE is known habitat for the threatened freshwater turtle Rheodytes leukops. Known to be important habitat for other riparian freshwater turtle species. This ecosystem is also known to provide suitable habitat for koalas (Phascolarctos cinereus).
11.3.4	Potential habitat for NCA listed species: Acacia pedleyi, Callicarpa thozetii, Cycas megacarpa, Cycas ophiolitica, Digitaria porrecta, Eriocaulon carsonii subsp. orientale, Livistona nitida, Rhaponticum australe, Samadera bidwillii, Sannantha brachypoda. This ecosystem is also known to provide suitable habitat for koalas (Phascolarctos cinereus).

Regional Ecosystem	Special Values
non-remnant	None
water	None

3. Remnant Regional Ecosystems by Broad Vegetation Group

BVGs are a higher-level grouping of vegetation communities. Queensland encompasses a wide variety of landscapes across temperate, wet and dry tropics and semi-arid climatic zones. BVGs provide an overview of vegetation communities across the state or a bioregion and allow comparison with other states. There are three levels of BVGs which reflect the approximate scale at which they are designed to be used: the 1:5,000,000 (national), 1:2,000,000 (state) and 1:1,000,000 (regional) scales.

A comprehensive description of BVGs is available at:

<https://publications.qld.gov.au/dataset/redd/resource/>

The following table provides a description of the 1:1,000,000 BVGs present and their associated extent within the AOI.

Table 6: Broad vegetation groups (1 million) within the AOI

BVG (1 Million)	Description	Area (Ha)	% of AOI
None	None	566.63	45.09
10a	Dry woodlands to open woodlands dominated by <i>Corymbia citriodora</i> (spotted gum). (land zones 10, 7, 12, 11,[8]) (BRB, NET, [DEU])	55.19	4.39
13c	Woodlands of <i>Eucalyptus crebra</i> (sens. lat.) (narrow-leaved red ironbark), <i>E. drepanophylla</i> (grey ironbark), <i>E. fibrosa</i> (dusky-leaved ironbark), <i>E. shirleyi</i> (shirley's silver-leaved ironbark) on granitic and metamorphic ranges (land zones 12, 11, 9, [5]) (BRB, EIU, SEQ, NET, CQC)	492.62	39.2
16a	Open forest and woodlands dominated by <i>Eucalyptus camaldulensis</i> (river red gum) (or <i>E. tereticornis</i> (blue gum)) and/or <i>E. coolabah</i> (coolabah) (or <i>E. microtheca</i> (coolabah)) fringing drainage lines. Associated species may include <i>Melaleuca</i> spp., <i>Corymbia tessellaris</i> (carbeen), <i>Angophora</i> spp., <i>Casuarina cunninghamiana</i> (riveroak). Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded. (land zone 3) (MGD, BRB, GUP, CHC, MUL, DEU, EIU, NWH, SEQ, [NET, WET]) (All bioregions except CYP and CQC)	76.37	6.08
16c	Woodlands and open woodlands dominated by <i>Eucalyptus coolabah</i> (coolabah) or <i>E. microtheca</i> (coolabah) or <i>E. largiflorens</i> (black box) or <i>E. tereticornis</i> (blue gum) or <i>E. chlorophylla</i> on floodplains. Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded. (land zone 3) (All bioregions except WET, principally GUP, BRB, MUL).	23.2	1.85
17a	Woodlands dominated by <i>Eucalyptus populnea</i> (poplar box) (or <i>E. brownii</i> (Reid River box)) on alluvium, sand plains and footslopes of hills and ranges. (land zones 3, 5, 10, 9, 4, 11, 12, [8]) (BRB, MUL, DEU, MUL, EIU)	14.94	1.19
7a	Semi-evergreen vine thickets on wide range of substrates. (land zones 8, 9, 11, 12, 5, 4, 3, 10, [7]) (BRB, EIU, SEQ, CQC, [WET, GUP]) (Tracey 1982 11)	27.59	2.2

Refer to **Map 4** for further information. **Map 5** also provides a representation of the distribution of vegetation communities as per the 1:5,000,000 BVG believed to be present prior to European settlement.

4. Technical and BioCondition Benchmark Descriptions

Technical descriptions provide a detailed description of the full range in structure and floristic composition of regional ecosystems (e.g. 11.3.1) and their component vegetation communities (e.g. 11.3.1a, 11.3.1b). See:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/>

The descriptions are compiled using site survey data from the Queensland Herbarium's CORVEG database. Distribution maps, representative images (if available) and the pre-clearing and remnant extent (hectares) of each vegetation community derived from the regional ecosystem mapping data are included. The technical descriptions should be used in conjunction with the fields from the regional ecosystem description database (REDD) for a full description of the regional ecosystem.

Technical descriptions include data on canopy height, canopy cover and native plant species composition of the predominant layer, which are attributes relevant to assessment of the remnant status of vegetation under the *Vegetation Management Act 1999*. However, as technical descriptions reflect the full range in structure and floristic composition across the climatic, natural disturbance and geographic range of the regional ecosystem, local reference sites should be used for remnant assessment where possible (Neldner et al. 2020 (PDF))* section 3.3 of:

<https://publications.qld.gov.au/dataset/redd/resource/>

The technical descriptions are subject to review and are updated as additional data becomes available.

When conducting a BioCondition assessment, these technical descriptions should be used in conjunction with BioCondition benchmarks for the specific regional ecosystem, or component vegetation community.

<http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/>

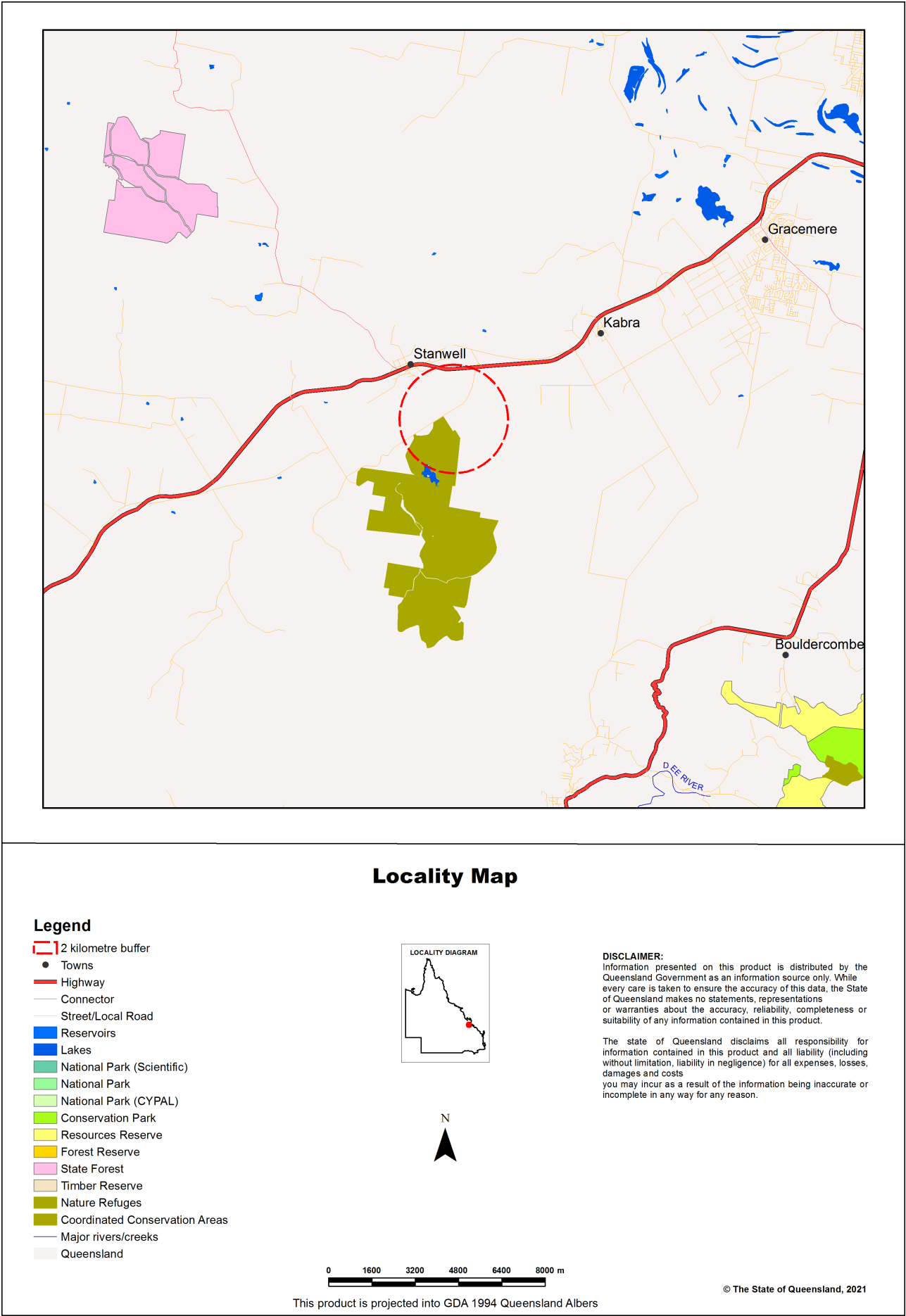
Benchmarks are based on a combination of quantitative and qualitative information and should be used as a guide only. Benchmarks are specific to one regional ecosystem vegetation community, however, the natural variability in structure and floristic composition under a range of climatic and natural disturbance regimes has been considered throughout the geographic extent of the regional ecosystem. Local reference sites should be used for this spatial and temporal (seasonal and annual) variability.

Table 7: List of remnant regional ecosystems within the AOI for which technical and biocondition benchmark descriptions are available

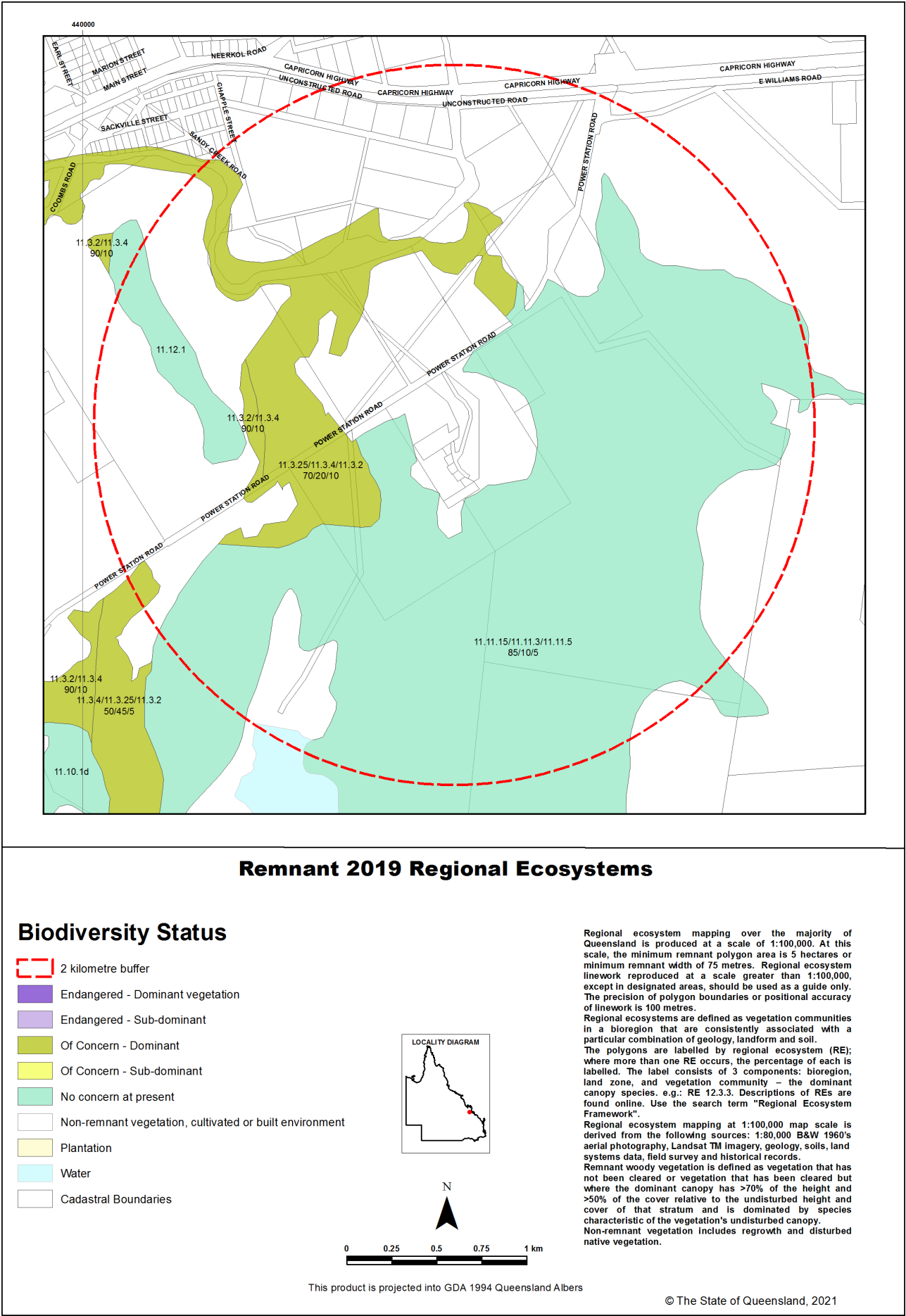
Regional ecosystems mapped as within the AOI	Technical Descriptions	Biocondition Benchmarks
11.11.15	Available	Available
11.11.3	Available	Not currently available
11.11.5	Available	Not currently available
11.12.1	Available	Available
11.3.2	Available	Available
11.3.25	Available	Available
11.3.4	Available	Available
non-remnant	Not currently available	Not currently available
water	Not currently available	Not currently available

Maps

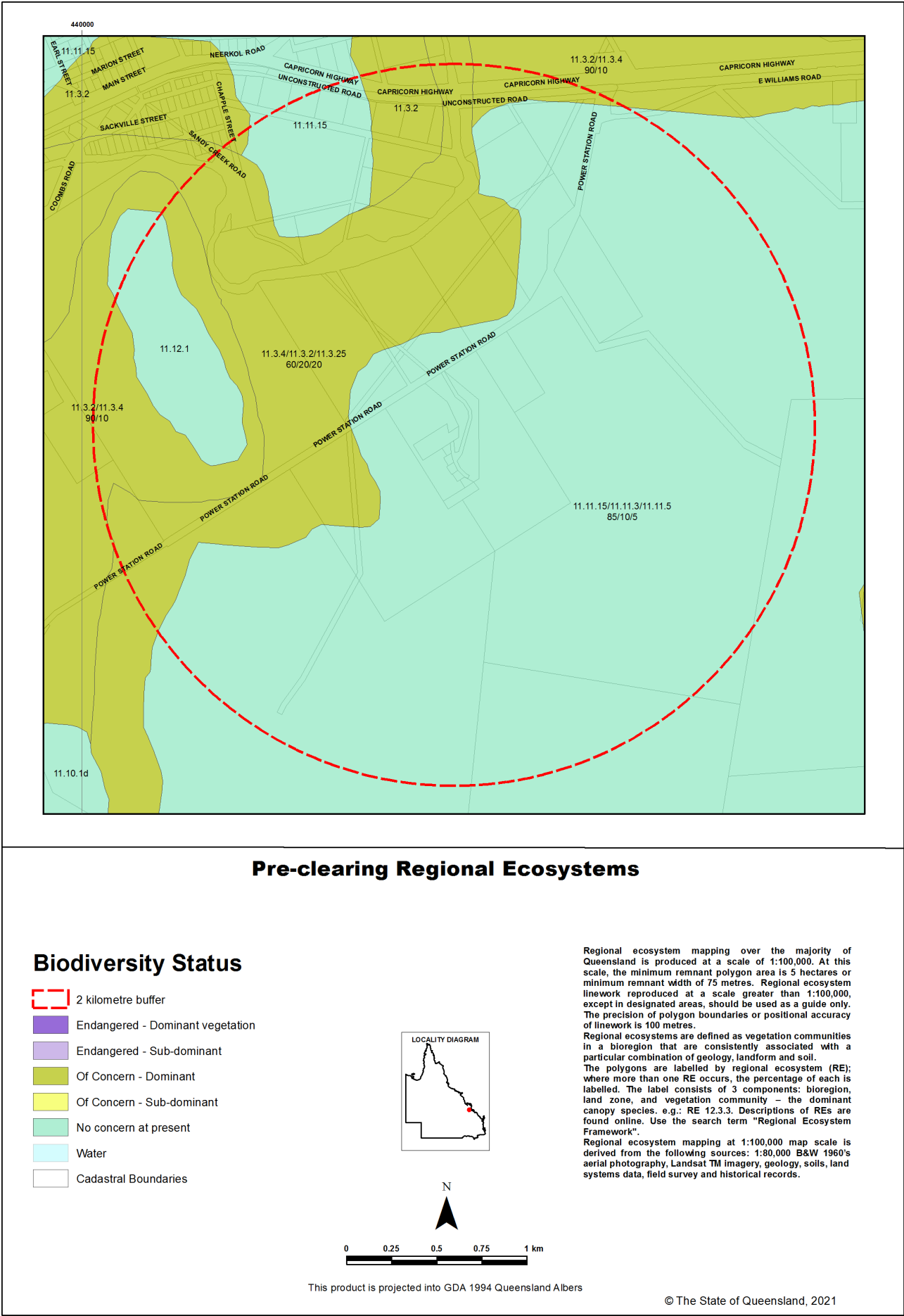
Map 1 - Location



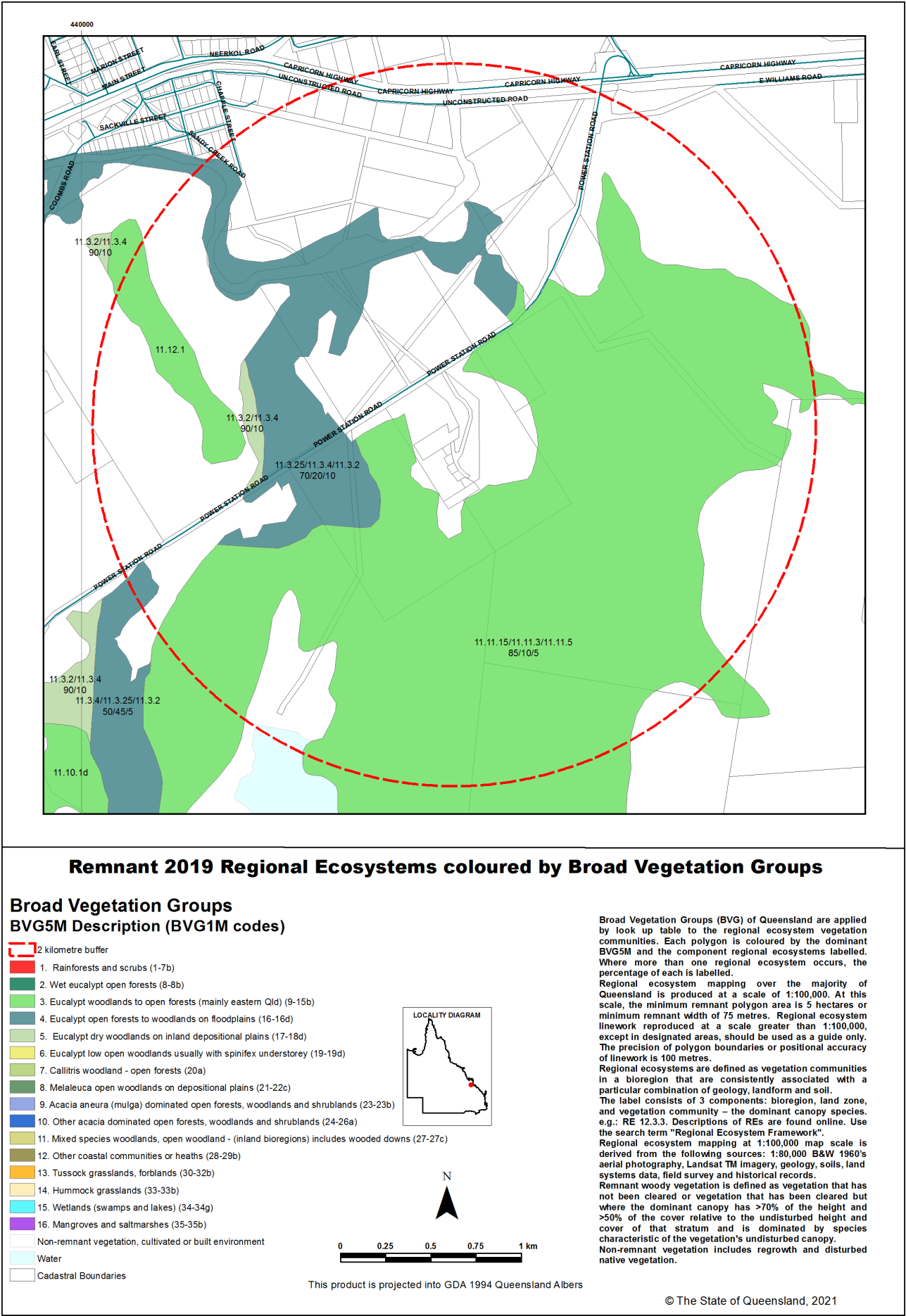
Map 2 - Remnant 2019 regional ecosystems



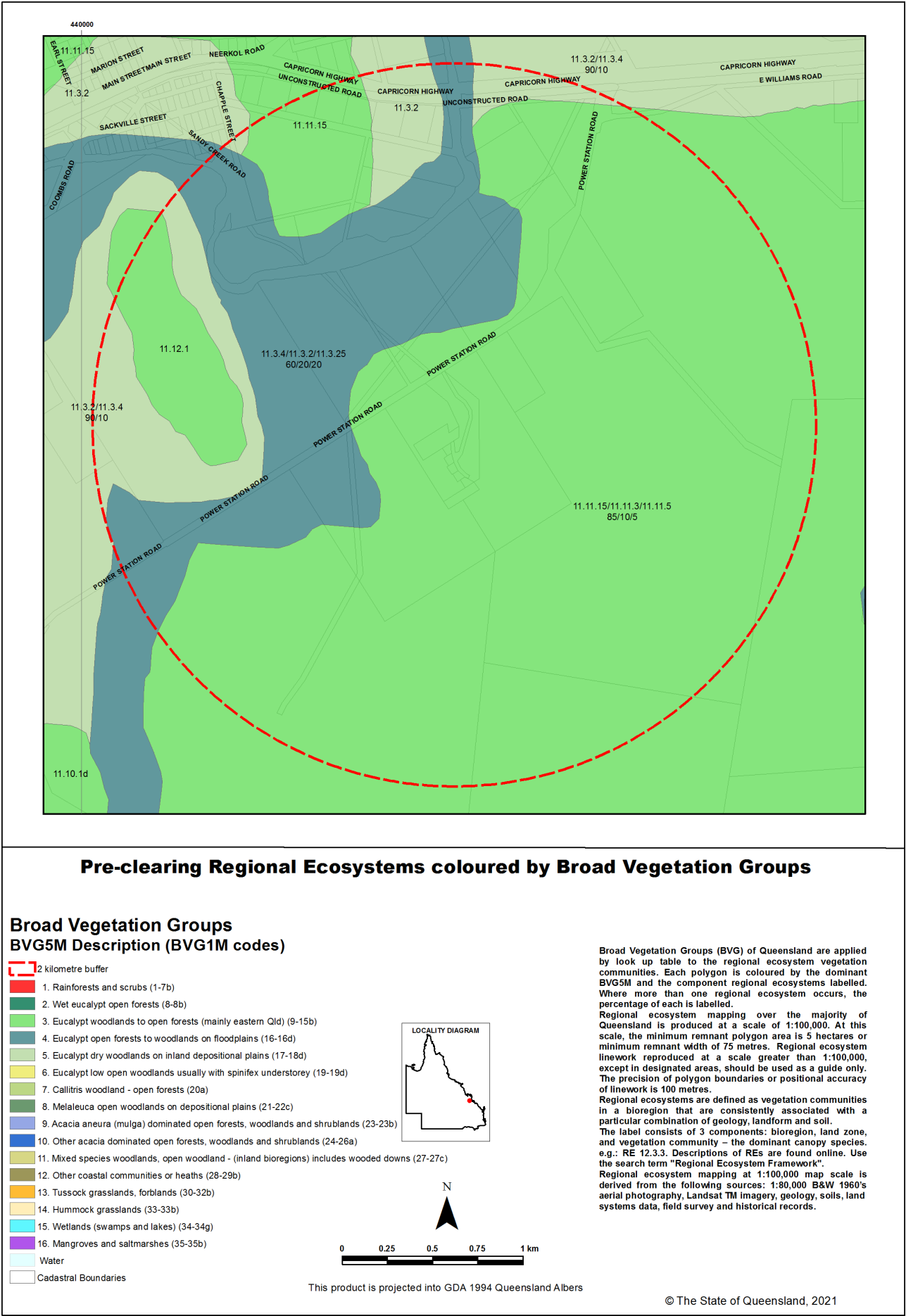
Map 3 - Pre-clearing regional ecosystems



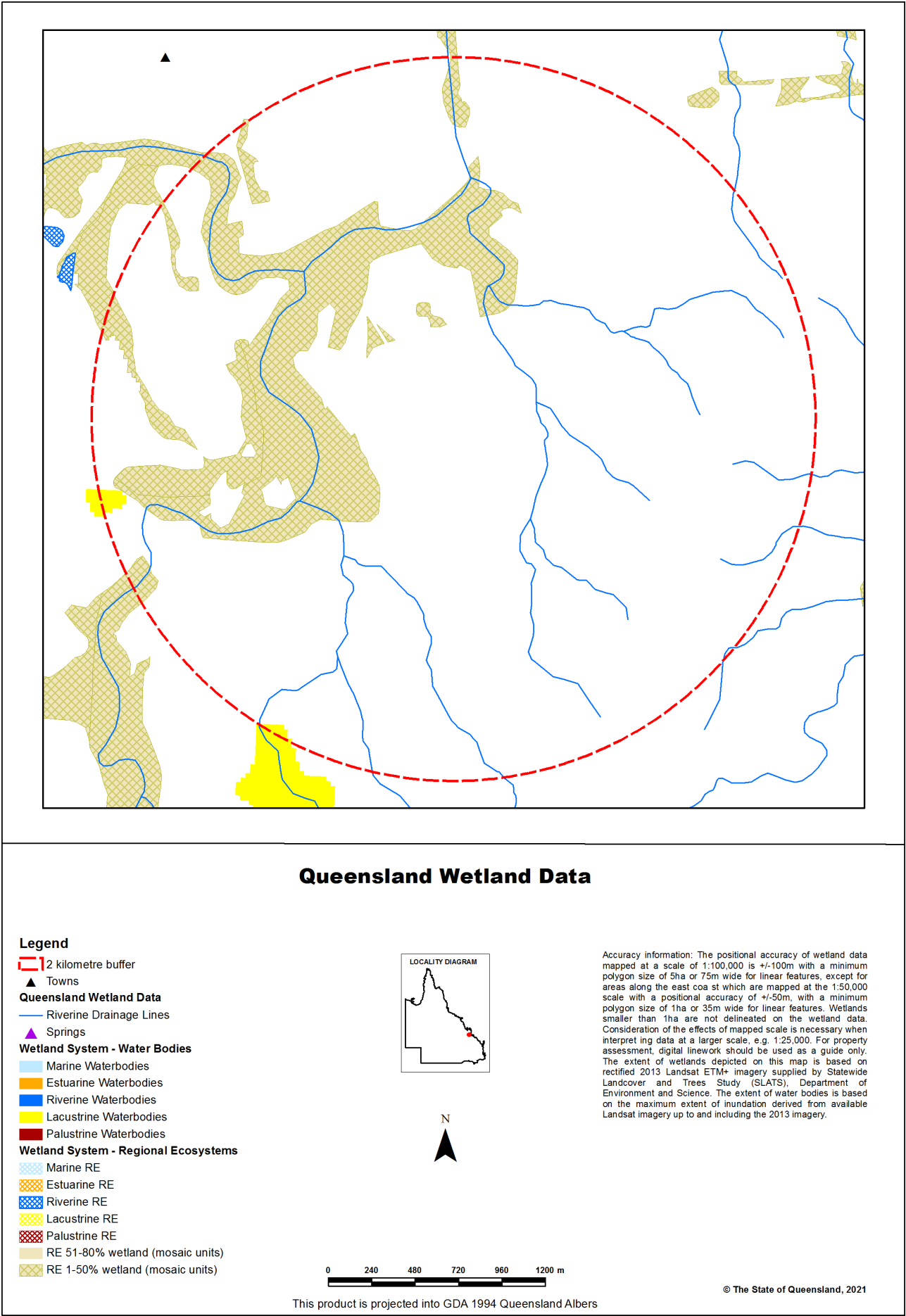
Map 4 - Remnant 2019 regional ecosystems by BVG (5M)



Map 5 - Pre-clearing regional ecosystems by BVG (5M)



Map 6 - Wetlands and waterways



Links and Other Information Sources

The Department of Environment and Science's Website -

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/>

provides further information on the regional ecosystem framework, including access to links to the Regional Ecosystem Database, Broad Vegetation Group Definitions, Regional Ecosystem and Land zone descriptions.

Descriptions of the broad vegetation groups of Queensland can be downloaded from:

<https://publications.qld.gov.au/dataset/redd/resource/>

The methodology for mapping regional ecosystems can be downloaded from:

<https://publications.qld.gov.au/dataset/redd/resource/>

Technical descriptions for regional ecosystems can be obtained from:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/technical-descriptions/>

Benchmarks can be obtained from:

<http://www.qld.gov.au/environment/plants-animals/biodiversity/benchmarks/>

For further information associated with the remnant regional ecosystem dataset used by this report, refer to the metadata associated with the Biodiversity status of pre-clearing and Remnant Regional Ecosystems of Queensland dataset (version listed in **Appendix 1**) which is available through the Queensland Government Information System portal,

<http://dds.information.qld.gov.au/dds/>

The Queensland Globe is a mapping and data application. As an interactive online tool, Queensland Globe allows you to view and explore Queensland maps, imagery (including up-to-date satellite images) and other spatial data, including regional ecosystem mapping. To further view and explore regional ecosystems over an area of interest, access the Biota Globe (a component of the Queensland Globe). The Queensland Globe can be accessed via the following link:

<http://www.dnrm.qld.gov.au/mapping-data/queensland-globe>

References

Neldner, V.J., Niehus, R.E., Wilson, B.A., McDonald, W.J.F., Ford, A.J. and Accad, A. (2019). The Vegetation of Queensland. Descriptions of Broad Vegetation Groups. Version 4.0. Queensland Herbarium, Department of Environment and Science.

<https://publications.qld.gov.au/dataset/redd/resource/78209e74-c7f2-4589-90c1-c33188359086>

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F., Addicott, E.P. and Appelman, C.N. (2020). Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 5.1. Updated March 2020. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.

<https://publications.qld.gov.au/dataset/redd/resource/6dee78ab-c12c-4692-9842-b7257c2511e4>

Sattler, P.S. and Williams, R.D. (eds) (1999). *The Conservation Status of Queensland's Bioregional Ecosystems*. Environmental Protection Agency, Brisbane.

Appendices

Appendix 1 - Source Data

The dataset listed below is available for download from:

<http://www.qld.gov.au/environment/plants-animals/plants/ecosystems/download/>

- Regional Ecosystem Description Database

The datasets listed below are available for download from:

<http://dds.information.qld.gov.au/dds/>

- Biodiversity status of pre-clearing and 2019 remnant regional ecosystems of Queensland
- Pre-clearing Vegetation Communities and Regional Ecosystems of Queensland
- Queensland Wetland Data Version - Wetland lines
- Queensland Wetland Data Version - Wetland points
- Queensland Wetland Data Version - Wetland areas

Appendix 2 - Acronyms and Abbreviations

AOI	- Area of Interest
GDA94	- Geocentric Datum of Australia 1994
GIS	- Geographic Information System
RE	- Regional Ecosystem
REDD	- Regional Ecosystem Description Database
VMA	- <i>Vegetation Management Act 1999</i>

Appendix D – Community consultation plan table

Community consultation plan				
Objective	Engagement type	Proposed consultation frequency	Released information	How feedback/comments are considered
Inform community members of the intended rehabilitation activities at the site. Address concerns which community members may have regarding rehabilitation activities. Access local knowledge from community members regarding enhancements which could be made to proposed rehabilitation activities. Inform community members of any proposed changes to rehabilitation at the site.	Contact by mail/email to identified community members to determine interest and invite initial feedback/comments. Reply to feedback/comments from interested community members including the provision of further information as detailed in column 4 of this table where appropriate and invite further feedback/comment. Consideration will be given to further feedback/comments as detailed in column 5 of this table. Inform submitters of feedback/comments or actions taken as a result of the engagement process.	Every fifteen years.	Details of the approved rehabilitation plan. Details of any proposed changes to the approved rehabilitation plan. Details of comments or submissions from previous community consultation. Details of any actions/proposed actions resulting from comments or submissions from previous community consultation.	Is the source of feedback/comments considered to be a reliable source? Can the content of feedback/comments be verified using appropriate scientific principles? Are recommendations contained in feedback/comments likely to enhance rehabilitation outcomes? Are recommendations contained in feedback/comments likely to have a positive or negative impact on adjacent or downstream land uses and environmental values? Are recommendations contained in feedback/comments likely to be cost effective?

**Appendix E – Capricorn Stone Products - Rehabilitation Management Plan –
STEER Environmental Consulting, 09 November 2016**

Capricorn Stone Products PL Rehabilitation Management Plan



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STEER
ENVIRONMENTAL CONSULTING

Capricorn Stone Products Pty Ltd – Rehabilitation
Management Plan - Capricorn Sandstone Quarries, 227
Power Station Road, Stanwell 4702

Applicant Name: Capricorn Stone Products Pty Ltd

AR #:

Project #:

EA Application #:

Existing EA Permit #: EPML04041216

Report Prepared by: STEER Environmental Consulting

09 November 2016

Document Status

Report Type: Rehabilitation Management Plan

Project: Capricorn Sandstone Quarries, 227 Power Station Road Stanwell 4702

Client: Capricorn Stone Products Pty Ltd

Document Version	Date	Author	Checked	Approved
Final V1	09.11.2016	SB/PS	TS (CSP)/PS	PS
Signed	09.11.2016			

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3 Abbreviations

• CSP	-	Capricorn Stone Products Pty Ltd
• EA	-	Environmental Authority
• EHP	-	Department of Environment and Heritage Protection
• ERA	-	Environmentally Relevant Activity
• STEER EC	-	STEER Environmental Consulting
• ML	-	Mining Lease
• RMP	-	Rehabilitation Management Plan
• LFA	-	Landscape Function Analysis
• DBH	-	Diameter at Breast Height

4 Executive Summary

STEER Environmental Consulting (STEER EC) has been commissioned by Capricorn Stone Products Pty Ltd to prepare and submit a “Rehabilitation Management Plan” (RMP) for their operations on mining leases (ML) 7341 and 80102 at 227 Power Station Road Stanwell 4702.

The RMP has been prepared in order to comply with conditions C3 and C4, contained in environmental authority (EA) EPML04041216, which was granted by the Department of Environment and Heritage Protection (EHP) on 4 August 2016. This plan is also intended to comply with the ‘Rehabilitation requirements for mining resource activities guidelines’ (EM1122) as outlined in said Environmental Authority (EA) conditions.

The RMP details actions that will be undertaken at the cessation of mining activities, to appropriately rehabilitate the applicable land covered by ML 7341 and 80102 and EA EPML04041216.

5 Background

5.1 Proponent

Capricorn Stone Products Pty Ltd (CSP), operated by Capricorn Sandstone Quarries Pty Ltd, is a family owned business with over 50 years of experience in the sandstone mining industry. CSP supply a range of high quality sandstone products for commercial, residential, restoration and export markets from Capricorn Sandstone Quarries, Stanwell.

Capricorn Sandstone Quarries has a rich local history dating back to the 1800s. CSP reinstated operations at the Stanwell site in 1994. They have since been successful in consolidating their business model, with contracts to supply Regional Councils, State Governments and competitive international export markets, including China. Capricorn Sandstone Quarries was recognised as Trade Queensland's 2011 Central Queensland Exporter of the Year. In 2010 Capricorn Sandstone Quarries was recognised at "The Premier of Queensland's Export Awards" as the winner of the Tom Burns Award and finalist in the Regional Exporter Award and were also the 2010 Winner of the Trade Queensland Emerging Exporter of the Year Award.

CSP products have been integral in several iconic local heritage projects including Rockhampton Customs House, Rockhampton Post office and Rockhampton Technical College to name but a few.

Aside from their operations at Stanwell, CSP also has an administrative centre located on Gladstone Road, Rockhampton. CSP continually strives to improve its operations and expand its business opportunities where possible. CSP is a significant local business and employer, with a strong commitment to expanding its operations in the Rockhampton region.

(The information contained in this section has been sourced and adapted from the CSP website)

5.2 Site History

The discovery of high grade sandstone was made at Stanwell around 1867 with the first quarry being opened soon after by a Mr G Sanderson. Several historic buildings in Rockhampton are built from Stanwell sandstone including Customs House, Rockhampton Post Office, and the Roman Catholic Cathedral. The quarry was leased by Bishop Carney of Rockhampton during the 1880's in order to secure the necessary stone for the cathedral (see Figure 1). In those early days, liberating the large blocks from the mountain was achieved with bars and black powder and would have been a far more arduous task than it is today.



Figure 1. Workers at Stanwell Quarry, circa 1898, preparing stone for the Catholic Cathedral, Rockhampton. Image courtesy of State Library of Queensland.

When Roy Gough and his son Reece reopened the quarry in 1994 the blocks were cut with Fantini chainsaws, then drilled underneath to extract the blocks. CSP has come a long way since then with substantial investments in excavator mounted cutting wheels (see Figure 2). These have enabled CSP to significantly improve efficiency whilst dramatically reducing physical workloads on employees concurrently.



Figure 2. Excavator mounted stone saw.

6 Setting

6.1 Site Location and Surrounding Area

Capricorn Sandstone Quarries is located at 227 Power Station Road, Stanwell 4702, Lot 179 LN2465, Lot 159 LN2465, Lots 1-6 LIV40877, Lot 184 LIV40877 and Lot 252 SP275125 (see Appendix A). This is approximately 2.5 kilometres east of the Stanwell Power Station and approximately 2.3 kilometres south east of the township of Stanwell (see Figure 3), which is home to around 300 residents. The residents of the area are accustomed to the quarry being in the area as it has a history dating back to the 1800's. The local residents are also familiar with heavy industry in the area, with Stanwell Power Station being located approximately 2.2 kilometres south of Stanwell Township since 1996. Immediate uses surrounding the quarry are zoned for medium and high impact industry, and special industry, with special management area overlay existing over much of the surrounding area, including Capricorn Sandstone Quarries. Stanwell Power Station to the west is zoned special industry and land to the east is zoned as rural. Neerkol Creek is situated approximately 850 meters to the north and two small ephemeral tributaries are nearby, with one situated approximately 550 meters to the west and the other around 400 meters to the north east of the mine (see Figure 3).

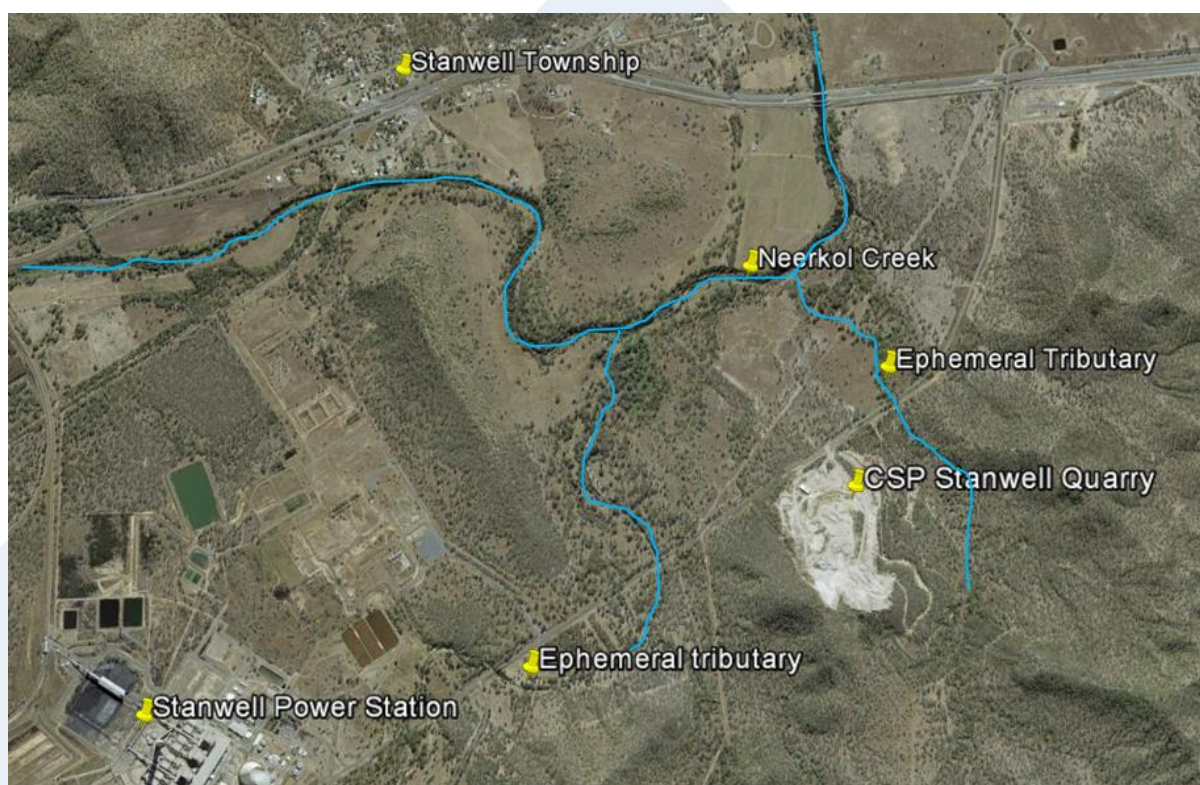


Figure 3. Position of Capricorn Sandstone Quarries in relation to Stanwell Power Station, Stanwell township, Neerkol Creek and two ephemeral creeks.

6.2 Regional Context

Capricorn Sandstone Quarries is located in the Fitzroy River Catchment, which makes up part of the Brigalow Belt Bioregion of Central Queensland.

Habitat in the surrounding area consists predominantly of open woodland to the east, north and south which is zoned primarily as non-remnant vegetation. Directly to the west is an elevated sandstone habitat which is zoned as non-remnant and remnant of least concern vegetation types.

Land use in the area consists of low value pasture, with some areas of sown pasture use. The surrounding area is also zoned for rural residential, medium impact industry, high impact industry and special industry under the Rockhampton Regional Council planning scheme (see Figure 4 and Appendix B). Much of the Stanwell corridor is also subject to special management area overlay.

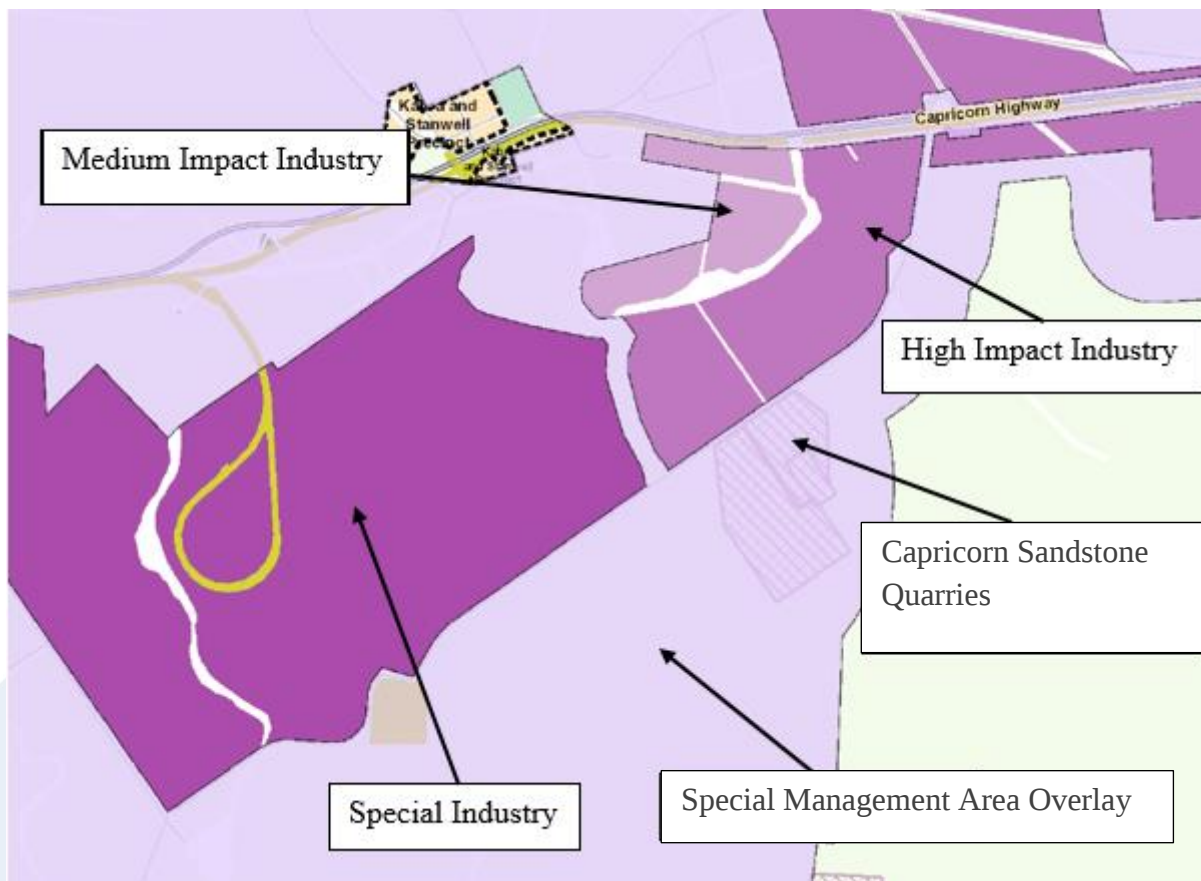


Figure 4. Industrial zoning in relation to Capricorn Sandstone Quarries.

6.3 Climate

The climate is classified as warm and temperate. The average rainfall is 773mm with the majority falling between October and March (see Figure 5). Average temperature ranges from 26.7 °C in January to 15.8 °C in July (see Figure 5).

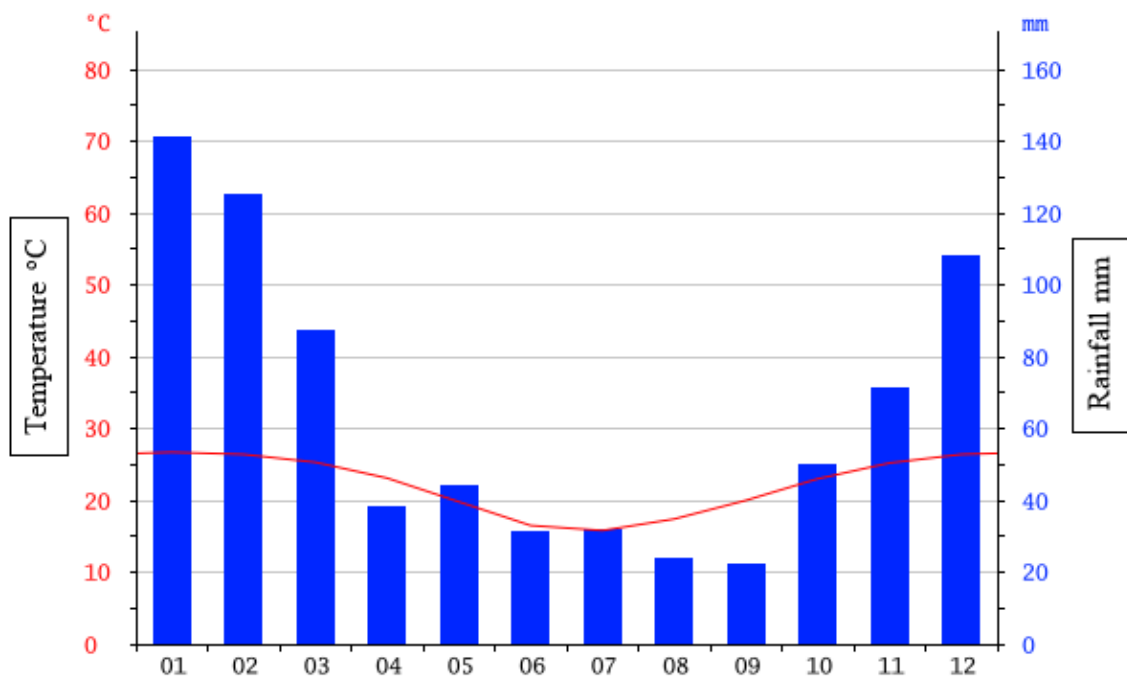


Figure 5. Average temperature and rainfall data for the Stanwell area.

6.4 Soil

Soils in the region are dermosols, which are typically comprised of clay loam, silty loam or sandy loam formation. The soils in the area surrounding generally have a pH of between 7 and 7.5 and salinity is relatively low with values of between 0.1 and 0.15 ds/m. Water infiltration is considered moderate with a rate of 3 – 30ml/hr and drainage in the area is classified as imperfect¹.

7 Legislative Context of RMP

7.1 Environmental Protection Act 1994

Approval and operation of Capricorn Sandstone Quarries from an environmental management perspective is predominantly subject to:

- *Environmental Protection Act 1994*
 - *Environmental Protection Regulation 2008*
 - *Environmental Protection (Air) Policy 2008*
 - *Environmental Protection (Noise) Policy 2008*
 - *Environmental Protection (Water) Policy 2009*

The mining activity conducted by Capricorn Stone Products Pty Ltd at Capricorn Sandstone Quarries is defined as an environmentally relevant activity (ERA) under section 18 of the *Environmental Protection Act 1994* (EP Act), and further defined as a resource activity under section 107 of the EP Act. The tonnage of material that is extracted per year sits within 100,000-1,000,000 tonnes, and the facility is therefore operated under resource activity “ERA 20(b)”, which is defined as:

“Clay pit mining, dimension stone mining or mining gemstones (including the material from which gemstones are extracted) - if the activity involves mining a quantity of material of more than 100,000t but not more than 1,000,000t in a year.”

7.2 Environmental Authority

Section 426 of the EP Act requires that an ERA may only be conducted under the approval of an environmental authority (EA). Capricorn Stone Products Pty Ltd operates Capricorn Sandstone Quarries under EA EPML04041216, which was granted by the Department of Environment and Heritage Protection (EHP) on 4 August 2016. The EA contains conditions that require rehabilitation of the mine following the cessation of mining activities. The particular conditions that relate to rehabilitation are conditions C3 and C4 (see).

This RMP has been prepared in order to comply with conditions C3 and C4. The RMP is also designed to comply with the ‘Rehabilitation requirements for mining resource activities guidelines’ (EM1122) as outlined in condition C3 of EA EPML04041216.

Table 1. EA EPML04041216 rehabilitation conditions.

Number	Condition
C3	Rehabilitation A Rehabilitation Management Plan (RMP) must be developed by an appropriately qualified person and must include at least the following; a) The post-mining land use; b) Rehabilitation must comply with the Guideline Resource Activities – Rehabilitation requirements for mining resource activities (EM1122); c) State the rehabilitation objectives proposed to achieve the rehabilitation goal of; i. Safe to humans and wildlife; ii. Non-polluting; iii. Stable; iv. Able to sustain a post mining land use; d) Describe the methods of rehabilitation needed to achieve the rehabilitation objectives and goals; e) State the completion criteria proposed to measure the success of rehabilitation objectives and goals.
C4	The RMP must be submitted to the administering authority by 9 November 2016.

8 Post Mining Land Use

Sandstone mining operations at Capricorn Sandstone Quarries have been occurring for well in excess of 100 years, and are expected to continue for at least a further 100 years. The “winnable” high quality sandstone is a relatively low extraction volume, high value material, and therefore extraction activities do not occur at a high rate when compared to other mining activities such as coal or iron ore mining. The body of sandstone that is being mined at Capricorn Sandstone Quarries is almost literally a mountain of sandstone.

As the body of sandstone is mined over the next decades/century it is inevitable that the existing landform will be altered. Mining operations will remove a significant portion of the hillside which adjoins the neighbouring lot.

Once the winnable sandstone resource has been exhausted, any remaining adjoining hillside will be battered to an appropriate gradient for safety and stability. This area is intended for post-mining use as habitat for rock wallabies which already inhabit the area and the existing mine overburden stockpiles. Note that Capricorn Sandstone Quarries may make application at a future date to conduct sandstone mining over an expanded area to include the entire hill. In this instance, the RMP would have to be adjusted to allow for the changed activity, and it would be likely that there would be no need for battering of the remaining hillside, as the hillside will have been extracted. However, this RMP only identifies rehabilitation requirement for currently approved activities.

Infrastructure areas on site are to be left unchanged for proposed future set-down and storage area, in accordance with a landholder agreement. The remaining infrastructure will be managed as per the site based management plan and with respect to any EA conditions which may be relevant at the time.

These areas include:

- Workshops
- Administration buildings
- Set down areas
- Internal roads

Remaining areas will be returned to a safe, stable, self-supporting system, which functionally resembles the surrounding area.

These post mining land use objectives will result in three distinct domains from a land use point of view (see Figure 6). The exact size and location of these areas is subject to change prior to the implementation of the RMP and may be subject to various approvals or regulations current at that time. The domains are:

- **Battered rocky hillside** to be rehabilitated to a safe, stable, self-sustaining ecosystem for habitat for local rock wallaby populations.
- **Low plateau area** of a similar landform to the surrounding area, to be rehabilitated to a safe stable self-sustaining ecosystem resembling the surrounding area.

- **Set-down or storage area** for personal landholder use or commercial activities (subject to Council approval), as per landholder agreement.



Figure 6. Post mining land use domains at Capricorn Sandstone Quarries.

9 Rehabilitation Goals

The Department of Environment and Heritage Protection (EHP) has developed a guideline document to assist with rehabilitation of mine sites. This document is titled, “Rehabilitation requirements for mining resource activities” (EM1122 Version 2) and provides information on both progressive and final rehabilitation requirements for site specific resource projects operating in Queensland under the *Environmental Protection Act 1994*.

“Rehabilitation requirements for mining resource activities” introduces four rehabilitation goals that are to be achieved during rehabilitation of a mine site. The rehabilitation goals have been developed from the ESD policy framework, especially in relation to intergenerational equity; polluter pays principle, protection of biodiversity and maintenance of essential ecological processes.

The four general rehabilitation goals require rehabilitation of areas disturbed by mining to result in sites that are:

- Safe to humans and wildlife
- Non-polluting
- Stable
- Able to sustain an agreed post-mining land use.

Each of the four goals are addressed separately in the following sections.

9.1 Safe to Humans and Wildlife

This objective relates to the creation of a site which is safe for both humans and wildlife from both a physical injury and an environmental pollution point of view.

The vast majority of the site will be relatively level at the end of the mine’s operational life, with an estimated slope incline of less than 20° over most of the site, this is not expected to pose any foreseeable risk to humans or wildlife. There will be no voids created during the mining operations and thus, there will be no safety hazards due to void wall stability.

The battered slope on the western and south-western edge of the mining lease (see Figure 6), has the potential to be hazardous to humans and wildlife due to subsidence and rock falls. The final design and construction of the slope will be designed and overseen by a suitably qualified engineer to ensure the slope is stable and safe.

Sediment leaving the site due to erosion has the potential to cause harm to wildlife should it reach water bodies, as this may cause turbidity and eutrophication issues. Given the site’s distance from any major water bodies this is unlikely to be problematic. However, erosion control is not only important from the perspective of the health of the receiving environment, it is paramount to the success of rehabilitation efforts on site. With these issues in mind, erosion control measures will be implemented during the rehabilitation phase, and ongoing monitoring and remediation of any erosion issues will be

implemented during the monitoring phase. Much of the erosion and sediment control measures that will be employed will be a continuation of the operational measures in place during the mine's operational life.

The benign nature of the sandstone product and proximity of the resource to the surface, means that the mining process produces no pyritic acid forming waste rock or saline regolith. Furthermore, the benign nature of the sandstone material and mining processes employed produces no toxic tailings and requires no chemical additions. Given these points, there will be no residual hazard to humans or wildlife from acid, chemical or heavy metal contaminated leachate.

9.2 Non Polluting

As outlined in section 9.1, there are no acid, saline, heavy metal or chemically contaminated waste materials produced during extraction or processing. Therefore, there is no residual risk of pollution entering the receiving environment from any of these sources. The only source of potential pollution is from mobilised sediment leaving the site into the surrounding environment. With this in mind, counter erosion measures will be implemented during rehabilitation works and judicious monitoring and remediation of erosion issues will be carried out during the monitoring process. Sediment and erosion control structures such as swales, rock armouring, check dams and sedimentation dams will remain in place during the rehabilitation phase in order to prevent sediment leaving the site. The water collected in these dams will provide a water source for irrigation in order to promote the establishment of vegetation.

9.3 Stable Landscape

The goal in this instance is to restore the site to a state of physical and geological stability. Furthermore, this goal relates to the creation of a stable ecosystem capable of sustaining itself without ongoing human inputs.

The landscape will be rendered stable both physically and biologically with the use of revegetation and counter erosion techniques including contour banks, across slope revegetation and a judicious monitoring and remediation program. This will also include engineering techniques which will be required to stabilise the remaining sandstone hillside.

The areas which will be set aside for post-mining set-down or storage areas will be managed in accordance with general environmental duty, or any approval requirements (eg. Site based management plan, EA conditions) which may be in place at the time.

9.4 Ability to Sustain Post-Mining Land Use

The aim of this goal is to develop physical, chemical, biological and administrative systems, which are able to satisfy the expectations of all stakeholders. Stakeholders may include the administering government authority, landholders and downstream interests. This goal will be realised through carefully planned and executed rehabilitation techniques and also through long term monitoring of the rehabilitation site.

10 Rehabilitation

10.1 Rehabilitation Schedule

Mining operations at Capricorn Sandstone Quarries are somewhat unusual, in that they provide a high value but low volume commodity. The sandstone that is extracted on site is not a homogenous resource. The characteristics of the stone is highly variable across the site (see Figure 7) and demand for stone with certain features can vary significantly from a temporal point of view. This characteristic means that mining is not performed on a progressive basis, as consumer demand dictates when and where extraction is occurring on site. Essentially, this results in the entire site being active for the entire life of the mine. The non-progressive nature of mining activities on the site precludes progressive rehabilitation of the site. Rehabilitation of a dormant area only to reopen extractive activities at a later date would be both economically and environmentally irresponsible.

Capricorn Sandstone Quarries contains enough winnable material for all areas of the mine to remain viable for many decades to come, quite possibly in excess of 100 years, depending on demand. As a result of the longevity of the mine, no rehabilitation works are proposed to be required for a number of decades, and the site will be operated under stormwater, sediment and erosion control plans until the site is fully exhausted. At this point, and given the relatively small 23 hectare footprint, the entire site will be rehabilitated at the same time.



Figure 7. Variability of product across Capricorn Sandstone Quarries.

10.2 Rehabilitation Methods

10.2.1 Battered Hillside Rock Wallaby Habitat Domain

10.2.1.1 Re-Contouring

Preparation of the battered hillside rock wallaby habitat will occur during mining operations. Removal of sandstone product will occur in such a way that the remaining slope will take on a stepped/battered landform. This extraction procedure and landform preparation will be governed by plans which will be designed and overseen by a suitably qualified engineer. Sandstone overburden will also be used in this area to provide additional rock wallaby habitat and refuge during events such as bushfires.

10.2.2 Low Plateau Area Domain

10.2.2.1 Re-Contouring

Re-contouring of the low plateau area will begin as soon as all winnable material is exhausted. Low lying areas will be filled with coarsely crushed waste rock and the landscape reshaped to a form resembling the surrounding area, with respect to required slope length and angle. Re-contouring will include the construction of water management and erosion control structures such as drains and contour banks.

Stored topsoil will be mixed with locally sourced crushed sandstone to aid in water infiltration and structural properties. Topsoil stored for lengthy periods can be subject to degradation from nutrient leaching, loss of biological activity and organic matter resulting in poor fertility. Therefore, where required, stored topsoil will be ameliorated with organic matter to increase cation exchange capacity and fertilizer applied as required. Soil analysis to determine nutrient content and pH will be carried out and suitable remediation techniques will be applied as necessary. Prepared topsoil will then be spread across the site to a minimum depth of 200mm. For the duration of topsoiling works, accurate accounts of truck and scraper movements will be recorded to allow for an evaluation of topsoil placement to ensure evenness of spreading.

Prior to the onset of the wet season, seedbed preparation will take place. This will involve deep ripping to a depth of 300mm.

10.2.2.2 Seeding and Establishment of Tube Stock

Tube stock planting will be supported by watering where required, which will be enabled by the recycling of water held in the onsite water management dams. This will allow for the establishment of tree and shrub species before the onset of the wet season, will enhance the establishment of native species, thereby accelerating trends towards rehabilitation goals. This will also facilitate root penetration of the soil with the view to enhance soil stability and thus reduce erosion. Tube stock plantings will be in rows across gradient and with the contour of the site, to effectively reduce slope length and assist in the retention of soil and resources on the rehabilitation site (see Figure 8).

Immediately prior to the onset of the wet season and if rains are forecast, seeding will occur across all prepared areas. Given the small footprint of the site, seeding may be facilitated by hand held spreader. This will help to prevent compaction of soils from heavy machinery.

10.2.3 Set-Down and Storage Area Domain

10.2.3.1 Re-Contouring

Minimal re-contouring of the set-down and storage area will be undertaken. This area will be managed for continued use as basically hard stand areas under a landholder agreement.

Re-contouring of the set-down and storage area will predominantly focussed on the construction of water management and erosion control structures such as drains and contour banks.

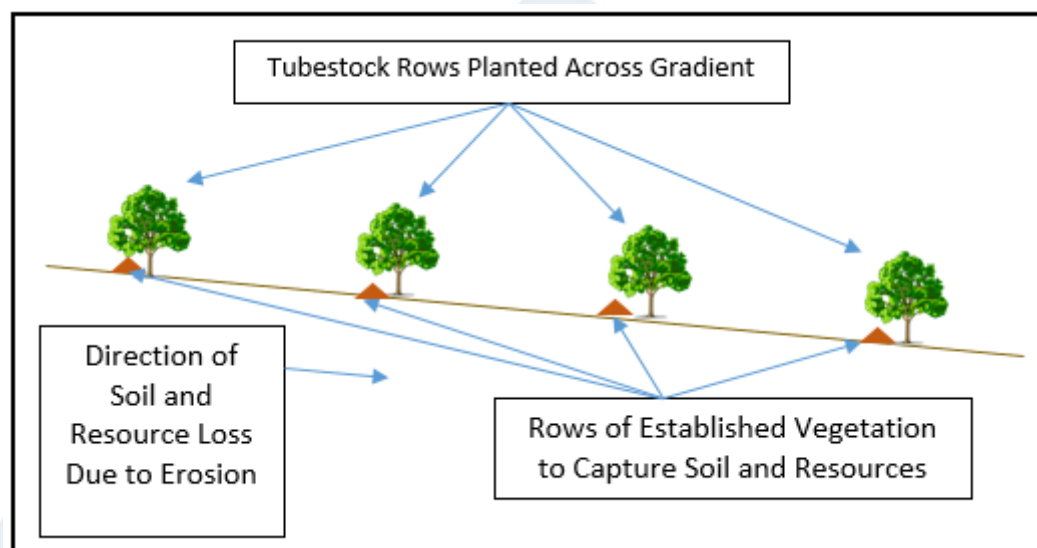


Figure 8. Across gradient rows of tube stock aimed at enhancing soil stability, reducing erosion and accelerating rehabilitation timeframes.

10.3 Revegetation Criteria

Revegetation for the post mine environment is highly dependent on the designated land use for the site. The designated post mine land use controls what species of plants are likely to colonise the area, as well as other target vegetation factors such as species diversity, abundance and dominance. For the areas where revegetation is proposed, the post mine land use is native ecosystem.

Native species which are established in the surrounding area should be used for the majority of the seed mix and for the propagation of tube stock. Tree, shrub and ground cover should be provided at

sufficient density to allow habitat value and structure to be retained. These areas should be self-functioning, with minimal inputs required after establishment to ensure healthy survival.

Revegetation criteria should be assessed against local reference sites that are to be used as benchmarks for final species diversity, abundance and dominance. Soil surface indicators will also require analysis in order to gain data for soil property comparison across reference and rehabilitation sites. Reference sites will be assessed using the principles of Landscape Function Analysis (LFA). This system uses a series of indicators including landscape organisation, which looks at the structures present in the landscape and how they interact to either retain or lose resources. LFA also considers a series of 11 soil surface indicators, the results of which are used to calculate three synthetic soil surface indices which show the sites ability to resist erosion, retain and store water and cycle nutrients in order to enhance and support plant growth (see Figure 9).

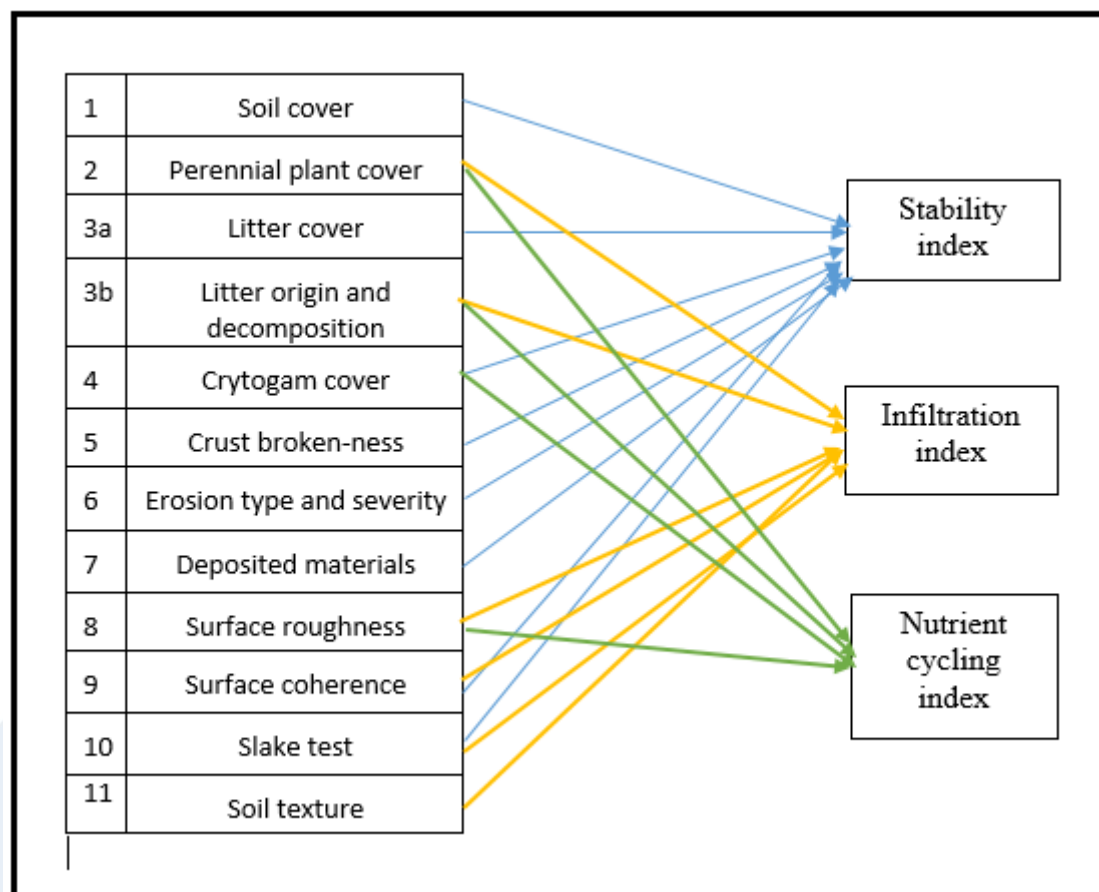


Figure 9. The 11 soil surface indicators and their relationship with the synthetic soil indices².

Initial flora investigations in the surrounding area have identified species which may be used as a preliminary seed mix and for the propagation of tube stock. As the mine is expected to continue active production for up to at least 100 years, reassessment of the surrounding flora and reference sites will be required to establish the exact species required.

Possible/likely species include:

Canopy/tree species:

- *Corymbia clarksoniana*
- *Corymbia erythrophloia*
- *Eucalyptus crebra*
- *Eucalyptus tereticornis*
- *Acacia excelsa*
- *Acacia salicina*

Herbaceous/understory species:

- *Sida rohlenae*
- *Jasminum didymium*
- *Senna artemisioides* subsp. *Artemisioides*
- *Desmodium brachypodium*
- *Evolvulus alsinoides*

Grass/groundcover species:

- *Eragrostis elongate*
- *Heteropogon contortus*
- *Themeda triandra*
- *Bothriochloa decipiens*
- *Dichanthium sericeum*

11 Monitoring

Monitoring rehabilitation success is an essential part of any rehabilitation program. Monitoring will consist of a Land Survey and Vegetation Survey to be conducted annually. Each of these are discussed below.

Monitoring will be conducted until the rehabilitation success criteria have been met (see Section 11.4 and Appendix C).

11.1 Land Survey

Rehabilitation areas will be inspected for erosion rills, erosion gullies and topsoil depth to determine their erosion rating (see Table 2). Two 50m transects will be placed along the contour for every 5 ha of rehabilitated land. Transects will be placed across the contour of the benched domain.

Table 2. Erosion rating system.

Erosion Rating	Rills per Transect	Average Depth of Rills	Topsoil Depth	General Observations
0	0 - 3	< 10cm	> 90% of original depth	Generally little erosion. The majority of rills are only <10 cm depth.
1	2 - 6	< 20cm	>70% of original depth	Minimal instances of sheet-wash and gully erosion.
2	3 - 8	< 50cm	>50% of original depth	Minimal-moderate erosion occurring but limited to localised areas.
3	4 +	> 50cm	>40% of original depth	Moderate erosion occurring.
4	4 +	Any > 80cm depth	>30% of original depth	Heavy erosion occurring.

A general inspection of each slope for rills, gullies and washouts will be undertaken in addition to transect inspection. This can be accomplished by a walkover of the site. The purpose of this walkover is to document significant erosion that may be present outside of the transect area. Where a washout is encountered, an estimate will be made of its area. If multiple washouts are encountered, an estimate of the percentage of the rehabilitation area disturbed by washouts will then be made (i.e. 5%). Within the annual rehabilitation report the results of each 50m transect will be presented with additional areas of significant erosion documented. Surface inspection following significant rain events will be undertaken in order to identify erosion events and allow for remedial action to be taken

LFA analysis of soil surface indices will be performed concurrently along with the erosion inspection. The same transects will be suitable for this purpose and will contribute to the efficiency and cost effectiveness of the monitoring program.

For each rehabilitation area requiring monitoring, soil analyses are required to confirm factors outlined in the Completion Criteria. It is recommended that soil sampling must adopt the following methods as adapted from the Australian Soil and Land Survey Field Handbook³:

- One soil sampling site for each 5 ha inspected.
- At each soil sampling site, samples should be collected from 0cm, 10cm, 20cm and 50cm depth.
- Soil samples should be analysed for the following at a NATA accredited laboratory:
 - ph and electrical conductivity.
 - Nutrients (ammonia, total nitrogen and total phosphorous).
 - Cation exchange capacity.
 - Total organic matter and total organic carbon.

The ratio of carbon (total organic carbon) to nitrogen (total nitrogen, percentage by weight) is useful to determine the capacity of the soil to support microbial populations. Comparison to reference site data will determine when conditions are suitable and meet the surrounding areas.

LFA and soil analysis will be carried out at both the rehabilitation and reference sites. Over time this will provide sufficient data sets to perform detailed statistical comparisons between the sites. This

analysis will allow the identification of soil chemistry and soil surface indices trends either towards or away from rehabilitation goals.

11.2 Vegetation Survey

Within each 5ha of rehabilitation area a 50m by 10m belt transect must be sighted. Each belt transect will be surveyed as follows:

- Ten random quadrats (1m²) analysing overall vegetation cover, percentage of dry matter cover, percentage of vegetation cover and groundcover species composition.
- Trees/shrubs identified to a species level, approximated for height, measured for diameter at breast height (DBH) and counted for species abundance.

This information will be required to assess the Completion Criteria (see Appendix C). Any signs of adverse health conditions will be noted. Fauna use of the rehabilitation areas will also be noted. All vegetation surveys will be completed in accordance with the Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland⁴ (or appropriate similar reference documents).

11.3 Reference Sites

Reference sites for monitoring will be established to assess how rehabilitation is progressing for the mine in relation to localised vegetation. These reference sites are used as benchmarks for rehabilitation success. Two reference sites will be established in areas that are unlikely to be affected by mining. The suitability of these sites will be verified in the field for their appropriateness as reference sites. All reference sites will be assessed using the same methods to those adopted for rehabilitation sites.

Potential reference sites have been identified in Figure 10. These potential reference sites will be evaluated for suitability at an appropriate time in the future, closer to activation of rehabilitation actions.



Figure 10. Potential rehabilitation reference sites.

11.4 Rehabilitation Success Criteria

Rehabilitation success criteria for the rehabilitation site are contained in Appendix C.

12 Rehabilitation Plan Administration

12.1 Implementation and Maintenance of the Rehabilitation Plan

Capricorn Stone Products Pty Ltd, as the EA holder has sole and full responsibility for ensuring full implementation of this Rehabilitation Management Plan, including:

- That the post mine land use objective and final rehabilitation occurs across the site in accordance with the RMP.
- Monitoring and maintenance of rehabilitated landforms as constructed in accordance with the RMP is the responsibility of the EA holder until they meet the success criteria.

12.2 Performance and Review of the Rehabilitation Plan

It is recommended that this RMP is reviewed and audited with each Plan of Operations submission. Any changes in operational practices must be incorporated into the rehabilitation plan and communicated to employees and contractors on-site. As operation of the mine progresses and closure of the mine is approached, it is vital that the RMP is carefully reviewed.

The following criteria will be used to determine if the RMP is effective.

- Rehabilitated areas are safe to humans and wildlife.
- Post mine land uses are non-polluting.
- Post mine land uses are stable.
- Able to sustain the agreed mining land use.

12.3 Responsibilities

Responsibilities of all personnel associated with the site towards the effective management of rehabilitated areas are outlined in Table 3.

Table 3. Responsibilities under RMP.

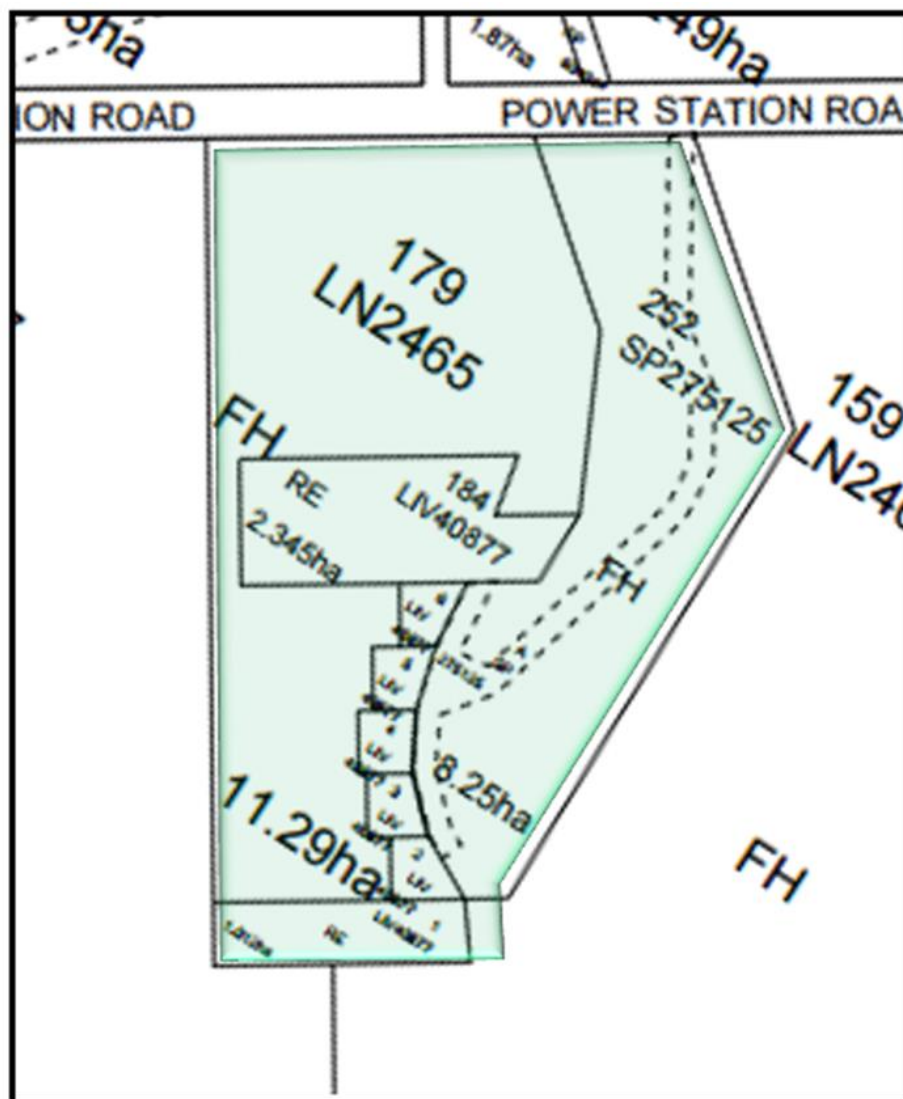
Personnel	Responsibilities
Capricorn Stone Products Pty Ltd Senior Executive	• Shall ensure that a formal review of this RMP is made with each Plan of Operations submission. • Shall ensure that adequate resources and direction are available for this RMP to be further developed (where required) and effectively implemented. • Shall ensure appropriate communication of the RMP to all applicable mine staff.
All Supervisors	• Shall ensure that the RMP outline is followed. • Shall recommend or act on recommendations to rectify any deficiencies found in this RMP.
Mine Workers and Contractors	• Shall comply with this RMP and ensure rehabilitation management issues are adequately dealt with.

12.4 Reporting

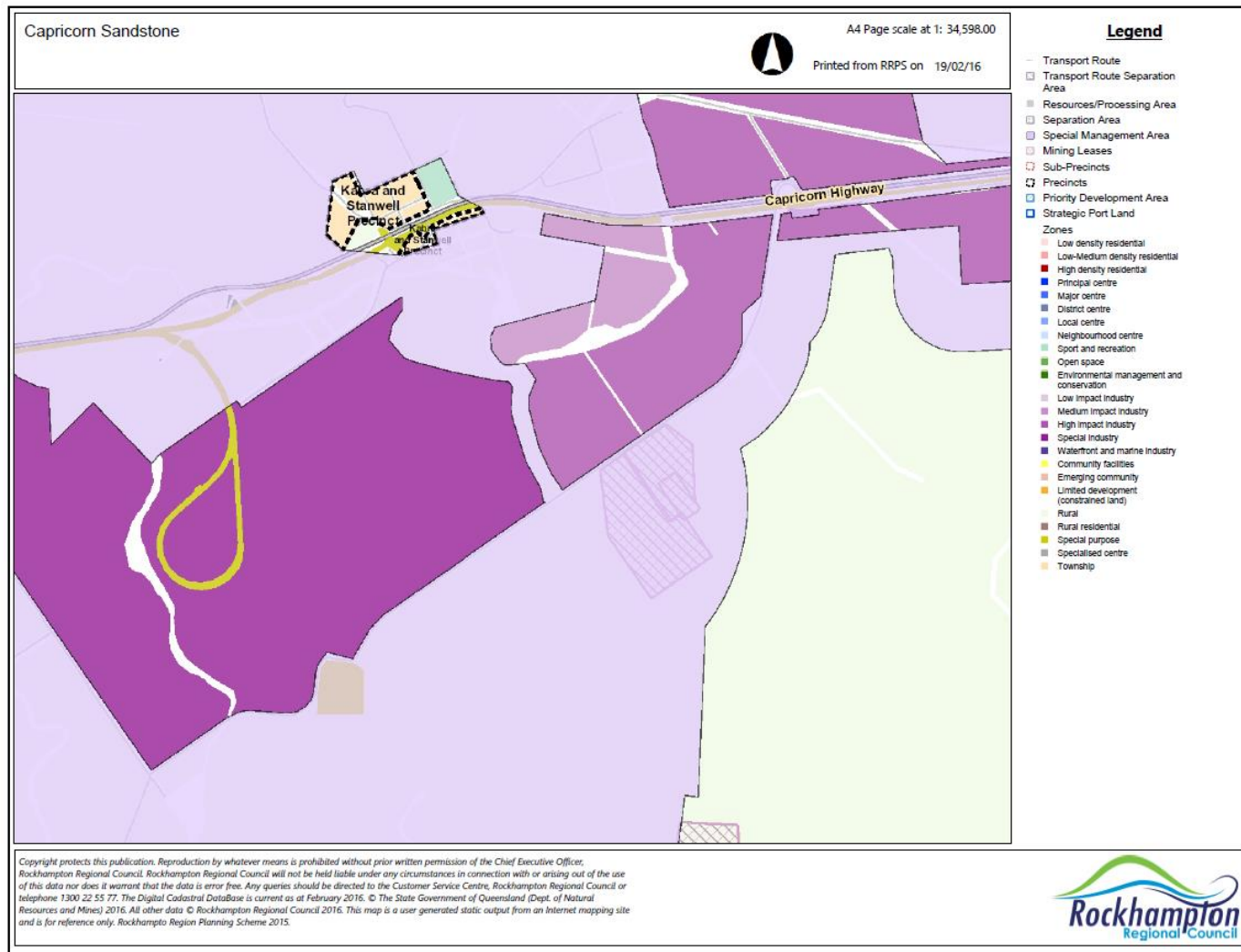
Monitoring of rehabilitated areas will be undertaken in accordance with section 8 of this report. This will involve annual site inspections and reporting for the first three years after the completion of initial rehabilitation work, and every five years thereafter until rehabilitation success criteria are met. This monitoring schedule is indicative of a best case scenario situation and may require alteration in accordance with site requirements.

13 Appendices

13.1 Appendix A – Land parcels covered by ML 7341 and 80102 (Approximate).



13.2 Appendix B – Surrounding Land Uses



13.3 Appendix C – Rehabilitation Success Criteria

Mine Site Rehabilitation Goal	Mine Site Rehabilitation Objective	Rehabilitation Indicators	Rehabilitation Completion Criteria	Evidence of Compliance to be Supplied with Completion Criteria
Long Term Safety	Quarry/mine floor remains safe for humans and animals now and in the future.	Slopes are suitable for human and/or animal traffic.	Certification in rehabilitation report that slopes are safe and risk of future failure is determined to be acceptable.	Geotechnical assessment and certification by a suitably qualified person to determine slip hazard and stability of batters.
		Erosion ratings are suitable for long term safety.	Erosion ratings (as adopted by the erosion rating system) are less than or equal to 2 (as defined in Table 2) at all rehabilitation transects undertaken.	Evidenced in inspections of rehabilitation.
Non-Polluting	Erosion controlled to prevent sediment from entering waterways.	Erosion ratings represent sufficient soil stability to indicate a safe level of sediment loss.	Certification that erosion ratings represent sufficient soil stability to indicate a safe level of sediment loss.	Certification that erosion ratings represent sufficient soil stability to indicate a safe level of sediment loss.
Stable	Topsoil is stable and resistant to erosion.	Erosion rates.	Erosion rates measured or modelled using suitable modelling methods such as RUSLE and are no higher than 50% that of the surrounding environment.	Certification report comparing erosion losses (measured or modelled) from the rehabilitation site with surrounding environment.
		Erosion indicators such as rills, gullies and washouts are minimal.	Erosion ratings for inspection transects (minimum 50m each transect) are less than or equal to 2.	Rehabilitation report or final rehabilitation report outlining erosion ratings on site.

			Areas where washout occur do not exceed 5% of the total rehabilitation area of the site.	Analysis from ground inspections outlined in final rehabilitation report.
			Each individual washout does not exceed 100m ² .	
	Functional erosion structures.	Erosion structures are fit for purpose.	Inspection and certification of erosion and water control structures such as contour banks.	Certification from a suitably qualified person showing structures are fit for purpose after mine closure. Certification evidenced in final rehabilitation report.
	Vegetation cover.	Vegetation cover, percentage and type.	Total ground cover (i.e. grasses) must not be below 70%.	On ground rehabilitation inspection, outlined in final rehabilitation report.
Sustainable Land Use	Soil properties that support and will continue to support the desired final land use.	Chemical properties of topsoil and soil profiles that are within the root zone of proposed vegetation.	pH range of soil is between 5.0 and 9.0 to at least 0.3m.	On ground rehabilitation inspection, outlined in final rehabilitation report.
			Evidence that nutrient and organic matter cycling is occurring (this can be provided by continued sampling for organic carbon and nitrogen for a period of 3 years).	On ground rehabilitation inspection, outlined in final rehabilitation report.
			Cation exchange capacity greater than 10meq/100g.	On ground rehabilitation inspection, outlined in final rehabilitation report.
			Root zone salinity is less than 0.6 dS/m (in a 1:5 soil mixture)	On ground rehabilitation inspection, outlined in final rehabilitation report.
	Vegetation is suitable for the post mining land use.	Physical parameters of the soil.	Topsoil is >150mm thick across all vegetated areas.	On ground rehabilitation inspection, outlined in final rehabilitation report.

			Erosion ratings (as adopted by the erosion rating system) are less than or equal to 2 (as defined in Table 2)	On ground rehabilitation inspection, outlined in final rehabilitation report.
		Vegetation diversity.	Weed prevalence and occurrence is no greater than the pre-mining land use	On ground rehabilitation inspection, outlined in final rehabilitation report.
			An appropriate shrub density within 1 standard deviation of an appropriate reference site measured in shrubs per ha occurs across the rehabilitation site.	On ground rehabilitation inspection, outlined in final rehabilitation report.

13.4 Appendix D – References

1. Australian Government Department of Agriculture Fisheries and Forestry 2016, Australian Soil Resource Information System, viewed 20 October 2016, <http://www.asris.csiro.au/index.html>
2. Tongway, D, J & Ludwig, J, A 2011, Restoring Disturbed Landscapes, Island Press, Washington.
3. Mc Donald, R, C, Isbell, R, F, Hopkins, M, S, Walker, J, & Speight, J, G 1998, Australian Soil and Land Survey: Field Handbook, 2nd edn, CSIRO Publishing.
4. Neldner, V, J, Wilson, B, A, Thompson, E, J and Dillewaard, H, A 2005, Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 3.1. Updated September 2005. Queensland Herbarium, Environmental Protection Agency, Brisbane, 128 pp.

Appendix F – Landholder Agreement

CAPRICORN STONE PRODUCTS

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24 November 2021

RE: Landholder Agreement – Rehabilitation Requirements for EPML04041216, Capricorn Stone Products Pty Ltd, Stanwell QLD.

This Landholder Agreement relates to the activities being conducted under Environmental Authority (EA) EPML04041216 on ML7341 and ML80102, located at 227 Power Station Road, Stanwell 4702.

The activities being undertaken under EA EPML04041216 are conducted by Capricorn Stone Products Pty Ltd.

The majority of the land under the authority of EA EPML04041216 is freehold, owned by Capricorn Stone Products Pty Ltd.

In the circumstances that Capricorn Stone Products Pty Ltd (as the EA holder) cease mining and extraction activities under the authority of EA EPML04041216, Capricorn Stone Products Pty Ltd (as the landholder) agree to accept land covered by the authority of EA EPML04041216 back in accordance with the items detailed in the following sections.

Areas to be retained by landholder

The areas to be retained on site by the landholder post mining for potential future industrial use without additional rehabilitation are as follows:

- Lay down areas.
- Administration building, process buildings (and equipment), staff amenities.
- Water management infrastructure (on site dams).
- Access roads to be left in-situ for the purpose of access around the site including to a number of internal Lots on Plan which are reserve parcels and unallocated state land and to facilitate access for rehabilitation activities.

The location of these areas can be seen in Figure 1. The yellow polygons Lay down areas, the blue polygons are the onsite dams, and the purple polygons are the administration, processing and staff amenity buildings, and the red lines are internal roads.

The size of the area to be retained by the landholder post mining for potential future industrial use without additional rehabilitation is approximately 7.90 ha.



Figure 1. Areas and locations of infrastructure to be retained by the landholder. Yellow polygons are set down areas, blue polygons are dams, purple polygons are administration, workshop, processing and staff amenities and red lines are roads

Signed: 

Name: Reece Gough

Position: Director

Date: 24 November 2021

Capricorn Stone Products Pty Ltd (as EA holder and landholder)

PMLU – Rehabilitation Area Risk Assessment						
Risk Identified	Source of Risk	Ability to Control	Consequences	Cumulative Affect	Control Measures	Level of Risk to achieving Rehabilitation Milestones
Lack of substrate	Erosion from Stormwater	High	Vegetation does not establish	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for erosion management See RMP for monitoring requirements	Low
			Loss of pioneer species	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for erosion management See RMP for monitoring requirements	Low
			Loss of propagules, organic matter, nutrients and soil microorganism	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for erosion management See RMP for monitoring requirements	Low
Moisture deficit	Low rainfall	Low	Vegetation does not establish	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for water retention strategy.	Medium
					See RMP for watering requirements	
	Loss of water from site due to runoff	High	Vegetation does not establish	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for land contouring strategy	Low
					See RMP for watering requirements	
Suitable species do not colonise	Inappropriate species planted	High	Vegetation community does not resemble reference site	Rehabilitation milestone not achieved Unable to sustain post mining land use	Ensure suitably qualified personnel undertake initial assessment of reference sites	Low
	Inappropriate species planted		Vegetation community does not resemble reference site	Rehabilitation milestone not achieved Unable to sustain post mining land use	Ensure suitably qualified personnel source plants	Low

PMLU – Rehabilitation Area Risk Assessment						
Risk Identified	Source of Risk	Ability to Control	Consequences	Cumulative Affect	Control Measures	Level of Risk to achieving Rehabilitation Milestones
	Inappropriate placement of plants	High	Vegetation community does not resemble reference site	Rehabilitation milestone not achieved Unable to sustain post mining land use	Ensure suitably qualified personnel undertake landscape design	Low
			Vegetation community does not resemble reference site	Rehabilitation milestone not achieved Unable to sustain post mining land use	Ensure suitably qualified personnel undertake planting	
Unstable landform	Erosion from Stormwater	High	Vegetative species unable to effectively colonise	Rehabilitation milestone not achieved Unable to sustain post mining land use	See RMP for erosion management	Low
Unsafe to humans and wildlife	Voids, pits or sheer walls in final design	High	Does not meet rehabilitation criteria	Rehabilitation milestone not achieved Unable to sustain post mining land use	No voids, pits or sheer walls in final design	Low
	Slope on western side unstable	High	Does not meet rehabilitation criteria	Rehabilitation milestone not achieved Unable to sustain post mining land use	Qualified engineer to design final slope	Low
Non polluting	Contamination of environmental values from chemicals used onsite	High	Does not meet rehabilitation criteria	Rehabilitation milestone not achieved Unable to sustain post mining land use	No chemical processes used onsite	Low
	Contamination of environmental values from acid forming rock waste dumps and acid sulphate soils drainage	High	Does not meet rehabilitation criteria	Rehabilitation milestone not achieved Unable to sustain post mining land use	The activity does not interact with acid forming rock or acid sulphate soils	Low
	Contamination of environmental values from interaction with saline aquifers	High	Does not meet rehabilitation criteria	Rehabilitation milestone not achieved Unable to sustain post mining land use	The activity does not interact with saline aquifers	Low

PMLU – Landholder Agreement Area Risk Assessment						
Risk Identified	Source of Risk	Ability to Control	Consequences	Cumulative Affect	Control Measures	Level of Risk to achieving Rehabilitation Milestones
Unstable Landscape	Erosion from Stormwater	High	Area not suitable for future industry	Unable to sustain post mining land use	Erosion control measures continue to operate during post mining land use	Low
Unsafe to humans and wildlife	Buildings and equipment not maintained	High	Injury to humans and wildlife	Unable to sustain post mining land use	Future industry operated as per site management plans and applicable legislation	Low
Pollution of surrounding environmental values	Future industrial activities	High	Environmental harm	Unable to sustain post mining land use	Future industry operated as per site management plans and applicable legislation	Low