Environmental Impact Statement

FAHEYS PIT CONTINUED OPERATIONS PROJECT

LOT 31 DP 1203488, No. 9720 ARMIDALE ROAD
TYRINGHAM NSW 2453

Prepared by:

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Town Planning | Environmental Assessment

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On behalf of:

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September 2023

EIS DECLARATION

EIS prepared by:

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in respect of: Faheys Pit Continued Operations Project

Development Application

Applicant name: Abbey Richards & Toby Sheridan, Sheridans Hard Rock Quarry Pty Ltd
Applicant address: c/- Outline Planning Consultants Pty Ltd
432 Carool Road, CAROOL NSW 2486

Land to be developed: Lot 31 DP 1203488 No.9720 Armidale Road, Tyringham, NSW 2453

Environmental Impact Statement

An Environmental Impact Statement (EIS) is attached.

Pursuant to clause 190(3) of the *Environmental Planning & Assessment Regulation 2021*, and to the best of my knowledge, I declare that this Environmental Impact Statement:

- Has been prepared in accordance with this Regulation.
- Contains all available information that is relevant to the environmental assessment of the development to which the statement relates.
- The information contained in the statement is not false or misleading.

Name: Gary William Peacock, Director,
Outline Planning Consultants Pty Limited

Date: September 2023

Signature:

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Executive Summary

Overview

The owners, Abbey Richards and Toby Sheridan, in conjunction with the quarry operator, Sheridans Hard Rock Quarry Pty Ltd, seek development consent for the continuation and expansion of a small quarry at Tyringham on the Dorrigo Plateau, known as 'Faheys Pit'. The quarry has operated as a quarry for decades.

Faheys Pit is currently used as a source of quarry rock by Sheridans Hard Rock Quarry Pty Ltd, who also operate a quarry at Hernani, located on the Dorrigo Plateau some 8km away. The quarry material won from Faheys Pit is used for a range of purposes, primarily as a road base or select fill. The owners propose to increase the capacity of Faheys Pit to extract and to process up to 150,000 tonnes per annum of quarry material within an enlarged quarry footprint totalling 4.1ha and a total resource of about 1.8 million tonnes, or approximately 36% of the total site area. It is also proposed to deepen the existing quarry. Approximately 64% of the site is to be retained as native vegetation.

The quarry the subject of the proposed quarry development, the subject of this Environmental Impact Statement (EIS), comprises land within the Clarence Valley Local Government area (LGA) comprising Lot 31 in Deposited Plan (DP) 1203488, at No.9720 Armidale Road, Tyringham NSW 2453, having an area of 11.46ha (Project Site). The internal access route to the quarry connects directly with Armidale Road. Refer ***Figures 0.1.and 0.3****.*

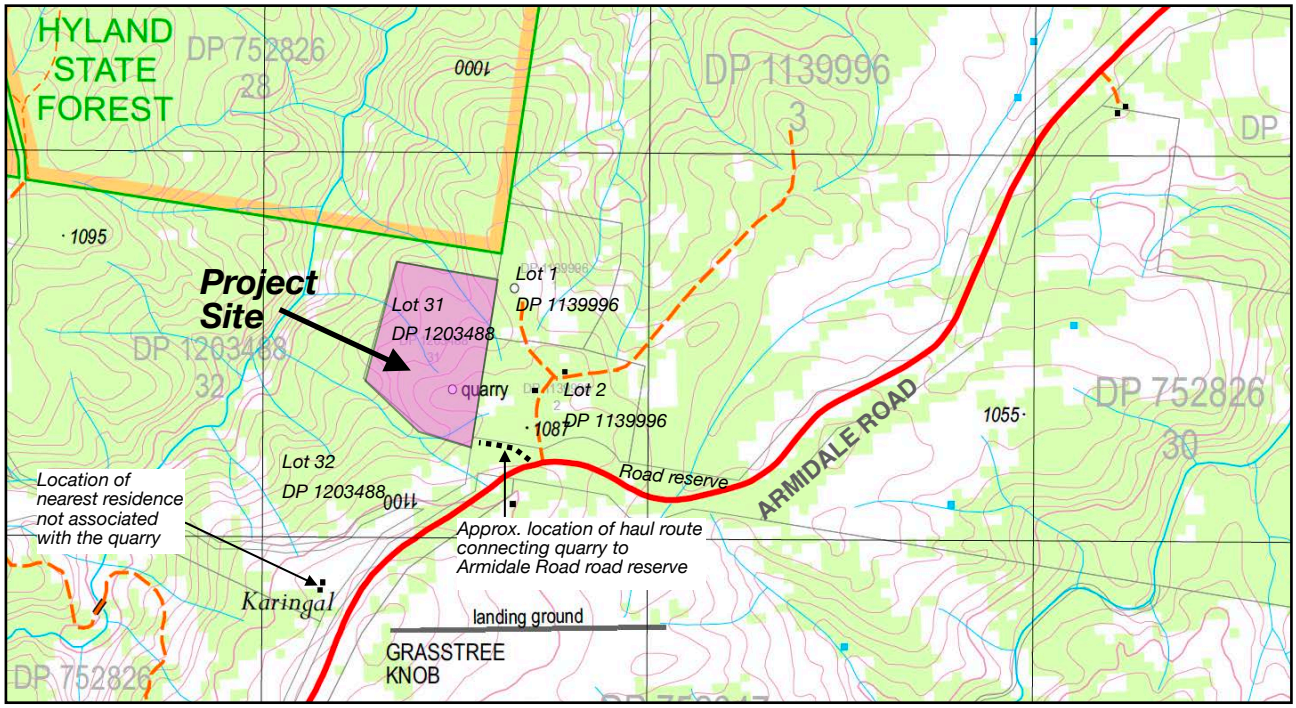


FIGURE 0.1: Location of Project Site- coloured pink

(Map Base Source: SIX Maps Hernani1:25,000 Topographic map 9337-2N, 1km grid)

To the west of the quarry is a rural property comprising Lot 32 DP 1203488, with the Hyland State Forest located to the north. Adjoining the quarry to the east is an existing sawmill and dwelling, on Lot 2 DP 1139996, and a local council quarry pit, known as 'Ellis' Pit', on Lot 1 DP 1139996. The local council quarry pit extends both into the Project Site as well as the Hyland State Forest, despite the fact that it does not enjoy any development consent to do so.

▪ *Planning Approvals Process and this EIS*

The proposed quarry project is 'designated development' under s.4.10 of the Environmental Planning and Assessment Act 1979 (EP&A Act), requiring the preparation of an Environmental Impact Statement (EIS) as it triggers four (4)of the criteria listed in Schedule 3 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation 2021) – clause 26 'Extractive Industries' (ie. quarry), namely, the proposal seeks to extract more than 30,000 cubic metres (about 69,000 tonnes) per annum of quarry material, is located within 40 metres (m) of a 1st order watercourse, involves an area of more than 2 hectares (ha), and it is within 500m of another extractive industry. These four triggers are highlighted in bold in the following extract from Schedule 3 and in ***Figure 0.2****:*

"19 Extractive industries

(1) Extractive industries (being industries that obtain extractive materials by methods including excavating, dredging, tunnelling or quarrying or that store, stockpile or process extractive materials by methods including washing, crushing, sawing or separating)—

(a) that obtain or process for sale, or reuse, more than 30,000 cubic metres of extractive material per year, *or*

(b) that disturb or will disturb a total surface area of more than 2 hectares of land *by—*

(i) clearing or excavating, or

(ii) constructing dams, ponds, drains, roads or conveyors, or

(iii) storing or depositing overburden, extractive material or tailings, or

(c) that are located—

(i) ***in or within 40 metres of a natural waterbody****, wetland or an environmentally sensitive area, or(ii) within 200 metres of a coastline, or*

(iii) in an area of contaminated soil or acid sulphate soil, or

(iv) on land that slopes at more than 18 degrees to the horizontal, or

(v) if involving blasting, within 1,000 metres of a residential zone or within 500 metres of a dwelling not associated with the development, or

(vi) within 500 metres of the site of another extractive industry that has operated during the last 5 years*."*

Given that extraction of more than 30,000 tonnes per year of quarry resource is proposed to be extracted in any one year, and pursuant to s.4.46 of the EP&A Act, an 'integrated development' approval is required from the NSW Environmental Protection Authority (EPA). In addition, given that extraction is proposed within 40 metres of a watercourse, an 'integrated development' approval is also required from the Department of Industry-Water (Water NSW) under the Water Management Act 2000. The proposed quarry development is regionally significant development under Schedule 7 of the State Environmental Planning Policy (Planning Systems) 2021. The Northern Regional Planning Panel is thus the consent authority under Section 4.5 of the EP&A Act.

It is a mandatory requirement that any development application for designated development must be accompanied by an EIS, prepared in accordance with the provisions of Section 4.12(8) of the Environmental Planning and Assessment Act (EP&A Act), which also requires that the EIS be prepared by or on behalf of the applicant in the form prescribed by the regulations. This EIS responds to and addresses the Department of Planning and Environment Secretary's Environmental Assessment Requirements (SEARs) EAR 1722, issued on 30 August 2022, included in ***Appendix A*** *of this EIS, and provides details including the following:*

- *Details of the proposed quarry development.*
- *Assessment of potential environmental impacts of the proposed quarry development in accordance with the Secretary's Environmental Assessment Requirements (SEARS), having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development.*
- *Justification for the proposed quarry development.*
- *Measures proposed to mitigate any adverse impacts on the environment.*

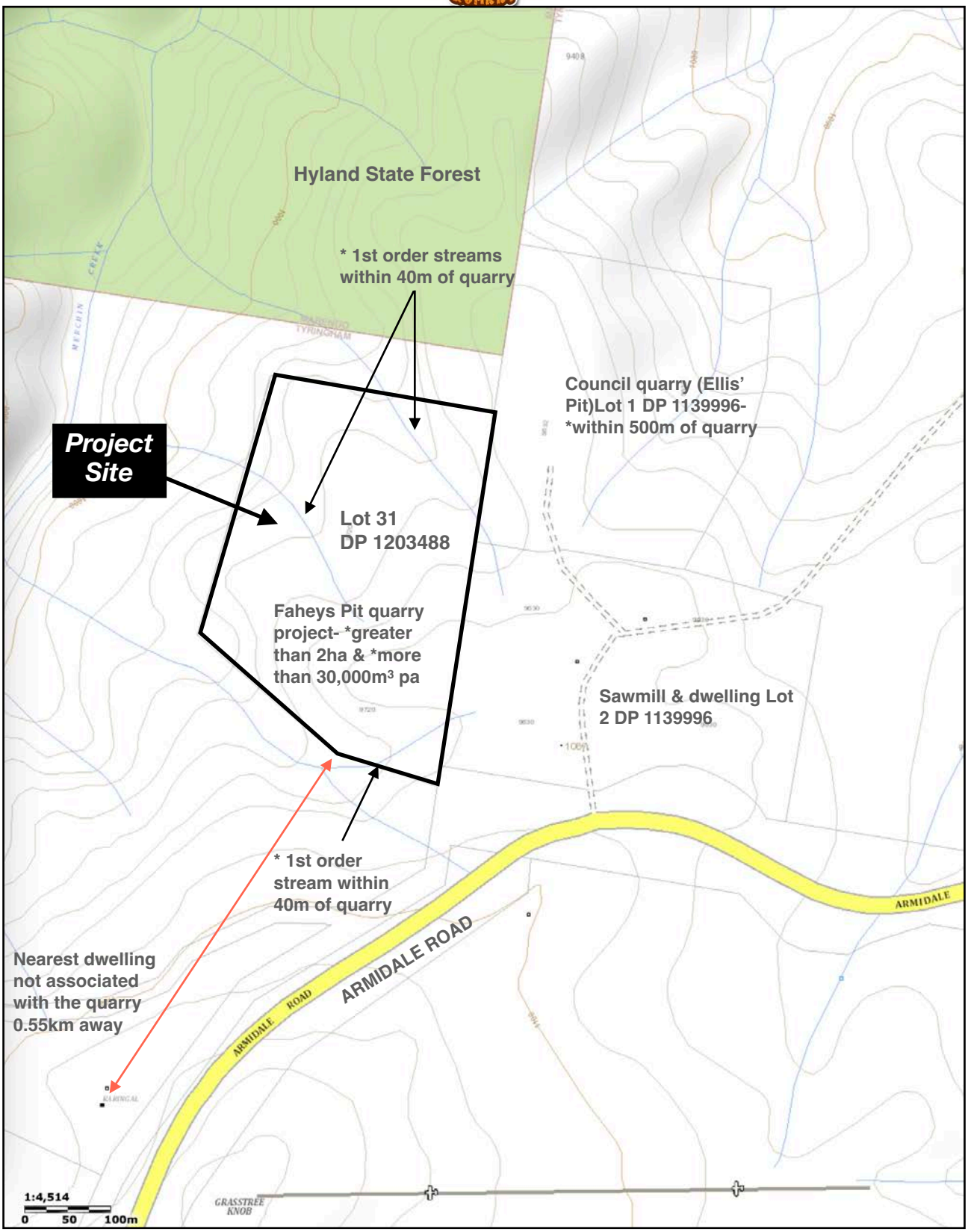


FIGURE 0.3: Project Site & EIS triggers (identified with an asterisk)

(Source: NSW Government Six maps website May 2022)

Under the provisions of the Clarence Valley Local Environmental Plan (LEP) 2011 the project site is wholly zoned RU1 Primary Production. "Extractive industries" as defined, are a use permissible with the consent of Council. Significantly, the project site is not zoned for conservation or similar purposes.

■ The Proposed Quarry Project

The major features of the quarry development proposal include the following:

- *A continuation of quarrying the resource from the project site.*
- *Rate of extraction limited to 150,000 tonnes per annum (pa).*
- *A lateral expansion of the existing quarry footprint and a deepening of extraction, in order to maximise winning of the quarry resource, enabling a continuation of the extraction and production of a range of road construction and allied quarry materials from the quarry.*
- *The total quarry, including the land proposed for lateral extension, will have an area of approximately 4.1ha.*

Table 0.1 presents a summary of the indicative key Project components.

Table 0.1:Key quarry project components

Quarry component	Summary description
Extraction Method	*Bulldozer or excavator used to remove weathered rock, with drill and blast used for unweathered rock.*
Resource	*Weathered and unweathered siltstone, rare lithofeldspathic wacke and conglomerate, comprising Moombil Siltstone geology.*
Disturbance area	*A lateral expansion of existing quarry to include all cleared areas, with extraction of up to about 42 metres in depth. Total quarry area approximately 4.1ha ie. 36% of the total Project Site area (rounded up figure).*
Processing	*Crushing and screening of quarry resource on a campaign basis. Mobile plant and equipment to be brought to the site when required.*
Annual extraction rate	*Up to 150,000 tonnes per annum.*
Transport	*Access to the quarry from Armidale Road, the existing quarry haul route.* *A mix of truck and dog combination, with larger and smaller trucks used where road weight limits allow. It is anticipated that the quarry may generate up to 60 loaded quarry trucks per day.*
Waste management	*Minimal waste materials are anticipated to be generated.*
Hours of operation	*Limited to 7.00am to 6.00pm Monday to Friday (ie. 11 hours operation per day) and 7.00am to 1.00pm on Saturdays (ie. 6 hours operation). Hours of blasting are to be restricted to 9.00am to 3.00pm Monday to Friday.*
Total recoverable resource and project life	*Preliminary estimates indicate that the total quarry resource is estimated to be approximately 730,000 cubic metres-equivalent to about 1.8 million tonnes (Mt).*
Workforce	*Up to 4 employees working on site + contractors (eg. blasting contractor, machinery servicing contractors, refuelers).*
Key environmental issues	*Impacts relating to noise, blasting impacts, rehabilitation and traffic. Rehabilitation of existing quarry workings will also be involved.*

No fixed infrastructure is to be retained on site, save for sediment and erosion controls. Progressive rehabilitation will be undertaken concurrently once extraction of each bench is completed. The project will extend the life of the quarry by up to 20 years, dependent on future quarrying and processing rates. An aerial photograph of Faheys Pit and relationship to surrounding land uses is provided at ***Figure 0.3****. It shows in broad terms where the proposed quarry will generally be sited, superimposed on a current aerial photograph of the site.*

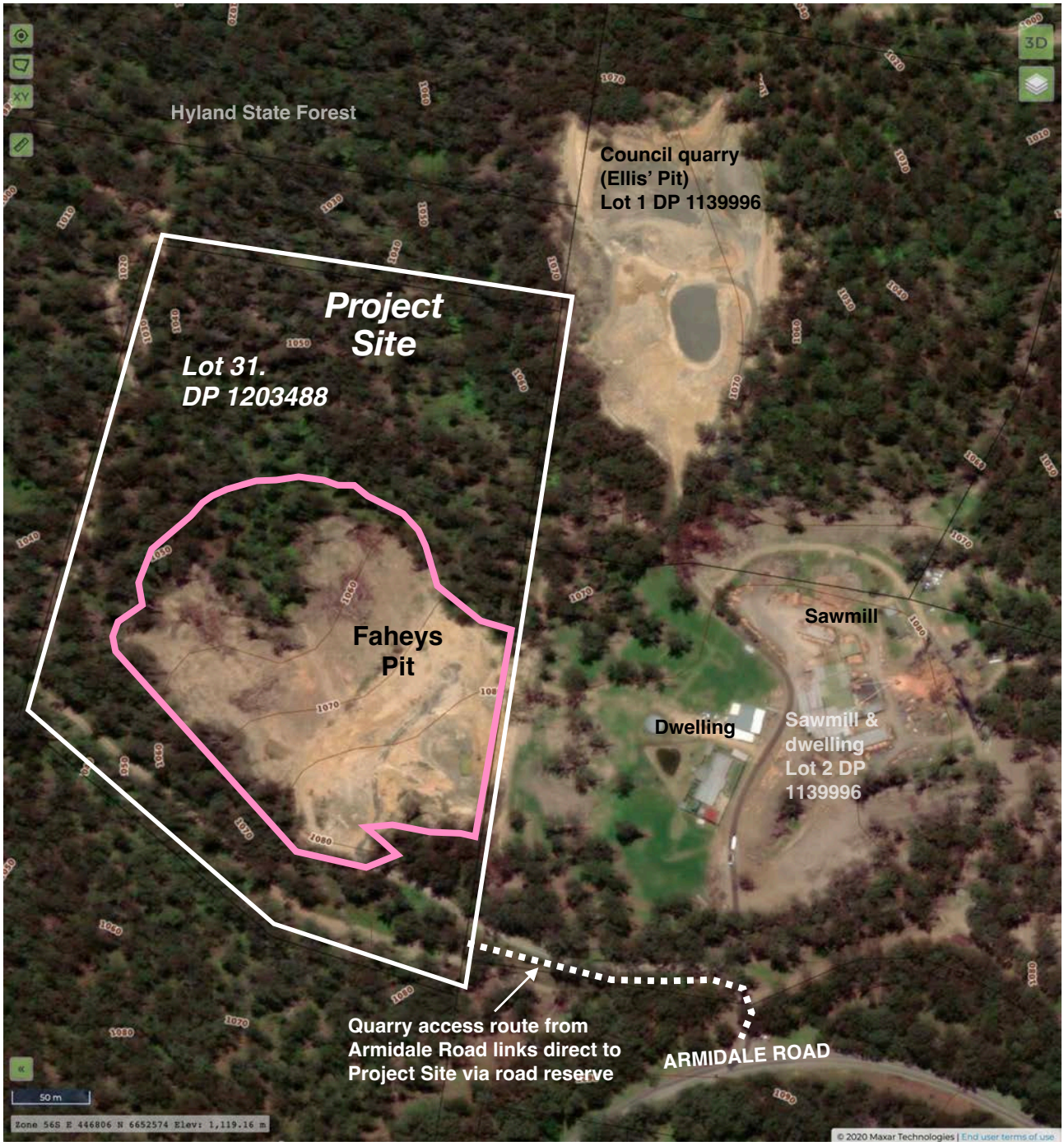


FIGURE 0.2: Aerial Photograph of Faheys Pit & Surrounds - Approx. Quarry Footprint Shown with Pink Edging

(Map source: NSW Government MinView website 7 March 2022.

NOTE: Boundaries are approximate only. MinView cadastral boundaries do not correspond accurately with actual surveyed boundaries)

▪ *Suitability of the Site for the Proposed Quarry Project*

The Project Site is considered to be most suitable for an expanded quarry for a number of reasons, including:

- *The quarry and the internal quarry haul route have an appropriate (RU1) zoning, which permits 'extractive industries' (as defined).*
- *The land supports, in part, an already approved operating quarry. Extractive operations have been undertaken at Faheys Pit for more than 60 years (since before 1960), by a number of operators at varying production rates.*
- *Good road access is available for heavy vehicles to potential customers within and outside of the region.*
- *The quarry is located in a relatively remote rural location, reasonably removed from nearby dwellings not associated with the quarry.*
- *With the exception of the neighbouring sawmill site, no views are possible of the existing or proposed quarry from any rural residences.*

Based on the above factors, the project site is considered the most suitable location for the project.

▪ *Mitigation Measures and Impact Assessment*

The proposed quarry project will provide sufficient volumes of road base material to service existing and proposed local and regional road and related infrastructure projects, including the upgrade of Waterfall Way back to Armidale, planned over the next 20 years. Moreover, the wider region is already facing pressure for the reliable supply of road base material in line with already committed projects. These pressures are set to continue, with limited opportunities for new or existing quarries being approved to meet these increased demands.

Various specialist firms have been engaged to undertake comprehensive technical assessments of the potential impacts associated with the quarry project, including noise and ecological assessments. These technical assessments, summarised in the body of this EIS document and provided in full in the appendices to this EIS, have recommended suitable mitigation measures to avoid or mitigate identified impacts. The following sub-sections provide an overview of the main findings of these technical assessments and other assessments, however, to gain a proper understanding of the project and identified impacts, the detailed assessments should be read in their entirety.

Mitigation measures are proposed to be incorporated into an overall quarry management plan.

Soil and Water Resources

A centrepiece of the soil and water management strategy is the diversion of 'clean' water around the new quarry area and the collection and retention of all 'dirty' water (ie. runoff from disturbed areas) within the active or disturbed parts of the quarry footprint. This will ensure that run-off does not contaminate off-site areas or downstream waterways- an important objective given the quarry lies within a designated drinking water catchment. Extraction is sought on land located well above the groundwater level.

Coupled with this, the quarry operator will implement the following measures:

- *The use of appropriate soil stripping, handling and stockpiling procedures.*
- *All drainage from within the active quarry area and disturbed lands will be directed to the sediment basins, including a large proposed sediment basin at the base of the quarry- the latter designed to capture all relevant design stormwater flows and discharges.*
- *The captured water from the sediment basin system, existing and proposed, has the potential to be then re-used for quarry-related purposes such as dust suppression.*
- *The effectiveness of these sediment control measures is to be continuously monitored by the quarry operator and improvements made where necessary.*

The proposed quarry development has been designed, sited and will be managed to avoid any significant adverse stormwater, groundwater, erosion and sedimentation, or water quality impacts. It is not proposed to extract water from the any watercourse or groundwater. Because stormwater emanating from disturbed lands within the quarry can be wholly contained within the quarry footprint there is a remote likelihood of any off-site impacts, in particular in terms of:

- *Water quality and flows within any downstream watercourse.*
- *Aquatic and riparian species, habitats and ecosystems.*
- *The stability of the bed and banks of the watercourses downstream.*
- *The free passage of fish and other aquatic organisms within or along watercourses downstream.*
- *The need for any future rehabilitation of downstream watercourse and riparian areas.*

Noise and Blasting

In the interests of protecting neighbourhood amenity, the quarry is to be operated during daytime periods only. The Project Site is relatively isolated from neighbouring residences, and is bounded to the east by an existing local council quarry and a sawmill, both uses generating significant noise in their own right and impacting on neighbourhood background noise amenity levels. Noise agreements have been executed with the immediate neighbours to the east and to the west. The noise assessment by Vipac Engineers and Scientists predict that noise levels generated by the quarry or by quarry traffic will comply with the relevant noise criteria at the nearest residences for all quarry operations during neutral and adverse weather conditions. The blasting assessment by Vipac Engineers and Scientists predict that the proposed blasting would comply with the relevant EPA air blast overpressure and ground vibration criteria at the closest residences to the Project Site.

Air Quality

Various dust abatement measures are proposed to be implemented on site to abate dust nuisance. The results of the modelling by Vipac Engineers and Scientists show that the TSP and dust deposition predictions comply with the relevant criteria and averaging periods at all sensitive receptors modelled. The annual average PM10 and PM2.5 predictions also comply with criteria and the 24 hour average PM10 and PM2.5 predictions. Based on the technical assessment undertaken, Vipac conclude that air quality should not be a constraint to the proposed quarry development.

Contamination

The Stage 1 contamination assessment by Ballpark Environmental finds that the Project Site presents an acceptable low level of risk for site contamination and is suitable for its proposed ongoing use as a quarry.

Landscape and Visual Impacts

The existing quarry is proposed to be laterally expanded and deepened, however, with the exception of the neighbouring sawmill, no neighbours will be visually impacted. This is due to the fact that the quarry is visually buffered from surrounding properties and from Armidale Road by dense stands of existing vegetation and topographic barriers. No changes to visual amenity are likely to arise from the proposed quarry development. Therefore, visual impacts are assessed to be minimal and satisfactory.

Bushfire

The project site is in a High bushfire prone area, with fires from the recent 2019 catastrophic fires reaching into the site up to the edge of the current worked quarry area. Refer ***Appendix B****. In the face of perceived imminent risk to life and property from further fires in late 2021 some of the burnt out timbered area was cleared. The proposed quarry does not seek to provide for any permanent occupation of the Project Site: the quarry used intermittently and on a campaign basis when the need arises for road base materials for various projects. With the various bushfire safeguards and controls proposed, it is considered that the bushfire hazard to the Project Site would be acceptable and that the proposed operations would contribute to reducing potential bushfire hazard, in particular to the dwelling to the east. It is recommended that a bushfire emergency management and evacuation plan be prepared.*

Heritage

The Project Site has not been identified as containing any significance in terms of Aboriginal or European heritage values. No Aboriginal items or relics of heritage significance occur within the proposed quarry area. It has been assessed that the proposal would not adversely impact on items of Aboriginal or European-heritage significance or cultural values. In the unlikely event that previously unknown Aboriginal object(s) and/or sites are discovered during works associated with the quarry, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites, in consultation with Aboriginal stakeholders

Traffic

It is proposed that a maximum of up to 60 loaded trucks per day would transport quarry products from the quarry back to Armidale Road via an existing internal access route. The traffic impact assessment by Streetwise has determined that the proposed volumes of heavy truck traffic volume attributable to Faheys Pit would not significantly impact on existing road safety and performance. Some minor clearing of trees within the road reserve opposite the intersection with Armidale Road is required in order to achieve satisfactory sight distances, however, this work is required regardless of the proposed development.

Flora and Fauna

Most of the proposed quarry site is cleared or disturbed land. No threatened flora species were recorded, and therefore impacts to threatened flora species are not anticipated. No significant direct impact to fauna is expected during vegetation clearing; however, the clearing itself does provide a residual risk to fauna due to direct mortality during clearing works. This risk can be minimised having regard for the safeguards, management controls and mitigation measures proposed. The Project Site is not zoned for conservation purposes, nor has it been identified in the LEP as having any terrestrial habitat or riparian values.

Importantly, approximately 64% of the project site is proposed to be retained under native vegetation.

Social and Economic

The quarry has been in operation for more than 60 years and is well known to local residents. Assuming the safeguards and controls nominated to manage impacts on other environmental aspects are adopted, especially in relation to heavy quarry truck traffic, the overall impact on local amenity is anticipated to be satisfactory. The proposed quarry has been designed to minimise the social and economic cost on adjoining land owners, local and regional communities. The Project will maximise socio-economic benefits to the State of NSW and to the local economy by the recovery of the additional, valuable resource from the quarry site that would otherwise be sterilised, without material additional environmental or social costs.

Quarries stimulate local communities through investment and by providing jobs. Positive economic impacts include the provision of much-needed road base to local and regional road and associated infrastructure projects and increased employment opportunities arising from an expanded quarry development.

▪ Conclusion

The land the subject of the proposed quarry development is mostly cleared and disturbed land, and has no likely significant environmental constraints to development. The project site is well removed from residential areas in a relatively remote rural location. It has safe and adequate access suitable for the proposal. The proposed quarry development has been designed to avoid and minimise adverse biophysical, social and economic impacts, including future bushfire impacts, and is anticipated to result in satisfactory environmental impacts in accordance with the jurisdictional requirements of s.4.15(1) of the Environmental Planning and Assessment Act 1979. Overall, this EIS concludes that the proposed quarry development is in the public interest and is not predicted to cause significant environmental impacts or pose significant environmental risks.

PHOTOGRAPH 0.1: Drone photograph of current active pit and sediment basin at Faheys Pit, with neighbouring sawmill in background

(Source: Drone photography Newnham Karl Weir surveyors March 2022)

1. Introduction

1.1 Overview of Project, Objectives

The quarry development the subject of this Environmental Impact Statement (EIS), known as Faheys Pit, comprises Lot 31 in Deposited Plan (DP) 1203488, at No.9720 Armidale Road, Tyringham NSW 2453 in the Clarence Valley Local Government area (LGA). Refer to **Figure 0.1** and **Figure 1.1** showing the project site in its regional setting.

FIGURE 1.1: Project Site- regional setting

(Map Base Source: Whereis online mapping)

Abbey Richards and Toby Sheridan are the owners of Faheys Pit, purchased in 2020, with Sheridans Hard Rock Quarry Pty Ltd (ABN 58 151 721 989) the appointed quarry operator (collectively referred to hereafter as the 'proponents'). The proponents seek approval for the following, henceforth referred to as 'the project':

- A continuation of quarrying the resource from the project site.
- A lateral expansion of the existing quarry footprint and a deepening of extraction, in order to maximise winning of the quarry resource.
- Rate of extraction limited to 150,000 tonnes per annum (pa).

The principal objectives for the quarry project may be summarised as follows:

- The optimisation of a quarry resource from a well established quarry, utilising existing access.
- Provide fit for purpose, safe and compliant quarry operation undertaken in an environmentally responsible manner and to create a safe, stable landform, capable of being effectively rehabilitated.
- Extending the life of an existing quarry and to maximise the winning of a valuable quarry resource.
- To ensure that a quarrying activity and rehabilitation will not contribute to, or exacerbate, fire hazards.
- To effectively manage and to mitigate noise, dust and blasting impacts associated with quarrying on the project site, and to avoid the quarry being a source of nuisance to surrounding land-users.

1.2 Background to the Project

Faheys Pit has been in operation since before 1960 (source: Local Government Engineering Services 1995 EIS in support of extraction at Faheys and Ellis'Pits). It adjoins a pit owned and operated by Clarence Valley Council, known as Ellis' Pit. Both pits have since been developed and expanded beyond that approved in the development consent issued by (then) Nymboida Shire Council on 1 April 1996 (DA41/95), and in the case of the Council quarry, expanded beyond its site boundaries and into neighbouring properties- refer **Appendix B**.

Development consent is required to allow Faheys Pit to continue operating and to expand beyond the limits imposed in the 1996 consent. Given the issued consent DA41/95 applies to both Faheys Pit as well as to the Ellis Pit, it is not proposed to surrender the current consent, if the Project is approved. No permanent infrastructure is proposed- subject to separate assessment and approvals, where required.

1.3 Restrictions and Covenants

No restrictions or covenants apply to the Project Site.

1.4 EIS Project Team

The preparation of this EIS was undertaken and managed by Gary Peacock who holds a Bachelor of Town Planning (UNSW), is a registered member of Planning Institute of Australia, and is a principal and director of Outline Planning Consultants Pty Ltd. Outline Planning Consultants Pty Ltd has relied upon the adequacy and accuracy of the other assessments and advice contained in the following reports, plans, and other information prepared by the following specialist consultant teams provided below, and should be read in conjunction with the following table.

Table 1.4: EIS Project Team

Specialist area of expertise	*Name of consulting firm*	*Names of specialist personnel*
Details of the proposed quarry project, including design and operational aspects	*Abbey Richards (co-owner), Sheridans Hard Rock Quarry Pty Ltd and Outline Planning Consultants*	*Abbey Richards, Graham Sheridan, and Gary Peacock*
Roads and traffic assessment	*Streetwise*	*Andy Davis Traffic Engineer* *Craig Nethery Senior Engineer*
Stormwater, Drainage	*Martens & Associates and Outline Planning Consultants*	*Terry Harvey, project engineer, and Gary Peacock*
Ecology, Rehabilitation	*Bower Ecology*	*Steve Jarman*
Air quality, greenhouse gas impacts	*Vipac*	*Dr Stephen Thomas*
Noise impacts	*Vipac*	*Jackson Yu and Patrick Drake*
Contamination	*Ballpark Environmental*	*Joel Parkin, Andrew Ballard*
Geotechnical	*Douglas Partners*	*John Niland*
Surveying	*Newnham Karl Weir and Partners Pty Ltd*	*James Spagnolo*
Aboriginal heritage	*Niche Environment & Heritage*	*Catriona Graham*

Except where otherwise indicated, the remaining parts of the EIS were prepared by Outline Planning Consultants.

1.5 Content of this EIS

This EIS complies with the Planning Secretary's Environmental Assessment Requirements (SEARs) EAR 1722 issued on 30 August 2022 pursuant to the provisions of Section 4.12(8) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* and Part 8 Division 5 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021), as summarised in the accompanying Table 1.5.

Table 1.5: Compliance with issued SEARs (EAR 1722)

EAR 1722 EIS Requirement	*Where addressed in this EIS*
General requirements including: • *Executive Summary* • *Comprehensive description of the quarry development.* • *Conclusion, justification of quarry project.* • *Signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading*	*Executive summary* *Section 3* *Section 2.7, 8* *Refer to EIS page 2*
Consultation required	*Section 6*
Noise, blasting & vibration impacts	*Sections 3.5, 4.2 & 7.3*
Air quality impacts	*Sections 3.5, 4.2 & 7.3*
Water	*Sections 3.5, 4.2 & 7.3*
Biodiversity	*Sections 4.2 & 7.3*
Heritage	*Sections 4.2 & 7.3*
Traffic & Transport	*Sections 3.5, 4.2 & 7.3*
Land resources	*Sections 2.2, 4.2 & 7.3*
Waste	*Sections 3.9, 4.2 & 7.3*
Hazards	*Sections 2.2, 4.2 & 7.3*
Visual	*Sections 2.2, 4.2 & 7.3*
Social & economic	*Sections 2.3 & 7.6*
Rehabilitation	*Sections 3.11, 4.2 & 7.3*
Relevant, State, regional and local planning instruments, guidelines, policies	*Sections 5 & 7.2*

1.6 EIS Report Structure

The purpose of this EIS is to enable consideration of the implications of the proposed quarry project. The EIS has been prepared in accordance with the EP&A Act and the EP&A Regulation 2021. An overview of the layout of this EIS is provided below:

Executive Summary: Provides a brief overview of the proposed quarry development and the EIS.

Section 1: Introduces the quarry project, provides a background to the project and project objectives, the EIS project team, and the EIS report structure.

Section 2: Outlines the strategic context for the quarry project and key strategic issues that are relevant to the assessment of the project, including justification of the project, relevant plans that establish the regional or local land use planning context for the project, the site and surrounds considered in the context of key risks or hazards for the project and cumulative impacts potential.

Section 3: Provides details of the quarry project, including plans for the continued quarry operation and proposed expansion of quarrying operations at Faheys Pit. This part of the EIS also includes details of management measures proposed, along with alternatives to the Project.

Section 4: Provides a full description of the measures to mitigate adverse effects of the Project. the results of the assessment and mitigation of the potential impacts of the quarry project.

Section 5: Outlines the statutory planning context for the quarry project, the applicability of planning and environment legislation and approvals that must be obtained.

Section 6: Summarises the findings of the community engagement that was carried out for the quarry project during the preparation of the EIS.

Section 7: Provides an assessment of the likely impact on the environment of the Project.

Section 8: Provides a justification and evaluation for the quarry project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development.

The appendices to the EIS present the following additional information including:

- The Secretary's Environmental Assessment Requirements (**Appendix A**).
- Existing development consent for the quarry, Council report on Ellis' Pit (**Appendix B**).
- Geotechnical assessment by Douglas Partners (**Appendix C**).
- Property Report (**Appendix D**).
- Contamination Report by Ballpark Environmental (**Appendix E**).
- Quarry plan drawings by Abbey Richards (**Appendix F**).
- Water balance report by Martens & Associates- refer **Appendix G**.
- Ecological assessment by Bower Ecology - refer **Appendix H**.
- Aboriginal heritage assessment by Niche- refer **Appendix I**.
- Consultation documents- refer **Appendix J**.
- Noise impact assessment report by Vipac- refer **Appendix K**.
- Air quality, greenhouse gas impacts assessment by Vipac- refer **Appendix L**.
- Roads and traffic assessment by Streetwise- refer **Appendix M**.

2. Site Features and Context

The following section identifies the key strategic issues that are relevant to the assessment of the Project.

2.1 Overview

Faheys Pit is one of only a few privately owned hard rock quarries operating on the Dorrigo Plateau, supplying road base material to various roads and allied infrastructure projects in the region. Faheys Pit has a long history of quarrying, since prior to 1960. It is situated within a sparsely populated rural area, surrounded by a mix of forestry, agriculture, a sawmill, another quarry (Ellis Pit) and rural dwellings. The topography and forest surrounding the project site provides effective shielding from Armidale Road and from nearby rural residences.

Transport for NSW is delivering vital road improvements along Waterfall Way from the Pacific Highway at Raleigh to Armidale. The quarry is ideally located adjacent to a major regional transport route, Armidale Road, which links the quarry to roads and allied projects planned, in particular, for Waterfall Way from the Pacific Highway back to Armidale. As such, the Project will assist in meeting the strong ongoing demand for the quarry products, driven primarily by these major planned and existing road works. There are limited sources of suitable quality quarry material to meet this forecast demand and Faheys Pit is well positioned to cater for this growth given its strategic location close to an arterial road, and the limited alternative supply available to serve these future markets and roads infrastructure projects. The Project would offer the opportunity to optimise the recovery of a valuable, increasingly scarce, quarry resource. Consequently, the Project represents the efficient use of an available extractive material resources.

In short, the project will deliver a range of benefits, including but not limited to the following:

- The Project will support the planned future growth of the region, maintain local employment and supply of quarry materials close to markets and existing and future roads projects- the latter according with Direction 9 of the *North Coast Regional Plan 2036*, namely, to strengthen regionally significant transport corridors and corridor strategies, including the NSW Government's 2017 *Waterfall Way Draft Corridor Strategy*.
- The Project will extend the life of the quarry operations at Faheys Pit, without detriment to the environment. Little additional clearing of vegetation is proposed. The project has been designed to ensure that noise and air quality impacts on surrounding properties are satisfactorily minimised. The project site is to be appropriately rehabilitated once quarrying is completed. The quarry is a permissible use in the RU1 zone under the *Clarence Valley Local Environmental Plan 2011* and is not zoned for conservation purposes.
- The Project allows for the maximisation of the recovery of a valuable extractive resource from an already operating quarry. Such a strategy accords with Direction 13 and Action 13.2 of the *North Coast Regional Plan 2036* , namely: "*Plan for the ongoing productive use of lands with regionally significant construction material resources in locations with established infrastructure and resource accessibility*."(p.41)
- The Project will provide continuing employment for quarry workers and contractors dependent on the quarry.
- The Project adjoins an already operating quarry -Ellis Pit-operated by Clarence Valley Council, and an operating sawmill.
- While the Project would increase the number of heavy quarry truck traffic using Armidale Road, there is unlikely to be any detrimental impact on road safety given the existing low traffic volumes using this arterial road and reasonably high standard of the road. Moreover, a Driver Code of Conduct is proposed, similar to that successfully employed at Sheridans Hard Rock Quarry at Hernani, which stipulates safe driving practices at all times will be implemented.
- The project would generate flow-on economic benefits to the region of direct expenditure generated by wages, contractors fees and the sale of quarry products.

From the above, there are demonstrable benefits associated with the project, and with appropriate conditions of approval, these benefits can be achieved without significant adverse social or environmental impacts.

▪ 2.2 Key Features of the Project Site

2.2.1 Locational Context

The Project Site is located at No.9720 Armidale Road, Tyringham NSW 2453. It is located approximately 37km by road to the west of the township of Dorrigo on the Dorrigo Plateau, in the Clarence Valley local government area (LGA). The project site has an area of 11.46ha. It is already utilised as an operating quarry. Refer **Figures 1.1, 1.2** and **2.1**, as well as **Photographs 2.1-2.3**. The internal access route to the quarry traverses Lot 2 DP 1139996 before connecting with Armidale Road, and as a result also forms a part of the land the subject of this development application.

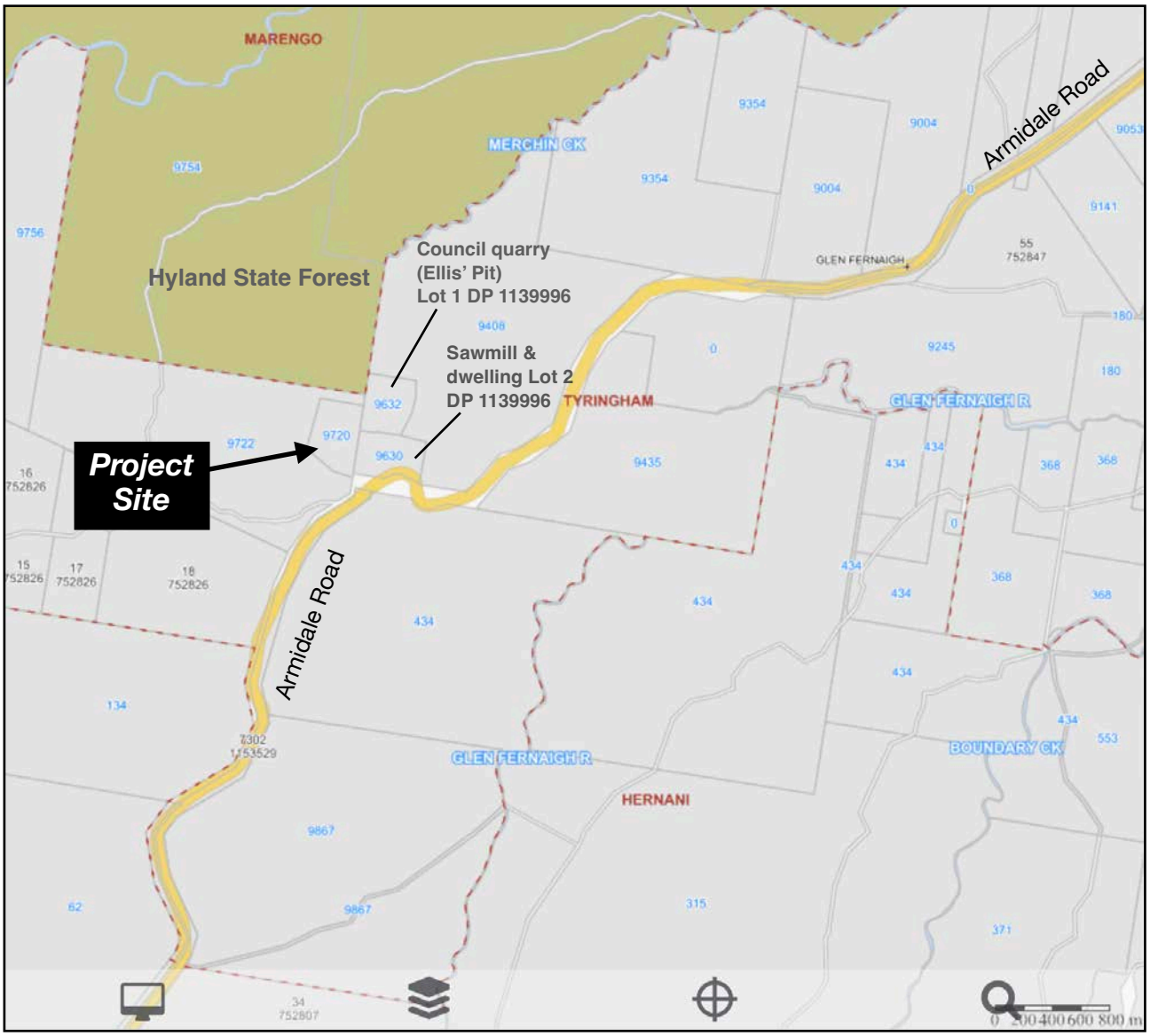


FIGURE 2.1: Locational Context: Project Site

(Source: Clarence Valley Council online mapping)

Faheys Pit site is located in the south-west sector of the Clarence Valley local government area (LGA). The south-west sector of the LGA is mainly forested land covering a land area of 2,501 square kilometres and with an estimated resident population of 993 persons (2020 ABS estimated resident population). Agriculture and forestry industries account for more than 28% of all people employed in this part of the LGA.

The largest town in the Clarence LGA is Grafton (population 17,155 in 2021 Census), which lies 100km to the north of the project site. The nearest township on the Dorrigo Plateau is Dorrigo (population 1,214 in 2021 Census) located some 37km by road to the east.

2.2.2 Description of the Project Site

Site Details & Context

Faheys Pit lies within Lot 31 in Deposited Plan 1203488, No.9720 Armidale Road, Tyringham NSW 2453, which has a total area of 11.46ha.Refer to **Figure 2.2** and **Appendix D**.

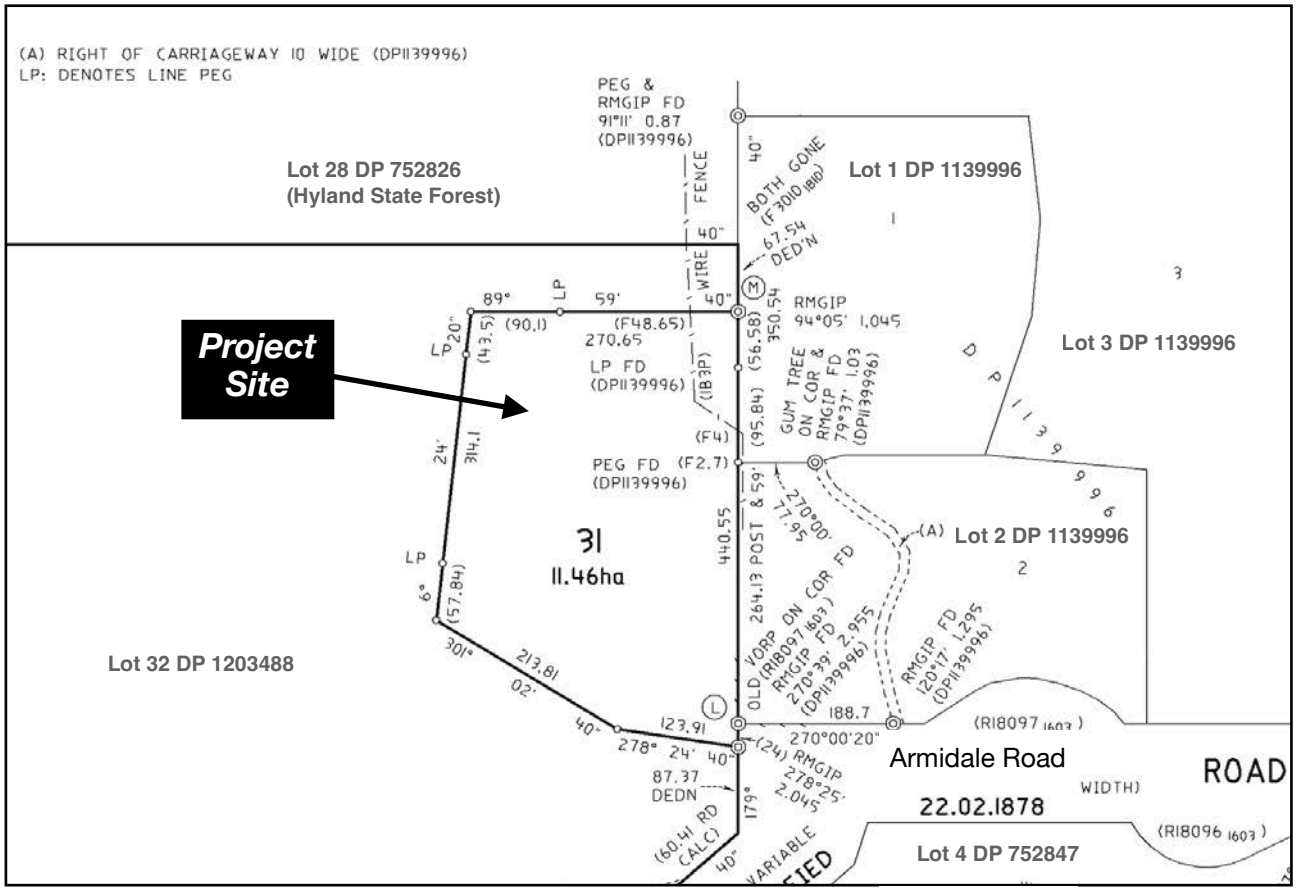


FIGURE 2.2: Deposited Plan: Project Site

(Source: NSW Land title records. NOTE: Dimensions shown)

The land on which the quarry is situated is privately owned by Abbey Richards and by Toby Sheridan. A quarry is established on the site. The active quarry pit has an area of approximately 1.32ha, with an additional 1.96ha of cleared land below the pit. Quarry material is won from the quarry by Sheridans Hard Rock Quarry Pty Ltd, the quarry operator. The slopes below the quarry have been recently cleared by the adjoining sawmill. Refer to accompanying Photographs 2.1, 2.2 and 2.3.

The topography of this quarry is undulating to flat within the active quarry, with slopes outside of the quarry footprint generally being steep (30% +), with ridges having generally moderate slopes. Elevations range from RL1095m AHD at the top of the active quarry wall near the southern end of the quarry, to RL1075m- RL1083 within the quarry floor, down to RL 1025m where a watercourse leaves the site, about 250m below the floor of the quarry. Refer to **Figure 2.3**, being a recent (April 2022) aerial photograph with cadastral/contour overlay.

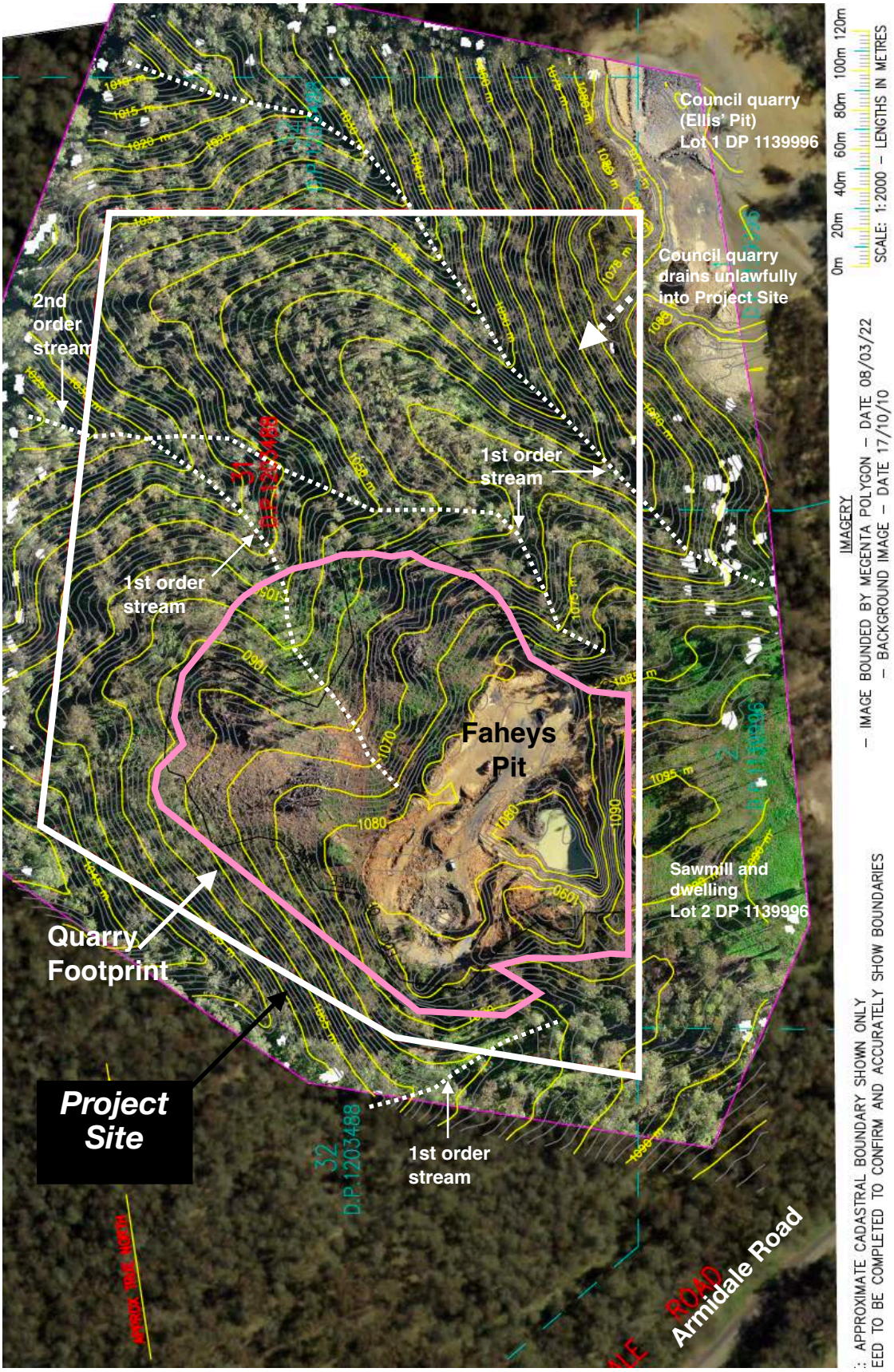


FIGURE 2.3: Aerial photograph with contour/cadastral overlay of Project Site

(Source: Newnham Karl Weir surveyors April 2022 survey)

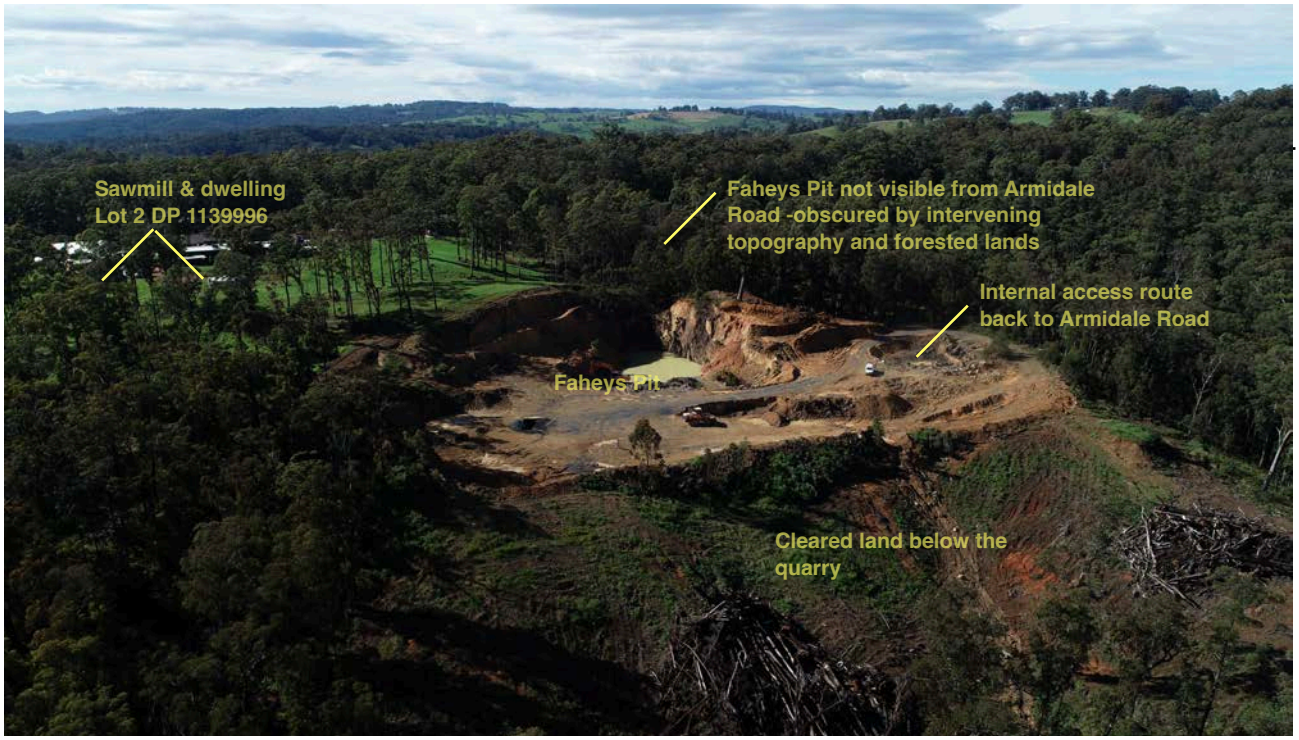
0 10 50 100

PHOTOGRAPH 2.1: View of southern section of Faheys Pit, viewed from the northern edge of the active quarry pit

(Source: Photograph taken 23 November 2021)

PHOTOGRAPH 2.2: Cleared land below the existing active quarry. View looking north from near the edge of the current extraction area

(Source: Photograph taken 23 November 2021)



PHOTOGRAPH 2.3: Drone photograph of quarry pit (centre) and cleared area below the existing quarry (foreground) with neighbouring sawmill (left hand side). View looking south

(Source: Drone photography Newnham Karl Weir surveyors March 2022)

To the south of the active quarry is a 1st order watercourse that runs from the neighbouring sawmill across the internal quarry access route. To the north of the active quarry there are two 1st order watercourses, draining the centre of the project site, with an another 1st order stream running roughly parallel to the the eastern boundary. Refer to **Figure 2.3**, being an April 2022 aerial photograph with cadastral/contour overlay which also shows watercourses in and around the quarry.

A recent, April 2022 survey reveals that the Council quarry abutting the north-eastern side of the project site, on Lot 1 DP 1139996 at No. 9632 Armidale Road, has been excavated such that it now unlawfully drains, with little in the way of sediment basins to attenuate stormwater flows, directly into a watercourse within the Project Site. Refer to Photographs 2.4 and 2.5. Although not directly impacting on the existing or proposed quarry on the Project Site, these stormwater flows will impact on sediment and water quality generally in the watercourses within and downstream of the Project Site. These impacts are considered to be of concern, in particular having regard for the fact that the Council quarry, like the Project Site, lies within a declared drinking water catchment. It is relevant to note that clause 7.7 of the *Clarence Valley Local Environmental Plan 2011* (LEP) under the heading "Drinking water catchment" states: "*The objective of this clause is to protect drinking water catchments from the impacts of development by minimising adverse impacts on the quality and quantity of surface water and groundwater entering drinking water storages*." The Council quarry provides inadequate measures to avoid or mitigate potential adverse impacts on the water quality within the drinking water catchment. In contrast, the Project proposes various on-site measures to mitigate any potential adverse impacts on downstream waterways.

A small part of the Council quarry referred to above also unlawfully extends into the Project Site. A Council report dated 20 May 2008 identifies this unlawful incursion of the Council quarry into the project site- refer **Appendix B**. The same report to the local council estimated that 9,200 cubic metres of quarry material had been removed from the Project Site. It is understood that the previous owner of Lot 31, James Fahey, was offered compensation by Council in lieu of the unlawful quarrying works undertaken on the Project Site.

PHOTOGRAPH 2.4: Photograph of unlawful excavated drain from Council quarry into the Project Site

(Source: Photography February 2022)

PHOTOGRAPH 2.5: Photograph of stormwater runoff draining from Council quarry into the Project Site

(Source: Photography February 2022)

Armidale Road is a declared Regional Road (Route 74). Regional Roads perform an intermediate function between the main arterial network of State Roads and council controlled Local Roads. Due to their network significance RMS provides financial assistance to councils for the management of their Regional Roads. The Armidale Road is a sealed road in New South Wales. It runs between and connects the urban centres of Armidale and Grafton. The Project Site also has the following features:

- The land is not within a conservation area or identified in the LEP as having any terrestrial habitat or or riparian or scenic value.
- The land has not been identified as containing an item of the environmental heritage.
- The land is not affected by any road widening or road realignment proposals.
- The land is within a drinking water catchment.
- The land is not identified as being within an area with groundwater vulnerability.
- The land is not affected by any policy relating to landslip hazard or is affected by mine subsidence.
- The land has no acid sulphate soils potential.
- The land is not listed as a a potential asbestos source (loose-fill asbestos insulation only), nor is the land registered as significantly contaminated land or any similar affectation within the meaning of section 59 (2) of the *Contaminated Land Management Act 1997*.
- The project site is not flood prone.
- The quarry is within a bushfire Category 1 zone- refer **Figures 2.9 and 5.2**.
- The land is located in the vicinity of a competing extractive industry, namely, Ellis' Pit, operated by Clarence Valley Council.
- Due to the steepness of the topography here, the land has very limited agricultural productive potential.

Existing Approvals

Faheys Pit has been in operation since before 1960. In conjunction with a neighbouring quarry pit, known as Ellis' Pit, an EIS was prepared in 1995 by Local Government Engineering Services Pty Ltd in August 1995 in support of the continued operation of the two subject quarry operations. The above EIS sought consent for a total volume of 15,000m^3 of quarry product being won from Ellis' Pit and 4,000m^3 from Faheys Pit over the life of each quarry. The continued use of the two quarries was approved in two separate consents (DA40/95 Fahey's Pit and DA41/95 Ellis' Pit) issued by the then Nymboida Shire Council on 21 February 1996 (Faheys) and 20 December 1995 (Ellis). The consent for Ellis' pit was further modified and approved on 1 April 1996. Refer attached copies of the above above development consents, in **Appendix B.** The land approved for quarrying was described in the EIS as follows:

Faheys Pit	Ellis' Pit
Part Lot 1 DP 752847, Parish of Tyringham Shire of Nymboida (now Clarence Valley LGA) Owner: James Fahey (now Abbey Richards and Toby Sheridan) Operator: formerly Nymboida Shire Council (now Sheridans Hard Rock Quarry Pty Ltd)	Lot 31 DP 752826, Parish of Tyringham Shire of Nymboida (now Clarence Valley LGA) Owner: PL Ellis (now Clarence Valley Council) Operator: formerly Nymboida Shire Council (now Clarence Valley Council)

Since the grant of consent, both quarries have expanded beyond their approved quarry footprints and also in terms of the rates of quarry extraction and production. Development consent is thus required in order to permit Faheys Pit to continue operating and to expand beyond the limits imposed in the 1996 development local council consent referred to above.No EPL currently applies to the quarry operation at either Faheys Pit or Ellis' Pit.

Existing Quarry Operations: Project Site

The Project Site contains a hard rock suitable for the production of road base or select fill or DGB 20. The material won from the quarry is, however, not suited to higher specification applications, such as sealing aggregates. The current quarry operations at Faheys Pit may be summarised as follows:

- Clearing of land ahead of extraction.
- Ripping of weathered quarry resource and blasting of unweathered (hard) rock.
- Loose rock is then transported from the worked quarry face to the mobile (temporary) processing plant, where it is then crushed and screened, prior to being transported off-site.
- Transport of quarry product from the site via the internal haul route back onto Armidale Road ie. product sales out the gate.

PHOTOGRAPH 2.6: View looking north-west over Faheys Pit- active quarry pit

(Source: Photograph taken 23 November 2021)

The Project Site does not contain any existing infrastructure, such as buildings or fixed plant, save for the road access back from the quarry pit to Armidale Road. All quarry processing plant is currently brought into the site on a campaign basis, as required.

2.2.3 Project Site Geology and Soils

Geology and the Extractive Resource

The 1:250,000 Geological Map of NSW (Dorrigo-Coffs Harbour Metallogenic Series Sheet SH/56 10-11) indicates that the site is underlain by Moombil Siltstone being weathered and unweathered siltstone, being a part of the Late Carboniferous Coffs Harbour Association comprising metasediments of the Coramba and Brooklana Beds and the Moombil Siltstone (Cccs/Ccbf/Ccmf), being a thick turbidite (fine-grained sediment) sequence dominated by siliceous mudstone, lithofeldspathic wacke and siltstone with minor metabasalt, felsic volcanics, chert and jasper. Refer **Figure 2.4**. Very low strength brown siltstone was observed in the eastern part of the quarry, with variable medium to high strength siltstone observed in cut batters in parts. High to very high strength grey meta-siltstone was exposed in the deepest part of the existing quarry and over parts of the existing quarry floor. Having regard for the geology of the site and existing conditions, and based on the geotechnical assessment by Douglas Partners (**Appendix C**), the site has a Low slope stability risk. Additionally, given the elevated location and known geology, acid sulfate soils (ASS) are highly unlikely to be present on the site.

The extractive resource found at Faheys Pit has been the subject of quarrying for more than 60 years and is well suited to the making of road base, in particular. Past extraction operations have exposed the resource and its extent. Based on the available geological mapping, past extraction, and site inspection, the quarry resource is extensive and does not appear to be a constraint to the further lateral expansion of the quarry to the north, or by the deepening of the quarry.

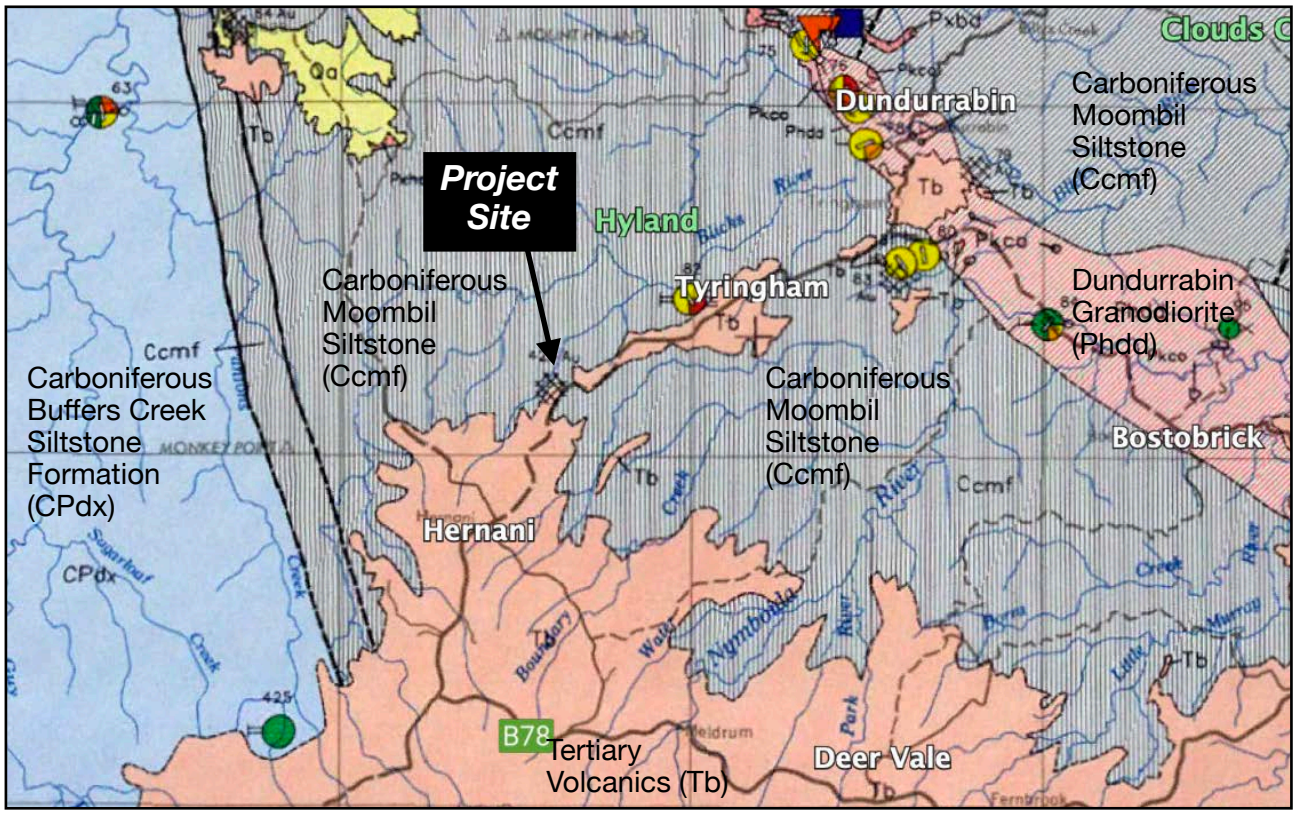


FIGURE 2.4: Faheys Pit and surrounding geology

(Source: NSW Government 1:250,000 Geological Map of NSW (Dorrigo-Coffs Harbour Metallogenic Series Sheet SH/56 10-11: Google Earth overlay)

Soils

The soils of the Project Site generally are considered to fall within the Suicide Soil Landscape, comprising moderately deep to deep (>100 cm), well- drained stony structured Yellow Earths (Gn3.71) on crests and upper slopes, with deep (>150 cm), stony structured Red Earths (Gn3.11) on mid-slopes and foot-slope overlaying siltstones. Refer to accompanying **Figure 2.5** illustrating the schematic cross-section of the Suicide soil landscape.

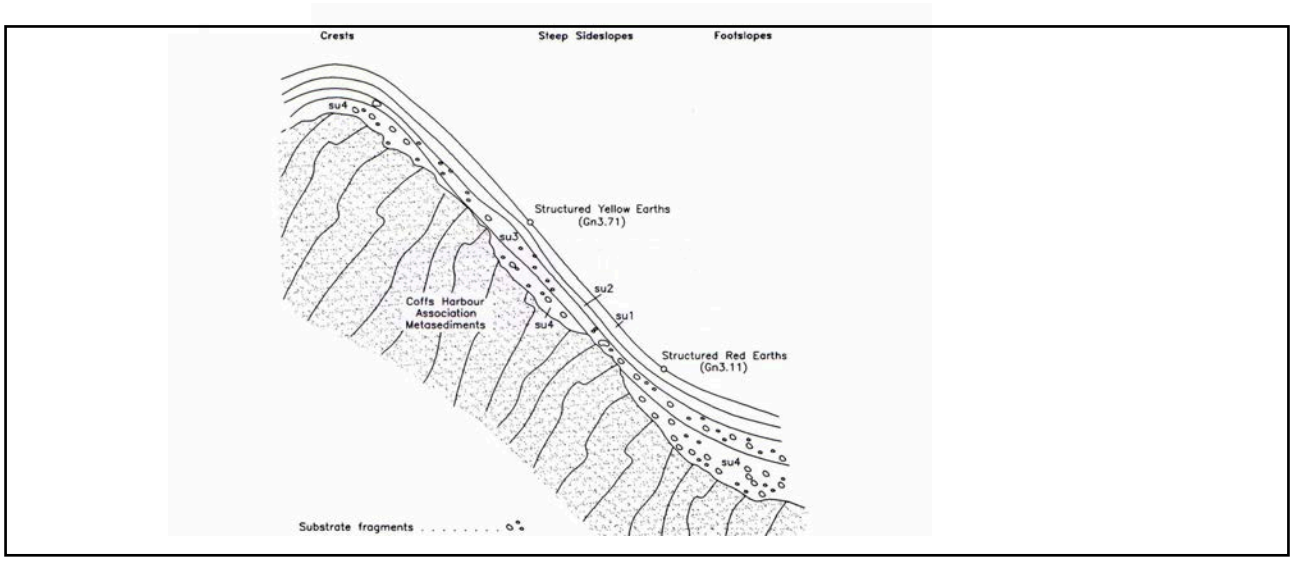


FIGURE 2.5: Schematic cross-section Suicide Soil Landscape

(Source: NSW Government eSPADE website)

These soils are stony with a high to very high subsoil erodibility and low fertility, and high erosion potential. The topsoil typically comprises dark brown friable sandy loams underlain by brown clay loam subsoils. This soil landscape has generally high to severe limitations for urban development with generally high to severe limitations for rural development. Agricultural suitability is considered to be low. All of the original topsoil has been removed in and around the active working quarry area, and stored around the pit.

Rural Land Capability

Land capability is the inherent physical capacity of the land to sustain long-term land-uses and management practices without degradation to soil, land, air and water resources. The Rural Land Capability classification system is used to delineate the various classes of rural land on the basis of the capability of the land to remain stable under particular uses. Land is allocated to one of the eight classes listed below.

- Land Suitable for Regular Cultivation/Cropping

  Classes, 1, 2 and 3.
- Land Suitable Mainly for Grazing

  Class 4 and 5.
- Land Suitable Mainly for Grazing

  Class 6.
- Land Suitable Mainly for Tree Cover

  Class 7.
- Land Suitable Unsuitable for Agriculture

  Class 8.

The approved quarry pit, forming a part of the Suicide Soil Landscape, has been assessed as comprising Class 4-5 in small sections where terrain is undulating to moderate, with Class 6 or Class 7 land, being steep land having a low rural land capability and a high to severe limitation to rural development generally, over the remainder.

Drainage and Groundwater Resources

A number of 1st order watercourses run through the Project Site, with one 2nd order watercourse located in the north-west corner. All 1st and 2nd order waterways are intermittent in nature only. Merchin Creek is the closest permanent waterway and is located down gradient to the west and north (~ 250m) of the site boundary. Drainage within the quarry pit was directed to the lowest point in the south. Drainage of other areas within the site outside of the existing quarry pit followed the natural contours of the land to the northwest into a gully within the property which directs runoff into Merchin Creek. Refer **Figure 2.3**.

Publicly available groundwater information utilising results from Water NSW Realtime Data from a total of 2 boreholes proximate to the Project Site was reviewed to gain an understanding of typical groundwater profiles. The boreholes nearest to the quarry (refer **Figure 2.6**) were as follows:

- GW305142, located to the north-east of Faheys Pit. Based on NSW Government MinView mapping, the ground level at GW305142 is at approximately RL 1010m AHD, with groundwater encountered 12 metres below the ground surface, that is, at RL 998m AHD.
- GW306390, located to the east of Faheys Pit. Based on NSW Government MinView mapping, the ground level at GW306390 is at approximately RL 1025m AHD, with groundwater encountered 25 metres below the ground surface, that is, at RL 1000m AHD.

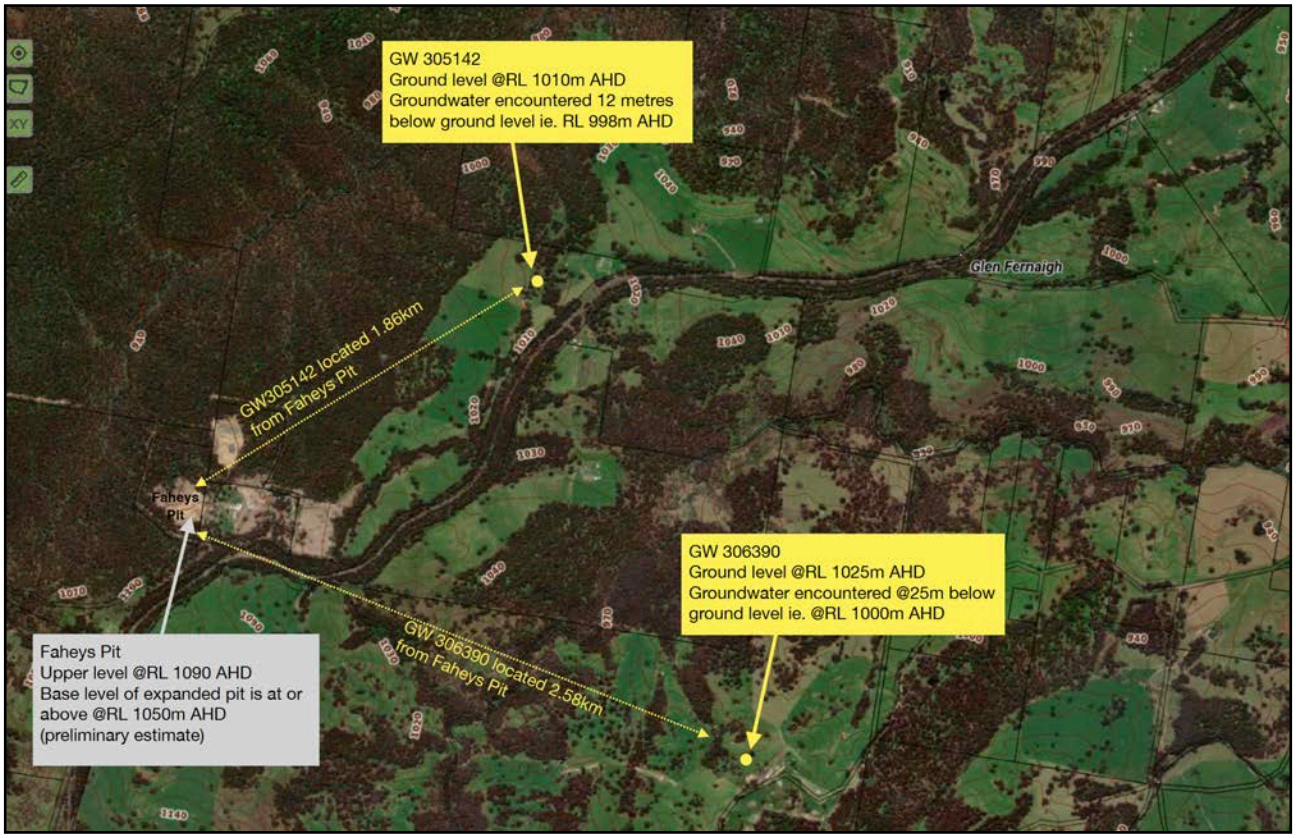


FIGURE 2.6: Faheys Pit and nearest groundwater bores

(Source: NSW Government MinView and Water NSW Realtime Data groundwater websites)

From the above, it can be concluded that Groundwater in the area is located at approximately RL 1000m AHD. It is noted that the lowest part of the proposed expanded quarry will be at RL 1050m AHD. As such, reported standing water levels of groundwater in the local vicinity are well below (ie. by approx. 50 metres) the design floor of the proposed expanded quarry.

Topography and Agricultural Suitability

The Suicide Soil Landscapes are encountered on generally steep slopes and dissected valleys, containing moderately deep to deep Yellow Earths on hill crests and deep, and stony Red Earths on mid-slopes and foot-slopes. However, they have a generally low fertility. Topographically the site is located on the northern mid slope of a north/west-facing ridge line with slopes generally within the range 17%-27%. To the north and west of the existing Faheys pit the land falls downslope into an unnamed gully orientated northwest towards Merchin Creek, located beyond the site to the northwest. An Agricultural Suitability system is used to classify land in terms of its suitability for general agricultural use measured in a five class system from Class 1 (arable land suitable for intensive cultivation) to Class 5 (unsuitable for agriculture). In general, the Suicide Soil Landscapes are assessed likely to generally possess a Class 4-5 agricultural suitability.

Biophysical Strategic Agricultural Land (BSAL) is land considered to be highly suitable for agriculture, having the best quality landforms, soil and water resources which are naturally capable of sustaining high levels of productivity and require minimal management practices to maintain this high quality. In this regard, the Project Site is not identified on the NSW Government's Strategic Agricultural Land Map Sheet STA_053, nor is it identified as 'Important Farmland' in either the *North Coast Regional Plan 2036* - Figure 9 or Council's draft *Rural Lands Strategy* (June 2022).

Meteorology

The Project Site is located near the western edge of the Dorrigo Plateau. Heaviest rainfall occurs nearest the eastern edge of the plateau, near Dorrigo (average annual rainfall of 1,915mm) with lower rainfall the further west one travels.

The nearest Bureau of Meteorology (BoM) station is at Tyringham (BoM Station 59118), located approximately 6km to the north of the Project Site. Rain falls throughout the year in Tyringham. The month with the most rain is January, with the least rain in September. Refer to **Figure 2.7**. The mean rainfall for Tyringham is 1,141mm (Source: BoM website June 2022).

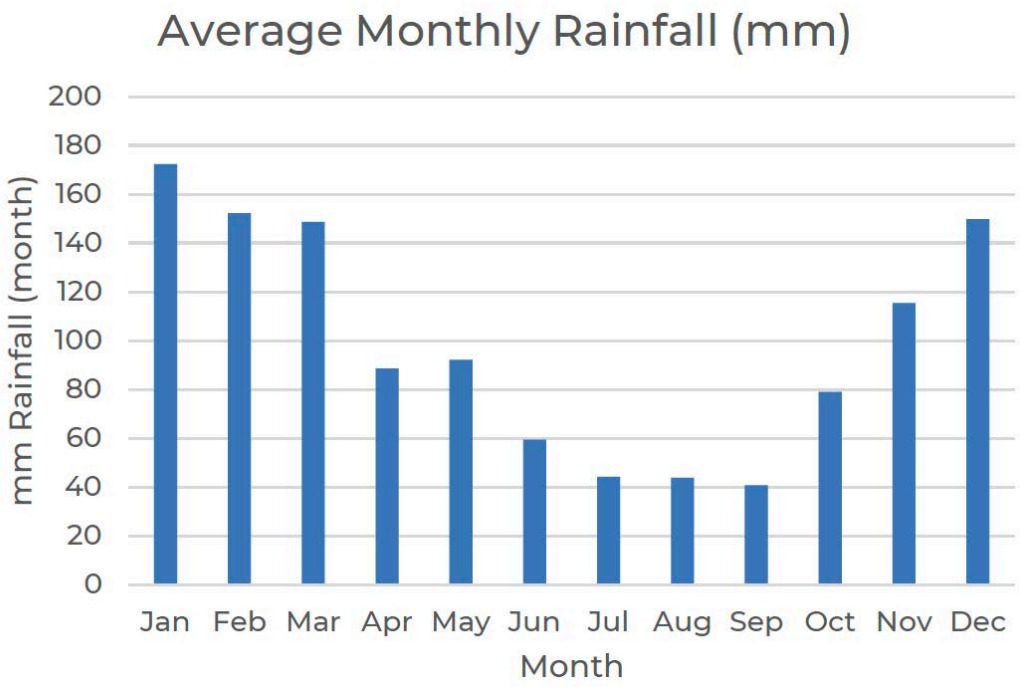


FIGURE 2.7: Average annual rainfall Tyringham

(Source: BoM website June 2022, Ballpark Environmental June 2022)

The Office of Environment & Heritage *North Coast Climate change snapshot* predicts that rainfall is projected to decrease in winter and summer and to increase in autumn and spring. In Tyringham, the summers are comfortable, wet, and partly cloudy and the winters are short, cold, and mostly clear. The North Coast is expected to experience an increase in all temperature variables (average, maximum and minimum) for the near future and the far future, however the project Site is expected to unaffected by any increase in days with temperatures of more than 35°C (source: Office of Environment & Heritage *North Coast Climate change snapshot*)

Winds

The nearest detailed seasonal wind roses available through the Bureau of Meteorology's Dorrigo station are presented graphically in **Figure 2.8**. The wind roses reveal that: at 9.00am winds from the North and the South predominate; and at 3.00pm winds from the South-east, South and North predominate.

FIGURE 2.8: 9am & 3pm wind roses Dorrigo

(Source: Bureau of Meteorology Dorrigo station)

Fire risk

The Project Site and surrounds are bushfire prone-Refer **Figures 2.9 and 5.2**. The 2019–20 bushfire season was the worst that New South Wales had ever recorded. Fires sweeping through the neighbouring state forest and the Project Site during that fire season. Fires went through the nearest town to the north, at Nymboida, destroying 85 homes, and quarry plant destroyed at Greensills Quarry at Nymboida. Refer also to **Appendix D** and Photographs 7.5 and 7.6.

The same fires extended as far as the current quarry pit and neighbouring sawmill owners residence. In response to below-average rainfall in the autumn and winter of 2021, regrowth of an inflammable under-storey on previously burnt areas of the project site, and a perceived imminent risk of further bushfires in summer 2021, an area of about 1.96ha was cleared below the quarry, adjoining the sawmill site, to remove/reduce the risk of fire causing serious personal injury or damage both to his property and to the quarry operations.

The Office of Environment & Heritage *North Coast Climate change snapshot* predicts that severe fire risk on the Dorrigo Plateau is projected to slightly increase in summer and winter, increase by marginally more in spring, and decrease in autumn. Longer term (2060-2079) projections for the Dorrigo Plateau predict increased fire risk in summer and spring, with little change in fire risk in autumn and winter. 'Future-proofing' the quarry site against bushfires in the future will thus be a high priority.

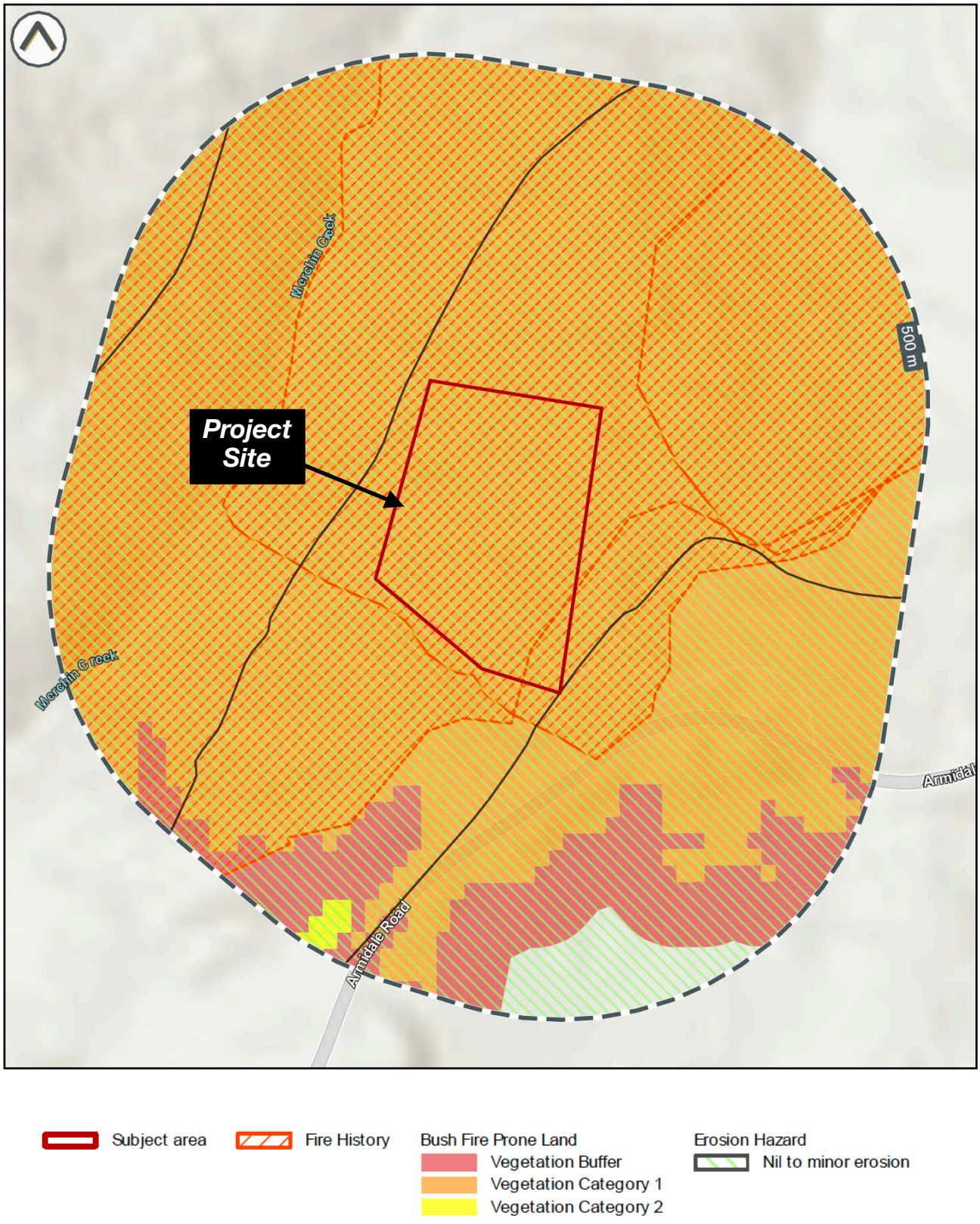


FIGURE 2.9: Fire hazard ***[NOTE: Refer also to Figure 5.2 and Appendix E]***

(Source: Ballpark Environmental June 2022)

▪ 2.3 Key Features of Local and Regional Community

2.3.1 Introduction

The key features within the area surrounding the Project Site that could affect or be affected by the Project include the local and regional community, surrounding land uses and land ownership, and the surrounding natural and built features.

2.3.2 Population and Plans

Population and Population Growth Projections

The 2021 Census revealed an Estimated Resident Population of 54,115 persons in the Clarence Valley LGA, with most recent population projections indicating that it is set to grow to 60,735 residents by 2041.

Key growth areas are expected, in the main concentrated in coastal or near-coastal areas of the LGA at Wooli-Tucabia-Ulmarra, Angourie-Yamba and Gulmarrad- Townsend areas. The two largest employing industries in the Clarence Valley LGA are Health Care and Social Assistance (15.4% of all employed persons) and Retail Trade (11.7% of all employed persons). Agriculture, Forestry and Fishing accounted for 6.4% of all employed persons.The Project Site forms a part of the Rural South West ABS area- refer to **Figure 2.10**.

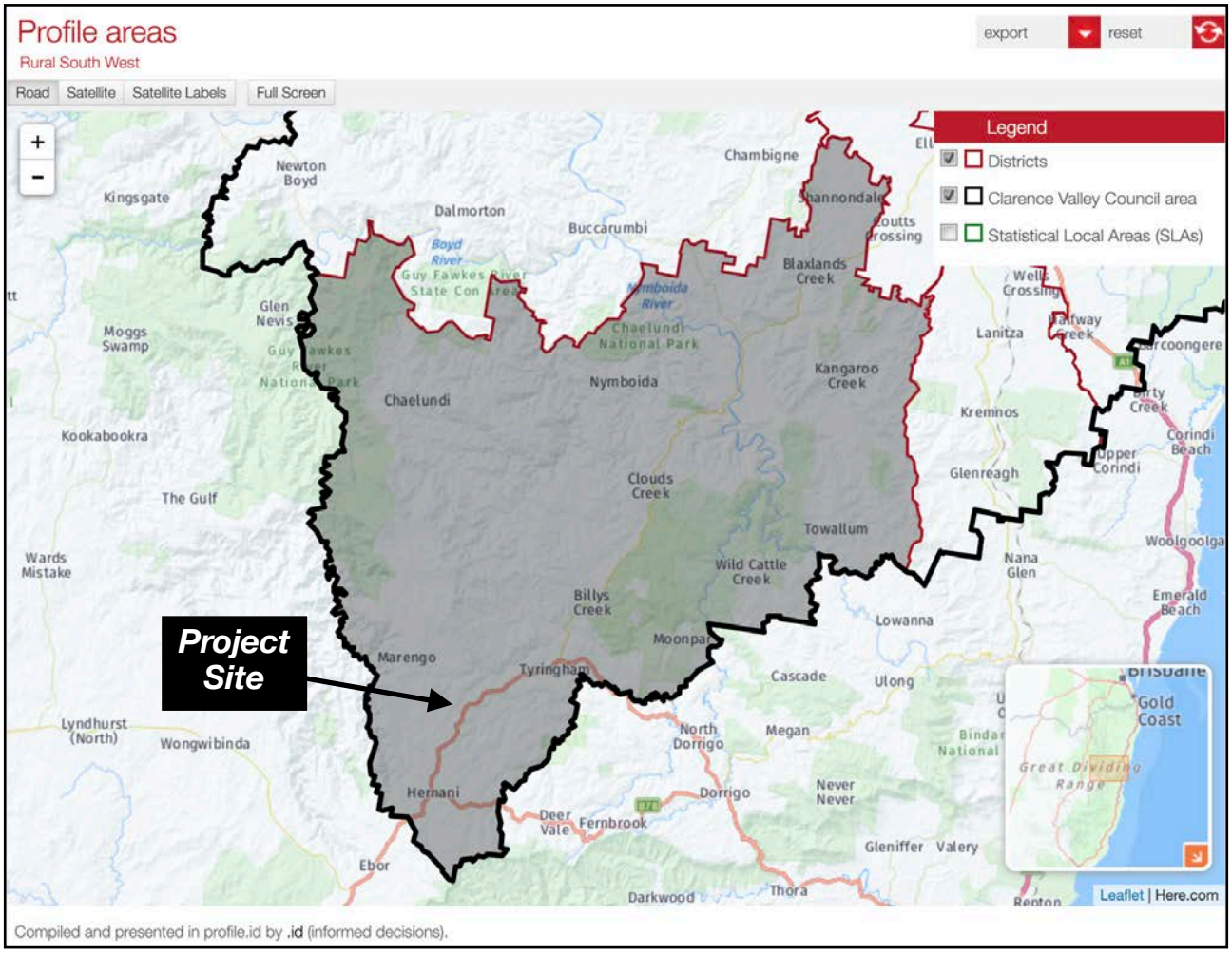


FIGURE 2.10: The Project Site lies within the Rural South West area of the Clarence LGA

(Source: ABS profile.id website)

Rural South West includes the localities of Chaelundi, Dundurrabin, Marengo, Nymboida, and Tyringham.

Clarence Valley LGA	**Rural South West** (per Figure 2.7)
Population 54,115 (ABS 2021 Census)	Population 993 (ABS 2021 estimate)
Land area: 10,441 square km	Land area: 2,501 square km
Population density: 5.18 person per square km	Population density: 0.40 person per square km

2021 ABS Census results showed that there was a higher proportion of unemployed people living in Clarence Valley LGA compared to regional NSW (6.2% vs 4.6% for Regional NSW). The Tyringham locality also recorded an unemployment rate of 6.2& at the 2021 Census. Most employed persons living in the Rural South West worked in agriculture, forestry and fishing than any other industry, accounting for 28.35% of all employed persons. The Tyringham locality had a total population of 109 persons occupying 56 dwellings, with a high percentage of persons aged 60 years or more, accounting for almost 35% of the total population.

Local Strategies, Plans

The Project Site is zoned RU1 Rural Landscape in the *Clarence Valley Local Environmental Plan 2011* (LEP). The surrounding land to the east, south and west is also zoned RU1. An adjacent large tract of land to the north of the Project Site is zoned RU3 Forestry (Hyland State Forest). The *Clarence Valley Council Local Strategic Planning Statement 2020* sets the direction for land use planning in the Clarence Valley for the next 20 years and includes priorities to manage growth and development, protect the environment and the character of local spaces and places. The Project is generally in compliance with the priorities set out in the above statement, and in particular its aim to sustainably manage natural resources found on the Project Site (Priority 19), to achieve the:"*development of the regions natural, mineral and forestry resources*…" (Action 19.1) as well as achieve the:"*ongoing productive use of lands with significant construction material resources in locations with established infrastructure and resource accessibility*."(Action 19.2), strengthening the local economy (Priority 11), and encouraging ecologically sustainable development (Priority 16). *The Clarence 2027 Community Strategic Plan* is the community's 10-year vision for the local area and sets out the delivery program on how to achieve those visions. The Project will assist in achieving a strengthening and diversification of the region's economic base and environmental impact management.

2.3.3 Land Use

The locality is also sparsely populated, with the nearest rural residences described in the following:

- The sawmill adjoining Faheys Pit, on Lot 2 DP 1139996 No. 9630 Armidale Road, also has a residence located about 140m from the quarry pit on Faheys Pit, however, it is a use associated with the quarry. It is understood, however, that neither the sawmill or the residence enjoy any valid development consent.
- The quarry is approximately 0.55km to the north-east of the nearest rural dwelling not associated with the quarry: 'Karingal', on Lot 32 DP 1203488 at No. 9722 Armidale Road, Tyringham.
- The quarry is approximately 1.148km to the north-east of the next nearest rural dwelling not associated with the quarry, on Lot 18 DP 752826 at No. 134 Armidale Road, Tyringham.
- The quarry is approximately 1.79km to the WSW of the next nearest rural dwelling not associated with the quarry, on Lot 30 DP 752826 at No. 9435 Armidale Road, Tyringham.
- The quarry is approximately 2.03km to the south-west of the next nearest rural dwelling not associated with the quarry: 'Ring Tree', on Lot 3 DP 1139996 at No. 9408 Armidale Road, Tyringham.

The quarry operation on land owned by Clarence Valley Council, known as Ellis' Pit, lies approximately 220m away from the existing worked quarry at Faheys Pit. This quarry is situated on Lot 1 DP 1139996 at No. 9632 Armidale Road. A small part of this quarry unlawfully extends into the north-east corner of the Project Site. Refer **Appendix B** and **Figure 0.2** and **Figures 2.11** and **2.12**.

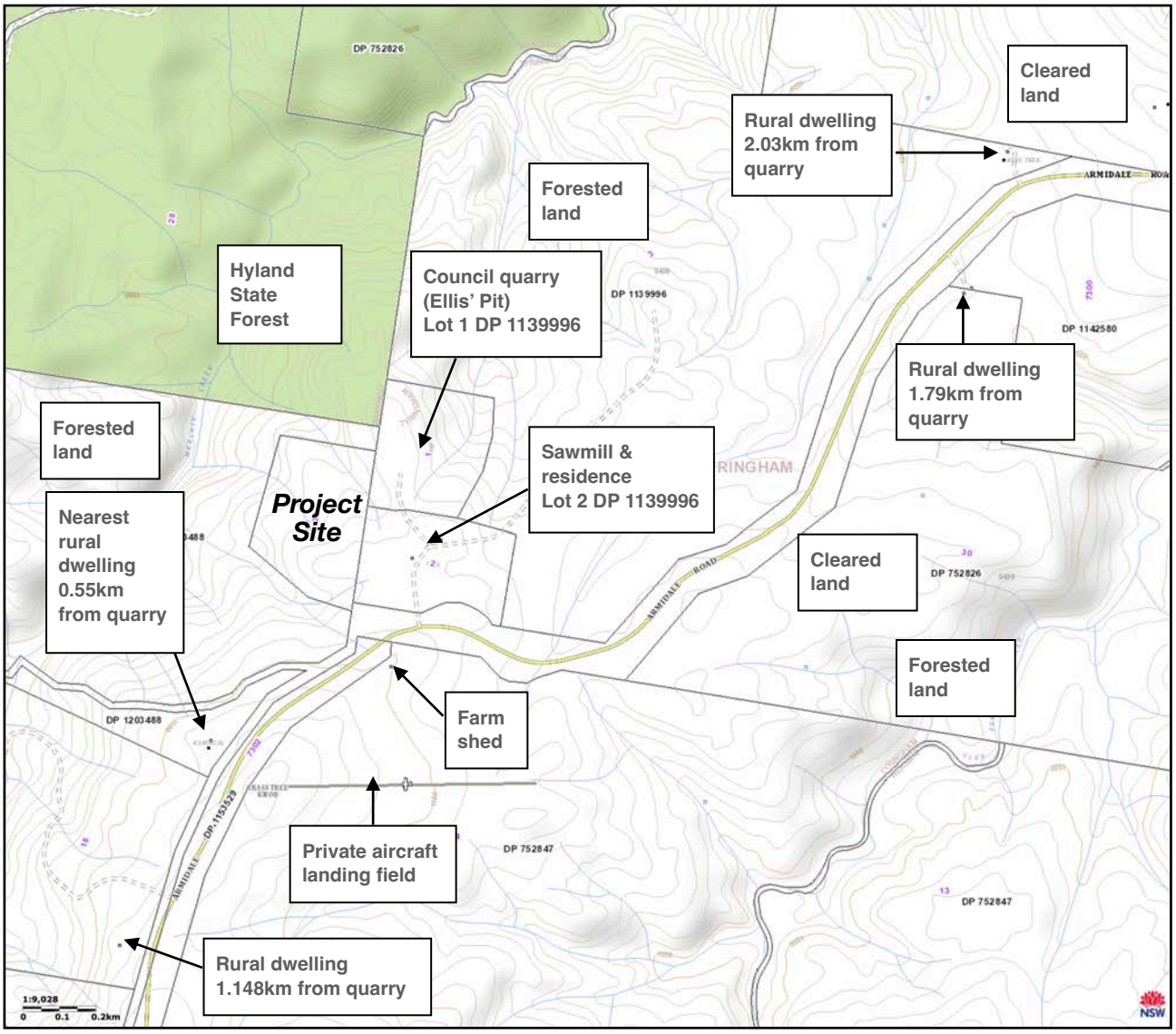


FIGURE 2.11: Nearest residences/land uses proximate to Project Site

(Source: SIX maps)

The locality comprises heavily timbered hillsides in the immediate vicinity of the Project Site, to the north and to the west, with cleared areas to the east, associated with a sawmill (Lot 2- refer Photograph 2.7) and Council quarry operation (Lot 1), with lands cleared for agricultural purposes to the south and to the south-west. In summary, forestry, saw-milling and extractive industries adjoin the project site, with land cleared for farming located further afield. A private aircraft landing field and farm shed lie to the south of the Project Site. The lands within and surrounding the Project Site have been utilised for forestry purposes. To the north of the Project Site is Hyland State Forest, which covers an area of about around 8,700 hectares. Hyland State Forest borders the following other reserves: Marengo State Forest and Mount Hyland Nature Reserve.

2.3.4 Contamination

Ballpark Environmental Pty Ltd was engaged to undertake a preliminary site investigation (PSI) for potential soil contamination associated with quarrying at this site (**Appendix E**). They found that the site has an acceptable low level of risk of contamination and is suitable for its proposed ongoing industrial use as a quarry.

FIGURE 2.12: Nearest residences/land uses- 2021 aerial photography

(Source: ICSM Place names -Foundation Spatial Data website July 2022)

PHOTOGRAPH 2.7: Faheys Pit (foreground) adjoins land used as a sawmill (mid-ground)

(Source: Drone photography Newnham Karl Weir surveyors March 2022)

▪ 2.4 Key Site Features and the Quarry Project

The key features of the Project Site and surrounds that could affect, or be affected by the Project are summarised in the accompanying Table 2.1.

Table 2.1: Key features potentially affected by quarry project

Key Feature/ Issue	Matters to consider	Management response
Proximity to neighbouring residences	▸ Need for noise, dust and blasting levels to not exceed relevant criteria. ▸ Nearest residence not associated with quarry is 0.55km away. ▸ The quarry is visually shielded from neighbouring residences by intervening topography and forested lands.	▸ The quarry proposed to operate only during daylight hours, with monitoring of blasting. ▸ Dust controls to be implemented. ▸ Acceptable noise/blasting levels at nearest residence not associated with quarry. ▸ No adverse visual impacts likely.
Soil management	▸ High erosion hazard. ▸ Land proposed for quarry expansion is largely cleared. ▸ Need to store soil for future rehabilitation. ▸ Need to protect downstream water quality given that the Project Site lies within a drinking water catchment.	▸ Appropriate soil erosion controls are proposed, including use of sediment basins to capture 'dirty' water and all runoff from within the quarry. ▸ Diversion of 'clean' water around the quarry where possible. ▸ Appropriate stripping and stockpiling controls and procedures required to maximise the value for stored soil used in rehabilitation of the site.
Stormwater, Drainage	▸ The quarry lies within 40 metres of 1st order watercourses. ▸ Within a drinking water catchment. ▸ Likely increase in hot days and decrease in winter rainfall as a result of climate change. ▸ Lowest part of pit approx. 50m above standing groundwater. ▸ Council's Ellis' Pit quarry unlawfully drains stormwater from the active pit on Council quarry into the Project Site.	▸ Appropriate stormwater controls are proposed. Further details under heading 'soil management' (above) ▸ Aim to store significantly more water than currently provided for in 'Blue Book' to accommodate water needs during drier years brought on by climate change. ▸ Request Clarence Valley Council to close off unlawful drains from Council's Ellis' Pit quarry into the Project Site.
Biodiversity	The proposed quarry is mainly cleared with a small area of trees to be cleared.	Acceptable adverse ecological impacts are predicted.
Rehabilitation	Progressive rehabilitation required.	Progressive rehabilitation of the quarry as new floor levels are achieved.
Air quality, greenhouse gas impacts	▸ Dust management required. ▸ Emissions to be reduced wherever possible.	▸ Dust management measures to be implemented including covering of loads, regular watering of haul route, regular watering of stockpiles, water to suppress dust generated by processing plant. ▸ All machinery to be well maintained to minimise exhaust production.
Noise and blasting impacts	▸ Noise and blast levels to be maintained below relevant limits. ▸ Proposed quarry is sited adjacent to an operating sawmill and a local council quarry.	▸ Operations limited to daylight hours. ▸ Acceptable impacts predicted. ▸ Quarry design ensures that quarry to be topographically shielded from nearest residences. ▸ Regular monitoring proposed.
Aboriginal heritage	Minimal potential for Aboriginal sites within proposed extraction area.	Unexpected finds protocols to be adopted.
Bushfire	▸ The land is bushfire prone. ▸ Average fire weather is projected to increase in summer and spring due to climate change.	▸ Emergency management and evacuation procedures to be implemented. ▸ Fire extinguishers on all plant and equipment. ▸ Cleared bushfire buffer to neighbouring sawmill residence to be maintained on Project Site.
Transport	Increase in quarry truck traffic predicted.	Satisfactory access to the quarry from Armidale Road.

▪ 2.5 Cumulative Impacts

Cumulative impacts arising from the the Project are addressed in the relevant impact assessments provided in Section 7 of this EIS document and in the technical reports contained in the appendices. In summary, the cumulative impacts arising from the Project is considered to be acceptable having regard for key environmental factors identified in the preceding sub section 2.4. These environmental factors includes soil and water management, noise and blasting, biodiversity, air quality, and fire risk. It is noted that the Project Site is currently provided with a satisfactory access for quarry truck traffic back to Armidale Road. In addition, and given that almost all of the land proposed for future quarrying is already cleared, cumulative ecological impacts are anticipated to be acceptable.

▪ 2.6 Agreements

Sheridans Hard Rock Quarry has consulted extensively with the owners of the adjoining sawmill during preparation of this document and in recent years, as well as with the owner of the nearest residence to the south-west. Both parties have negotiated an agreement that addresses a range of matters, including quarry access and noise and blasting impacts. Under that agreement, the two landowners have agreed to accept project-related impacts associated with the proposed quarry development.

No voluntary planning agreement has been entered into with the local council regarding the future use of the Project Site associated with an expanded quarry.

▪ 2.7 Alternatives to the Project

There are a number of alternative ways of developing the quarry resource on the Project Site, however, the current proposal is considered to be the most efficient and environmentally acceptable. Section 192(1)(c) of the *Environmental Planning and Assessment Regulation 2021* requires that an analysis is undertaken of any feasible alternatives to carrying out the proposed development, including the consequences of not carrying out the development. In such an assessment it is relevant to note that:

- The Project as outlined in this EIS is, in effect, an extension of an existing established quarry operation.
- Likewise, for the transportation of products from the quarry, the product delivery route is well established. In this regard the quarry has direct access to a regional road, Armidale Road, which already accommodates heavy truck traffic. Hence, consideration of alternative routes would only be academic.

A further consideration of alternatives to the Project is provided below. The key, feasible alternatives to the Project considered were as follows:

- To not proceed with the Project, effectively leaving the quarry as is without further change.
- To rely on other quarry projects to service longer term needs for the supply of road base to service roads and allied projects.

2.7.1 Consequences of Not Proceeding with the Project

If the Project does not proceed, while there would be reduced environmental impacts, there would be likely significant adverse socio-economic implications including but not limited to the following:

- Discontinuation of employment opportunities for an existing, established quarry and the Project, and expenditure with regional businesses. The quarry is a viable industry in a rural area that has limited employment opportunities.
- Sterilisation of a valuable quarry resource.
- Earlier completion of rehabilitation.
- Potential shortages of raw materials for essential NSW roads and allied infrastructure and associated development projects in and around the Dorrigo Plateau and the region generally.

2.7.2 Alternative Quarry Sites

The only other quarries operating in the Dorrigo Plateau are the following:

- **Ellis' Quarry**, located on land adjoining the Project Site, owned and operated by Clarence Valley Council. The quarry resource is the same as that provided at Faheys Pit. The pit, which has operated since 1953, is small, with a limited area, resource and limited production capacity. The approval granted (Nymboida Council DA41/95) is for a pit of up to 3ha, with a resource of up to 15,000 cubic metres and a maximum depth of 5 metres. A rural dwelling is located within approximately 150m of this quarry.The pit is currently operating in breach of the issued consent in terms of permitted depth (eg. Ellis' Quarry now approximately 20 metres deep) and limits of extraction and resource recovery, as well as sediment controls and overburden controls. Moreover, the Council pit has inadequate sediment controls and is currently draining unlawfully into the Project Site. Not considered a viable alternative.
- **Sheridans Hard Rock Quarry at Hernani**. The material won from this basalt quarry at No. 242 Faheys and Bulgins Road, Hernani, is a higher quality quarry material than Faheys Pit, used to produce basalt aggregates and construction materials for DGB 20 (Densely Graded 20mm Base) 20, DGS 40 (Densely Graded 40mm Sub-base-a lower grade road base than the DGB variety), DGS 20 road pavements, road sheeting, infrastructure construction, rail ballast and concrete manufacture. This quarry relies on clays and fines material from Faheys Pit for blending purposes. Currently approved *per* Clarence Valley Council Development Consent DA2014/0098 to extract up to approximately 398,000 tonnes of quarry material per annum.
- **Dorrigo Quarry**, operated with interests associated with the Sheridan family. The material won from this quarry is a higher quality quarry material than Faheys Pit, and is used to produce aggregates and construction materials for DGB 20 (Densely Graded 20mm Base) 20, DGS 40 (Densely Graded 40mm Sub-base-a lower grade road base than the DGB variety), DGS 20 road pavements, select material, infrastructure construction, and rail ballast. It is understood that the Dorrigo Quarry comprises a lesser quality of hard rock material compared to that of the Sheridans Hard Rock Quarry resource at Hernani. Currently approved *per* Bellingen Council Consent 2013/DA-00030, as modified, to extract up to approximately 320,000 tonnes of quarry material per annum.

There are other operating quarries below the Dorrigo escarpment, however, these quarries tend to serve the valley below rather than the Dorrigo Plateau. These quarries include the following:

- **Coutts Crossing Quarry**, Kangaroo Creek Road, Coutts Crossing. Formerly operated by Marten Hutchings but recently sold to another party. operated with interests associated with the Sheridan family. The material won from this quarry is sandstone and sand. The current consent (Nymboida Council DA38/95) sets no limit *per se*, however, the original development noted that only two trucks would be operating at any one time. Reflecting this, a search of EPA records indicates that no EPL has been issued. As such, it is presumed that production is limited to less than 30,000 tonnes per annum.
- **Greensill Bros. Mt Zion Quarry**, Boundary Creek Forest Road, Nymboida. According to the DA lodged in support of the project, the quarry resource comprises slightly weathered to fresh argillite and greywacke at depth, with lower quality material in the upper horizon suitable for road base or select fill. This quarry supplies material for local roads in the Clarence Valley area, principally for forestry roads. Currently approved *per* Clarence Valley Council Development Consent DA2014/0024 to extract up to 200,000 tonnes of quarry material per annum. The current EPL (No. 20650) limits production to 100,000 tonnes per annum.

The location of the above quarries are illustrated in **Figure 2.13**. It confirms the strategic location of faheys Pit in terms of proximity to and servicing of any road upgrades of either Armidale Road or Waterfall Way.

There are other quarries in the region, however, they are located either on or near the coast, to the east, and are not competitors for the road projects to be served by Faheys Pit. They include the quarries at: Valla Road, Valla, operated by Bayrange Group [NOTE: a client of Outline Planning Consultants]; Nambucca Valley Gravel, Pacific Highway, Macksville, recently purchased by Boral; Holcim Quarry, Boambee; Jungs Quarry, Karangi, Operated by TG Jung Quarries and Bayrange group [NOTE: a client of Outline Planning Consultants]; Woolgoolga Quarry, located north of Coffs Harbour; and Central Bucca Quarry [NOTE: a client of Outline Planning Consultants.

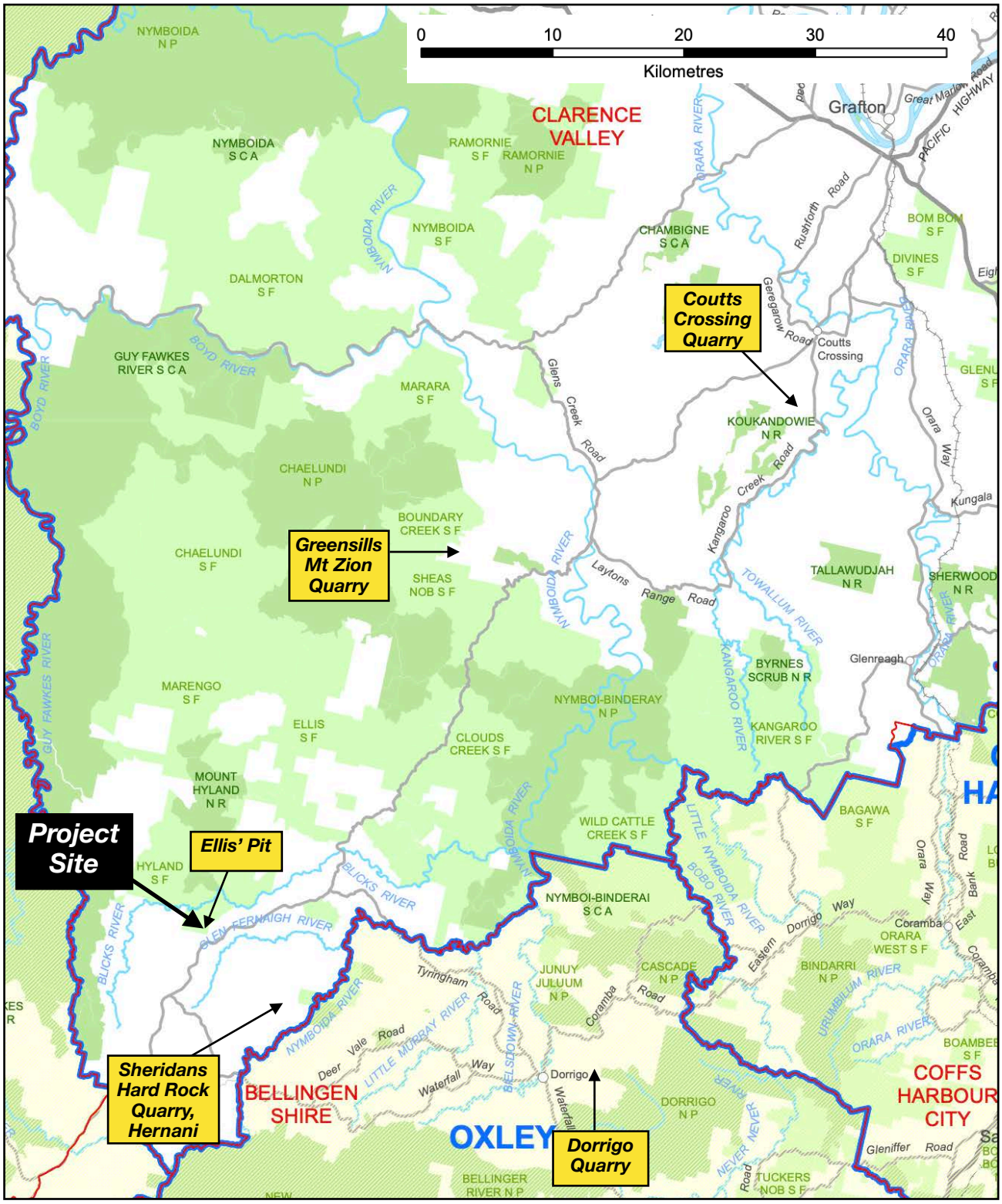


FIGURE 2.13: Other operating quarries in the area (approx. location)

(Source: NSW Government Electoral District of Clarence map)

2.8 Local Strategies

The proposed quarry development is consistent with a number of key policy directions outlined in Council's *Clarence Valley Local Strategic Planning Statement* (July 2020), and in particular:

- Encouraging development which supports a growing population and the creation of meaningful job opportunities (Priority 11). Quarries, like the project, provide local jobs and support local industry. In a broader context, Australian quarries support our vital building and construction industries which generate over $200 billion in revenue each year and directly employ more than one million Australians. The building and construction industry demands more than 200 million tonnes of construction aggregates each year to meet the need for our homes, workplaces, public buildings and roads. As well as providing these essential materials, quarries stimulate local communities through investment and by providing jobs. In fact, the quarry industry creates over 10,000 jobs directly and supports another 80,000 indirectly, often in rural and regional locations (source: Cement Concrete & Aggregates Australia website August 2022).
- Improving accessibility across the region. Avoiding, mitigating and managing natural hazards and protecting key environments (Priority 15). The continuation of quarrying at Faheys Pit will enable quarry products to be provided to local and regional road projects, including the planned upgrades to Waterfall Way, as set down in the NSW Government's 2017 *Waterfall Way Draft Corridor Strategy*.
- Encourage ecologically sustainable development (Priority 16). The project accords with the principles of ecologically sustainable development- refer to Section 7.1.2 of this EIS for further details.
- Collaborate and engage with Traditional Owners and Local Aboriginal Land Councils in identifying sites of cultural significance (Priority 2). In this regard a Due Diligence assessment of the Project Site, involving a site inspection with representatives of the Dorrigo Plateau Local Aboriginal Land Council (DPLALC) and Niche Environment and Heritage (Niche), was undertaken in June 2022. it was determined by DPLALC and Niche that due to the high levels of disturbance and landscape within the Project Site, no further investigation or impact assessment was required.
- Preserve and enhancement of local character of places (Priority 6). The quarry is an established, approved quarry pit that adjoins an existing quarry pit owned and operated by Council. The character of the local area has been defined by these two quarries, approved by the local council at the time some 26 years ago. Both quarries are suitably buffered from neighbouring rural residences, in accordance with the NSW Department of Primary Industries' interim guideline entitled Buffer Zones to Reduce Land Use Conflict with Agriculture (2018). Moreover, Faheys Pit is obscured from view of any neighbouring residence and from Armidale Road by virtue of intervening topography and forested lands.
- Coordinate local and State funded infrastructure delivery (Priority 7). Includes upgrades to Waterfall Way ("0-10 years"). The Project Site is well positioned to service such road projects.
- Protect agricultural land (Priority 13). In this regard the project Site has a low suitability/capability for agriculture, and is not mapped as "Important farmland" in Council's draft *Rural Lands Strategy* (June 2022). [NOTE: This figure shows that the land to the north of Armidale Road is not 'important farmland", with the land to the south of Armidale Road mapped as "Important Farmland".]
- Sustainably manage natural resources (Priority 19). The quarry development gives effect to Action 19.1, inter alia: "*Plan for the development of the regions natural, mineral and forestry resources*.." And Action 19.2, namely: "*19.2 Plan for the ongoing productive use of lands with significant construction material resources in locations with established infrastructure and resource accessibility*." Local geology determines where the resources are located. Quarries must be located where these materials are and where existing transport infrastructure, principally roads, are available to get the materials to market. In this regard Faheys Pit is strategically located with direct access to Armidale Road. Faheys Pit is consistent with the above actions in that it is an established quarry with a known economic resource.

2.9 Concluding Summary

This section of the EIS identifies the key strategic issues that are relevant to the assessment of the Project. The matters canvassed in this EIS provide strategic support for the Project, as outlined below.

- Faheys Pit is one of a handful of approved road base quarries operating on the Dorrigo Plateau. The Project proposes to extend the life of the quarry through a lateral expansion and deepening of the quarry. The product road base from the Project would be suitable for use in road making and allied uses both locally and within the broader region.
- Related to the above, being located in a highly accessible location on the Dorrigo Plateau, with direct frontage to Armidale Road, provides significant benefits to both the quarry operator and road projects in the region- in particular the planned upgrade of Waterfall Way between Urunga and Armidale as described in the *Waterfall Way Draft Corridor Strategy* and any upgrades to Armidale Road.

  For the quarry operator and road builders, these benefits relate to, but are not limited to, delivered cost, supply chain certainty, just-in-time supply with associated working capital benefits, and the maintenance of a competitive supply base, whilst minimising their carbon footprint associated with raw material freight from more distant quarries.
- Approval of the Project would optimise the potential to extract a proven quarry resource from the Project Site with minimal environmental impact. Moreover, the Project would provide economies of scale for the quarry operator.
- Continuation and increase in operational employment at the quarry, with more expenditure-induced indirect jobs. The local and regional community provide both the markets for the quarry's products and the workforce, suppliers and services required to operate the quarry.
- The Project Site is well situated in that it is shielded from view from Armidale Road and neighbouring residences (save for the sawmill residence), not prone to flooding, landslips, mine subsidence or coastal hazards. The progressive development and rehabilitation of the Project Site would be managed to ensure that impacts on the downstream drinking water catchment can be satisfactorily minimised through the implementation of various soil and water mitigation measures proposed within the quarry and disturbed area below the quarry. With these measures in place, the Project is unlikely to have a significant impact on local and/or regional surface water quantity or quality.
- Safeguards have been incorporated into project design to either eliminate, or reduce to acceptable levels, any likely environmental impacts. In particular, noise, blasting, water quality and dust impacts will be effectively controlled. Applying the safeguards proposed, the proposed quarry can be conducted within acceptable environmental parameters.

3.Project Description

3.1 Introduction

This section of the EIS provides a comprehensive and consolidated description of the quarry Project for which development consent is being sought. If approved, the applicant will be required to carry out the Project in accordance with the project description in the EIS, the mitigation measures and the conditions of consent. Consequently, the project description, the mitigation measures and the conditions of consent for the project will become the primary reference point for checking compliance if the project proceeds. In the case of quarry developments, it is important to note that due to inevitable variations in market demand over time and changes in technologies, there will be commensurate variations in the rates of extraction/production, quarry truck traffic, blasting and sequencing of the quarry operation in any one year. These are changes that can be absorbed by any consent, without the need for amendments or modifications to the development consent if the quarry project is approved. Refer Section 3.4.5 for further details.

3.2 Project Overview

It is proposed to regularise the continuing use of the site as a quarry at the same time as seek approval for a lateral extension of the quarry with an increased rate of extraction of up to 150,000 tonnes per annum. The ultimate size of the resource will be determined following more detailed design, however, preliminary estimates indicate an additional resource of approximately 730,000 cubic metres-equivalent to about 1.8 million tonnes (Mt). The principal objective of the proposed development is to deepen and extend the extraction area so as to extend the life of the quarry and to maximise winning of an important and valuable resource, enabling a continuation of the extraction and production of a range of road construction and allied quarry materials. The total quarry, including the land proposed for lateral extension, will have an area of approximately 4.1ha. Table 3.1 presents a summary of the key Project components.

Table 3.1: Key quarry project components

Quarry component	Summary description
Extraction Method	*Bulldozer or excavator used to remove weathered rock and topsoil for rehabilitation, with drill and blast used for unweathered rock.*
Resource	*Approx.1.8 million tonnes of weathered and unweathered siltstone, rare litho-feldspathic wacke and conglomerate, comprising Moombil Siltstone geology.*
Disturbance area	*A lateral expansion of existing quarry to include all cleared areas, with extraction of up to about 42 metres in depth. Total quarry area approximately 4.1ha.*
Processing	*Crushing and screening of unweathered and weathered siltstone material. Processing plant to be brought in to the site on a campaign basis.*
Rate of extraction	*Up to 150,000 tonnes of quarry resource extracted per annum for up to 30 years.*
Transport	*Access to the quarry from Armidale Road, the existing quarry haul route. It is anticipated that the quarry may generate up to 60 loaded quarry trucks per day.*
Water management	*All stormwater in the quarry floor and active quarry areas is directed to the sediment basin located in the base of the quarry.*
Hours of operation	*Limited to 7.00am to 6.00pm Monday to Friday (ie. 11 hours operation per day) and 7.00am to 1.00pm on Saturdays (ie. 6 hours operation). Hours of blasting are to be restricted to 9.00am to 3.00pm Monday to Friday.*
Total recoverable resource and project life	*Preliminary estimates indicate that the total quarry resource is estimated to be approximately 730,000 cubic metres-equivalent to about 1.8 Mt.*
Workforce	*Up to 4 employees working on site + contractors (eg. blasting contractor, machinery servicing contractors, refuelers).*
Key environmental issues	*Impacts relating to noise and blasting impacts, soil and water management, bushfire, rehabilitation and traffic.*

▪ 3.3 Project Area

The Project Area, including the existing quarry and internal access route, comprises a total area of approximately 3.6 hectares (ha).

The eastern boundary of the Project area is coincident with the eastern boundary of Lot 31 DP 1203488. The southern boundary of the project area reflects the extent of current quarrying activities, including the internal quarry haul route, with a setback of 15m applying to the quarry extension area. The northern boundary of the project area extends down to around RL 1050m.

A small part of the internal haul route running from the Project Site back to Armidale Road traverses Lot 2 DP 1139996, and as a result also forms a part of the land the subject of this development application.

Photographs 3.1 and 3.2 illustrate the general extent of the existing quarry and area proposed for lateral expansion.

PHOTOGRAPH 3.1: Oblique drone photograph of quarry pit (left & centre) and cleared area below the existing quarry (right hand side). View looking west

(Source: Drone photography Newnham Karl Weir surveyors March 2022)

▪ 3.4 Layout and Design

3.4.1 Introduction

The existing and proposed quarry footprint will be modest in size. As such, only two quarry stages are shown: Stage 1 and Final Stage.

The accompanying **Figures 3.1** and **3.2** illustrates the staging of the project, including location of key components including sediment basins, internal roads, quarry processing area and overburden stockpile areas.

Figure 3.3 illustrates the rehabilitated site following completion of quarrying.

PHOTOGRAPH 3.2: Oblique drone photograph of cleared area below the existing quarry proposed for lateral expansion (centre and right hand side). View looking west

(Source: Drone photography Newnham Karl Weir surveyors March 2022)

3.4.2 Buildings

Given that the Project Site will be quarried on a short-term campaign basis only, no buildings are proposed at this point in time. It is envisaged that sheds and amenities may be added at a later date, however, these can be facilitated under the Exempt Development provisions of *State Environmental Planning Policy (Resources and Energy) 2021*.

3.4.3 Internal Roads

No changes are proposed in terms of the method of product loading or product despatch of quarry products from the Project Site back to Armidale Road. As a result, the Project does not require the construction of any new roads beyond the Project Site boundary for the despatch of products fro the Project.

Changes are proposed to the internal haul road, to accommodate the expanded quarry footprint.

3.4.4 Stockpiling of Quarry Product

Crushed quarry product would be transferred by conveyors to various stockpiles, created according to the size and grade of quarry product, within the quarry footprint.

3.4.5 Flexible Elements to Quarry Operation

Quarry developments undergo changes over time commensurate with changes in demand for quarry products, sequencing of development and changes in technologies. This subsection outlines the components of the Project that are likely to be subject to changes or refinements throughout the Project life without causing any substantial changes in environmental impacts or need for any further consent or modification approval under Section 4.55 of the EP&A Act. These flexible components include but would not be limited to the following:

- Introduction of permanent quarry plant and equipment. The current Project proposes that all quarry processing plant and equipment will be brought into the site on a temporary, campaign basis as and when required in order to meet any specific orders for quarry product. The environmental impact of quarry plant and equipment in order to service this project have already been assessed as a part of this EIS.
- The location of quarry plant and equipment within the Project Site, when employed on the site, would be shifted periodically, depending on the staging of the quarry sequence and project needs. The plant and equipment utilised on site will be progressively upgraded or refurbished over the life of the quarry to undertake the same tasks with similar or (most likely) reduced levels of noise or dust generation.
- Introduction of permanent buildings and sheds, as well as the location of sheds and buildings. If demand for quarry product is sufficiently high, there is logic in permanently storing equipment as well as workers facilities, as well as storage sheds or sheds used for workshops, on site. The location of any sheds and buildings, if erected, would be shifted periodically, depending on the staging of the quarry sequence and project needs. It is relevant to note that under the provisions of clause 2.13(f) of *State Environmental Planning Policy (Resources and Energy) 2021* sheds required for a quarry are Exempt Development provided that the following requirements are satisfied:

  "*(i) the shed is set back at least 100 metres from any public road and at least 200 metres from any dwelling that is not associated with the mine, petroleum production facility or extractive industry, and*

  (ii) the shed does not cover an area of more than 300 square metres, and

  (iii) the shed is not more than 10 metres high, and

  (iv) any spillage from chemicals or fuel stored in the shed will be caught by an appropriate and adequately sized bund, and

  (v) the shed is located on land that has been lawfully cleared of vegetation, and

  (vi) the shed meets the relevant deemed-to-satisfy provisions of the Building Code of Australia,"
- Larger sheds of up to 500 square metres are permitted as Exempt Development under clause 2.14(2)(b) of of *State Environmental Planning Policy (Resources and Energy) 2021* provided that the land is not within an environmentally sensitive area of State significance (NOTE: the Project Site is not so designated). Similarly, clause 2.14(2)(a) of of *State Environmental Planning Policy (Resources and Energy) 2021* provides that the construction, maintenance and use of toilet and shower facilities are also *Exempt Development* provided that they meet ss 68 and 68A of the *Local Government Act 1993*. Refer to Section 4 for details as to what constitutes "an environmentally sensitive area of State significance".
- Provision for wheel-wash facilities in the quarry. Clause 2.13(h) of *State Environmental Planning Policy (Resources and Energy) 2021* provides that construction, maintenance and use of wheel or vehicle wash facilities in a quarry are Exempt Development provided that the following requirements are satisfied:

  "*(i) waste water is treated and reused on site or disposed of at an approved waste management facility, and*

  (ii) the wheel or vehicle wash facilities are located on land that has been lawfully cleared of vegetation,"
- Provision for the water storage tanks in the quarry. Clause 2.13(i) of *State Environmental Planning Policy (Resources and Energy) 2021* provides that construction, maintenance and use of water storage tanks in a quarry are Exempt Development provided that the following requirements are satisfied:

  "*(i) the storage tank capacity does not exceed 100,000 litres, and*
  (ii) the storage tank is located on land that has been lawfully cleared of vegetation."

- Related to the above, the quarry may also utilise smaller sumps within the active extraction area to collect sediment and runoff, prior to discharge to the main sediment basins. The precise location of these sumps will change as the shape of the quarry changes and develops, and would be determined by the quarry operator as needs arise.Internal haul road locations.
- Throughout the life of the Project life, the internal haul roads within the active quarry will be periodically relocated in order to satisfy the requirement for safe access to quarry plant and equipment and the active quarry working face.
- Overburden emplacement. During the life of the Project overburden will be moved to various locations in order to enable safe access to the quarry resource, to enable the site to be properly drained, and to enable subsequent rehabilitation. The placement of overburden (including soil) is an activity that would rely upon areas being available at the time when the overburden is being removed. Minor variations may be necessary to accommodate the overburden extracted throughout the Project life.
- Extraction sequencing and staging. Minor changes will inevitably be made to the areas being worked over time, given changes in demand for quarry product, however, such changes would still be in accordance with the overall quarry concept proposed.

3.4.6 Services

The current site is not connected to any mains power or reticulated water or sewage services. The extraction operations to be carried out within the Project Site would continue to operate with limited services. No potable water supply is available to the site. Water for human use will be supplied and transported to the site on an individual basis.

All mobile plant and equipment within the Project Site would be diesel powered, with power for the operation of the office/amenities block and other minor ancillary needs produced by diesel-fuelled generators.

The annual water requirement for dust suppression on the internal gravel access route would be approximately 1ML for all stages of the project. The annual water requirement for the processing of quarry material and dust suppression for stockpiles and immediate surrounds would be approximately 4ML at maximum production. The bulk of this water would be initially drawn from the existing sediment basin at the southern end of the project, and from the lower main sediment basin at the base of the quarry area shortly thereafter. It is estimated that the annual runoff collected from the above sediment basins should be capable of meeting the current and projected annual quantity of water required for the Project. Water demand for the Project is discussed in Section 7.3.4 and **Appendix G**.

All communications within the Project Area would be undertaken with mobile phones and VHF radios as there are no fixed telephone lines within the Project Area.

3.4.7 Identification of Quarry Operational Area

The boundary of the area proposed for quarrying activities (‘operational area’, ‘quarry footprint’) is to be clearly marked out on-site, with durable pegs or other markers prior to commencement of quarry operations. The identification marks will remain in place for the life of the quarry. The quarry operator will be made aware of the boundary markers and the limits of the quarry operational area.

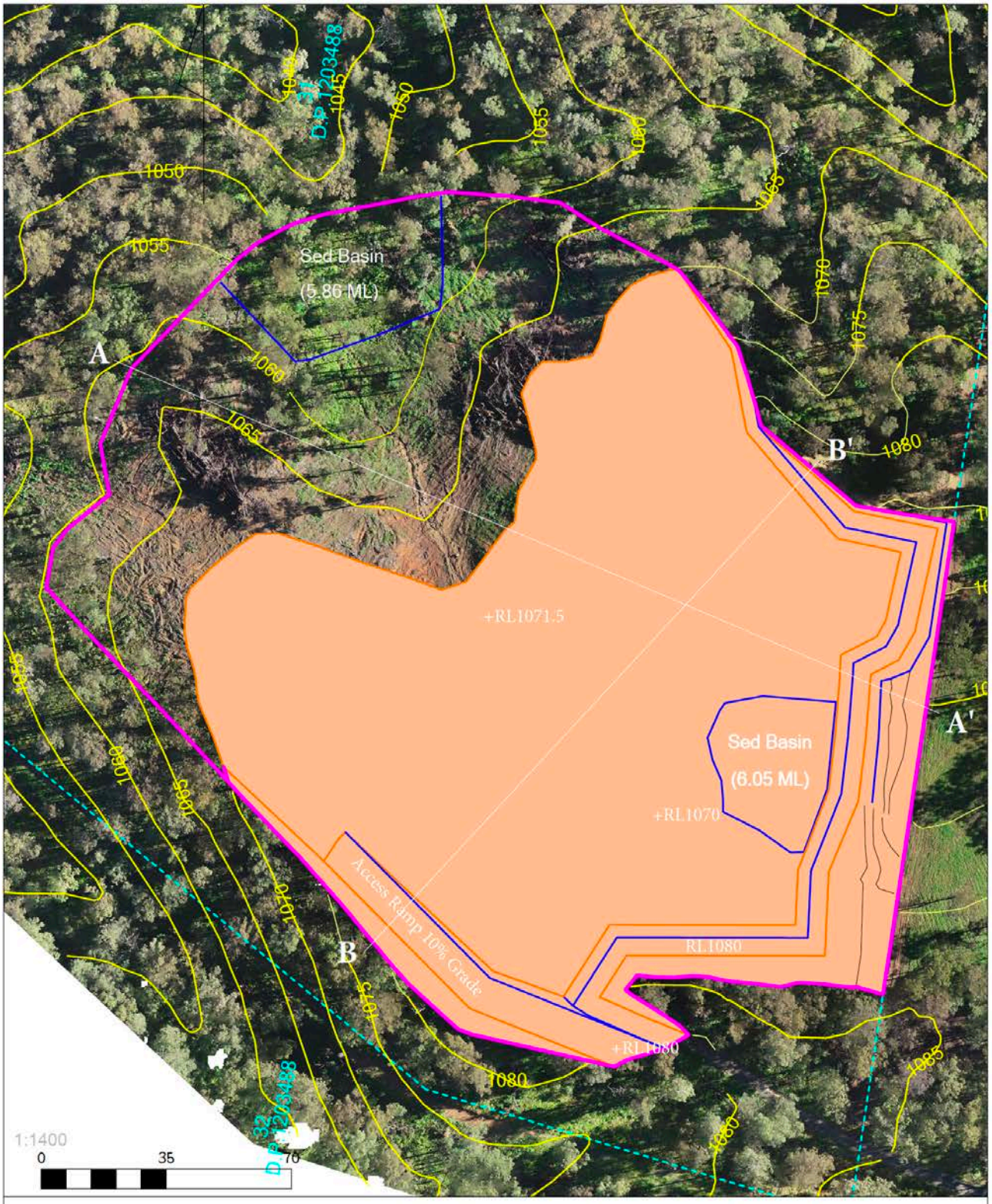


FIGURE 3.1: Stage 1

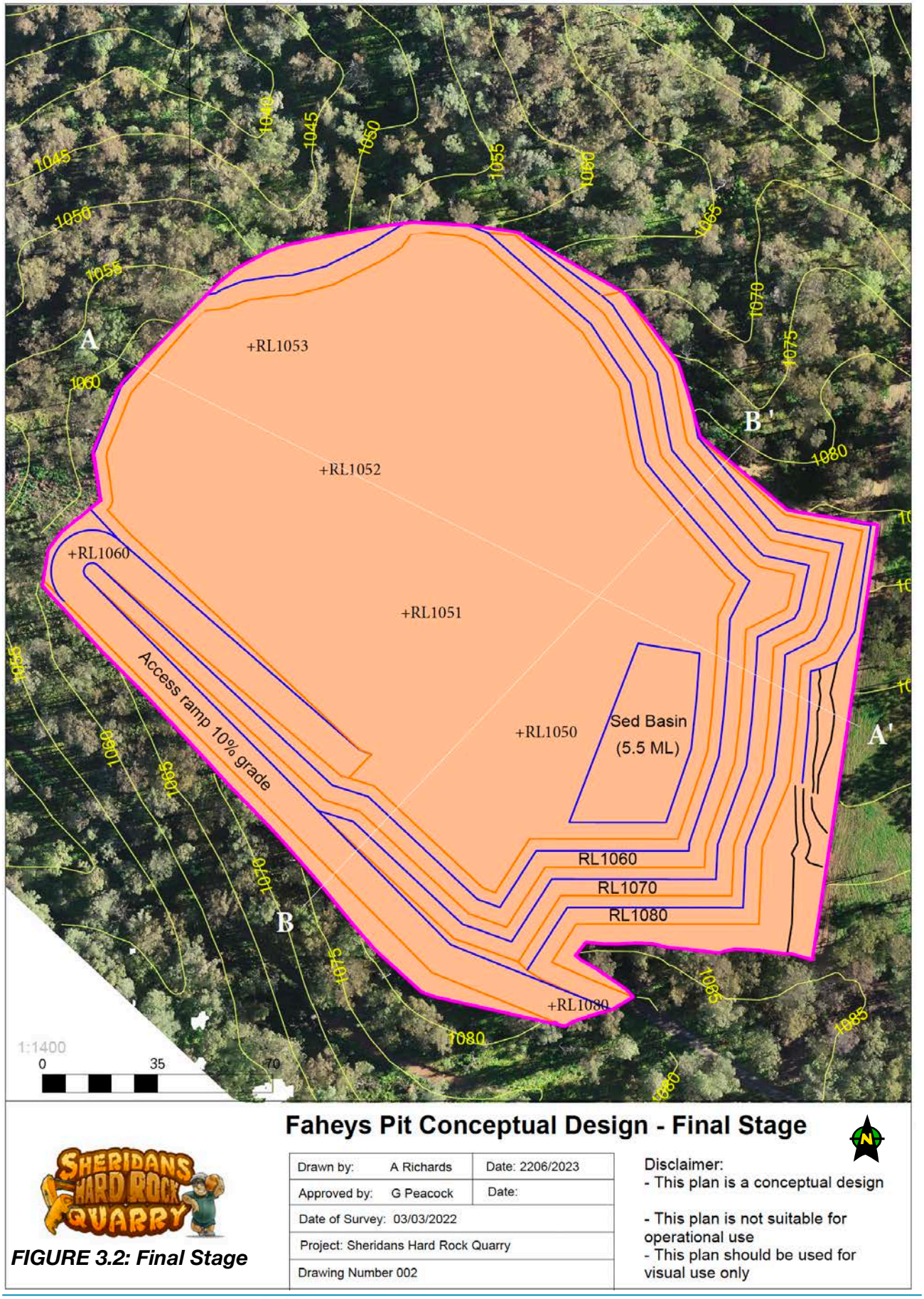
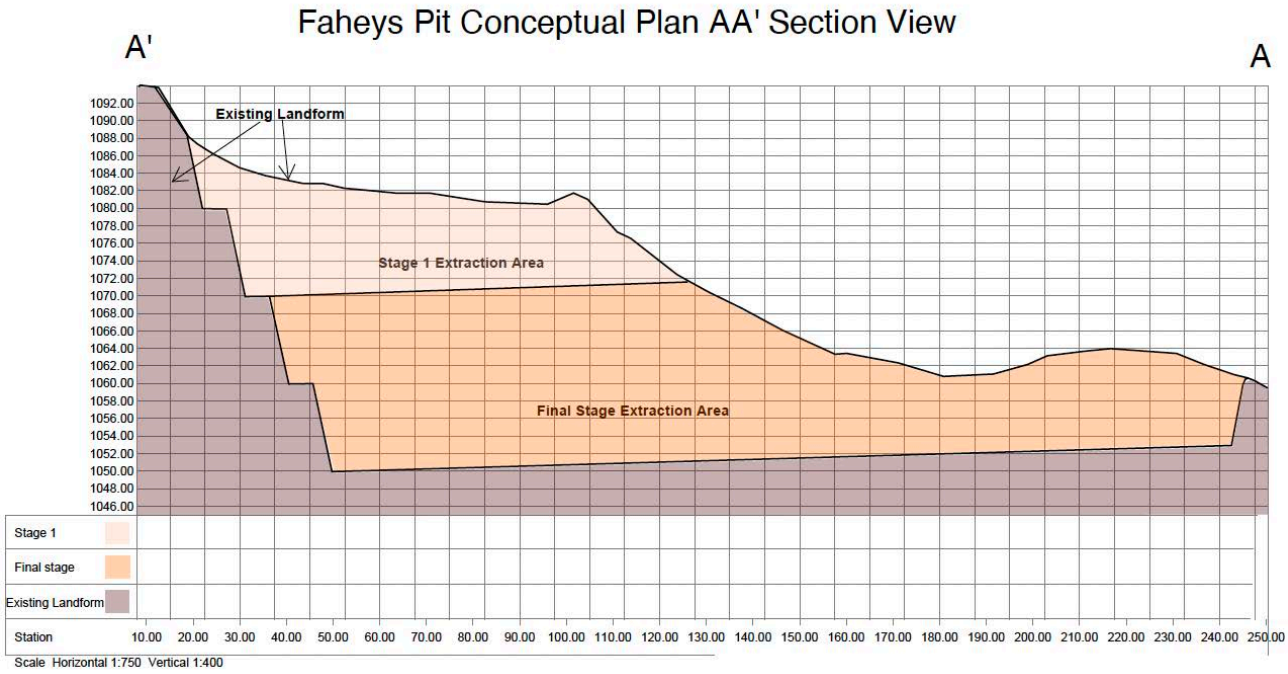


FIGURE 3.2: Final Stage



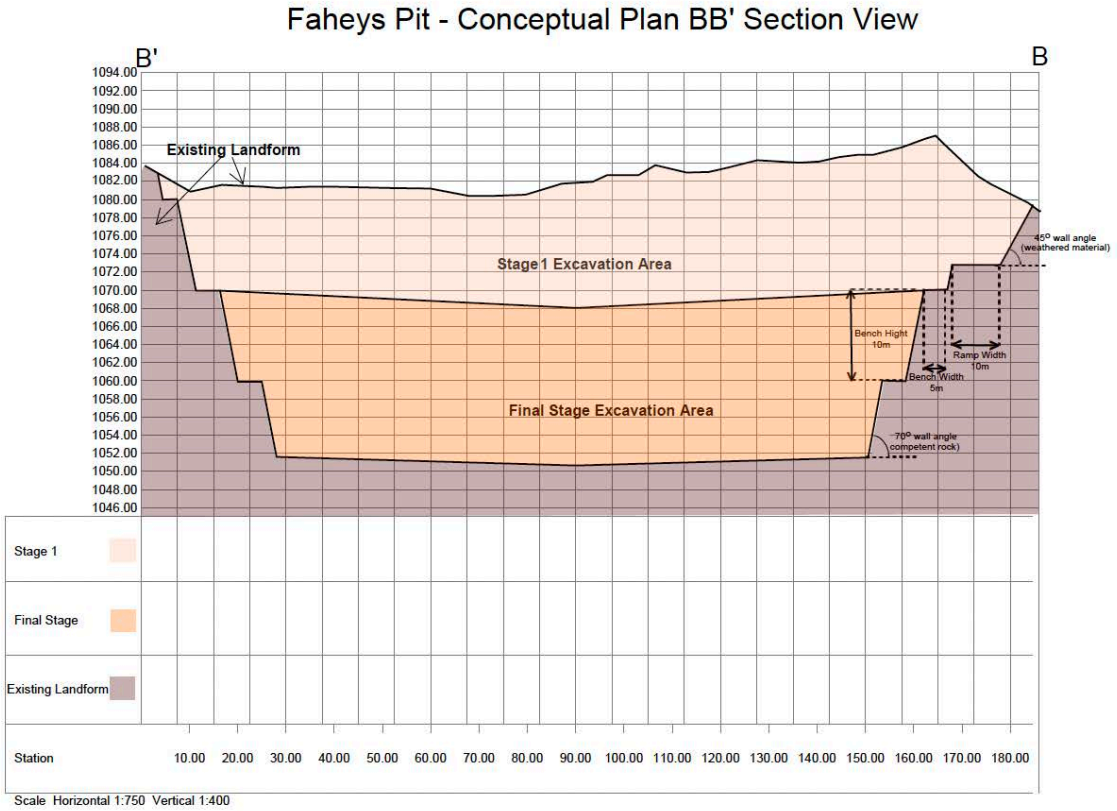


FIGURE 3.3: Sections by each stage of quarrying

(Source: Sheridans Hard Rock Quarry Pty Ltd)

3.5 Land Uses and Activities

3.5.1 Land Uses Within the Project Area

The existing and proposed land uses within the Project Site may be summarised as follows:

- Extraction of the quarry resource from within the designated quarry footprint, including the processing, product stockpiling and despatch of quarry product from the Project Site via an existing haul route back to Armidale Road.
- Retention of bushland area surrounding the proposed active quarry footprint.

3.5.2 Extraction Method

The general procedure for extracting material from an active pit at Hernani Quarry will comprise the following activities:

- Install erosion and sediment control works, including diversion drains and catch drains.
- Strip and stockpile the topsoil for use in future rehabilitation works. All vegetation removed ahead of extraction would be mulched or retained as logs or branches for rehabilitation purposes. The stripped topsoil and subsoil would be removed on a campaign basis in advance of extraction operations commencing.
- Remove the overburden (i.e. decomposed rock) with an excavator, dozer or front-end loader (the better quality overburden will be processed for use as road base, with the lower quality overburden being stockpiled for use in rehabilitation works or sold as fill material).
- Remove loose rock with an excavator or dozer, and transport to the processing plant for crushing and screening.
- Carry out a drill and blast program for the remaining hard rock.
- Transport the blasted rock to the processing plant for crushing and screening.
- Stockpile the various processed quarry products until trucked off site.

3.5.3 Blast Management

The quarry operator has experience in managing other quarries in the region, including FaheysPit, including the management of noise and blast issues. The winning of overburden and hard rock will be on an as-needs basis, and will be achieved by excavation and blasting, the latter generally comprising:

- Blasting to be undertaken by a licensed blasting contractor who are responsible for drilling, blasting and the delivery of bulk explosives to the quarry on a campaign basis.
- All recognised safety procedures and protocols will be observed.
- Blast holes will be drilled into the in-situ rock with a hydraulic drill. This entails the drilling of a pattern of regularly spaced holes using a hydraulic drill rig fitted with dust suppression equipment- refer to Photograph 3.3 showing a drill rig at work at Sheridans Hard Rock Quarry at nearby Hernani on the Dorrigo Plateau.
- Approved explosives will be placed down the blast holes and holes appropriately filled with stemming, to minimise the potential for fly rock and maximise the efficiency of each blast and quality of rock produced.
- The explosives will be detonated, fragmenting the in-situ rock. All blasts will be undertaken in order to comply with the EPA's vibration and overpressure requirements- refer Table 3.2.
- Blasting at the premises will be limited to 1 blast on each day on which blasting is permitted.
- To minimise vibration and noise impacts, blasting will be restricted to between the hours of 9.00 am to 3.00 pm, Monday to Friday. Where a blast failure has occurred or there are compelling safety reasons, permission is sought for the EPA to permit a blast to occur outside the above mentioned hours.

Explosives will not be stored onsite. Explosives used in blasting on site will be brought onto the site by the blasting contractor during the preparation of the blast.

PHOTOGRAPH 3.3: Drill rig in the process of drilling holes for blasting at Sheridans Hard Quarry operation at Hernani

(Source: Photograph taken 16 February 2022. View looking east from near quarry office)

Explosives will not be stored on site and will be brought onto the site by the blasting contractor during the preparation for each blast. The quarry has been designed to ensure acceptable blasting impacts. Blasting will be strictly controlled and monitored in order to achieve compliant levels of ground vibration and airblast overpressure at the nearest rural dwellings. Records are to be maintained for each blast at the quarry.

Table 3.2: EPA Quarry Blasting Limits

Noise/Blasting item	Principal Standard (Limit) Nearest Residence	Maximum Level Permitted Nearest Residence
Airblast Overpressure	*Airblast overpressure of 115 dBL (Lin Peak). This level may be exceeded on up to 5% of the total number of blasts over a period of 12 months*	*Airblast overpressure should not exceed 120 dBL (Lin Peak) at any time*
Ground Vibration	*Ground vibration level of 5 mm/s peak particle velocity (PPV).This level may be exceeded on up to 5% of the total number of blasts over a period of 12 months*	*Vibration should not exceed 10 mm/s peak particle velocity (PPV) at any time*

All residents within the immediate vicinity of the Project Site would be notified in writing with a copy of these Blast Warning procedures and will be advised verbally at least 24 hours prior to every intended blast. Typically:

- A modulated frequency siren will be played with one long blast of 15 seconds duration one minute before firing.
- The signal "fire" given immediately before the charges are fired.
- The siren will be played with three short blasts of one second duration each separated by one second as an "all clear" signal.

3.5.4 Rate of Extraction of Quarry Resource

It is proposed that the rate of extraction (and not production) undertaken at the Project Site would be up to a maximum of 150,000 tonnes per annum from a resource totalling approximately 1.8 million tonnes. [NOTE: “extraction” means taking the material out of the ground per Pain J in *Hy-Tec Industries (Queensland) Pty Ltd v Tweed Shire Council* [2019] NSWLEC 175].

Importantly, Faheys Pit will not be operated continuously, but on a campaign basis only when there is a major roads or infrastructure project that needs to be supplied with product from this quarry. At a maximum of 60 loaded trucks per day carrying loads of 32 tonnes would mean that up to 1,920 tonnes of quarry product could be exported from the site on any one day, or 9,600 tonnes per (5 day) week. With larger trucks, up to 11,400 tonnes could be transported off-site in any given week. At a maximum rate of extraction of 150,000 tonnes per annum means that the quarry has a capacity to run for just under 14-16 weeks at full capacity, equivalent to between 25% to 30% of the year.

3.5.5 Processing of Quarry Material

Quarrying, as an extractive industry, includes processing of the blasted quarry material by crushing and grinding. Raw material won from the worked quarry face is dumped into a feed hopper from where it will feed into a heavy duty crusher. The processing plant will reduce the size of the rock won from the quarry by crushing, then screens will be used to separate the materials into various sizes and product types. Mobile crushing and screening plant is proposed, however, once the quarry becomes more established this plant may become permanent. The mobile primary crusher and screen would be a McCloskey J50 jaw crusher and a Metso 220D combination Cone /twin deck screen or similar producing select material , DGS40 ,DGB20 road base materials as well as drainage rock and gabion. The crusher would be fed with an excavator. The quarry operator would use the primary crusher and screen throughout the quarry project, typically located on the bench below each blasted bench in order that blasted rock can be conveniently accessed and processed. Once processing has been completed, the crusher and screens would be then relocated away from the next blast on the active quarry after which it would be repositioned. In order to minimise the impact of noise generated by the crushing of quarry rock, the crusher would be positioned as near as possible to each active working quarry face. The accompanying Photograph 3.4 shows typical mobile plant and equipment to be used.

PHOTOGRAPH 3.4: View of mobile plant and equipment at active working quarry face, Hernani

(Source: 17 November 2021 photograph. Sheridans Hard Rock Quarry, Hernani. View looking east from near quarry office)

The crushed quarry rock will then be transferred by conveyor to different sized screens for segregation into various product stockpiles. The stockpiles of processed quarry product would be established around each crushing plant before being transported off-site by heavy transport.

During the life of the quarry, the components of the crushing and screening plant will need replacing on an ongoing basis, as the components come to the end of their operational life. The components will be replaced with equivalent new or second-hand models. Typical plant used at the quarry include front end loaders, excavators, Caterpillar bulldozer and wheel-loaders, and service trucks including water cart.

It is proposed that instead of relying on a weigh-bridge to record the weight of processed quarry material despatched from the site the quarry operator will, instead, rely on and maintain an on-board weighing systems installed on all front end loaders, excavators and all other loading machinery in order to keep accurate records. This method of record keeping has been successfully employed at Sheridans Hard Rock Quarry at Hernani. The stored weighing data is to be provided to Clarence Valley Council every three (3) months.All practical measures will be used to silence construction equipment, particularly in instances where extended hours of operation are required. No operations are proposed on Sundays or public holidays. Standard construction noise mitigation treatments involving operational management techniques (eg avoidance of mobile equipment clustering) and regular equipment maintenance will be employed to control the extent of the noise impacts around the processing plant site at the quarry pit level.All plant and equipment must be maintained in a proper and efficient condition and must be operated in a proper and efficient manner.

The quarry will produce a number of products, including (but not limited to) DGB20 base, DGS40 sub base, road base and select material. In terms of the latter, select material is imperative for TfNSW and local council specified/engineered construction.

3.5.6 Drainage and Sediment Capture

The drainage and sediment capture systems to be employed will prevent erosion, as well as ensuring that run-off does not contaminate offsite areas or downstream waterways- an important objective given the quarry lies within a drinking water catchment. The main features of the stormwater basin system employed are as follows.

The stormwater system has been designed to ensure that 90th percentile 5-day rainfall events (up to 85 mm) are captured by the quarry sediment basin system. In Stage 1 the upper sediment basin, which has a capacity of 6.05ML, will capture stormwater from the active quarry area, with a larger sediment basin, located at the base of the intended quarry area, having a capacity of 5.86ML capturing all stormwater from cleared and/or disturbed areas on the Project Site- refer **Figure 3.1**. The water captured from the quarry sediment basins will be re-used for quarry-related purposes such as dust suppression. In the Final Stage all stormwater will be directed to a 5.5ML sediment basin- refer **Figure 3.2**. All basins meet Blue Book requirements and water balance for average, dry and wet years.

The effectiveness of these sediment control measures is proposed to be continuously monitored by the quarry operator and improvements made where necessary, with the following applied:

- Erosion and sediment control structures to be inspected regularly, or after any major rainfall event, to assess their success in preventing erosion, identify signs of potential erosion and retained sediment basin capacity.
- The erosion and sediment control structures to be cleaned of accumulated sediment material (or extended or replaced) as soon as approximately 30% capacity is lost due to the accumulated material such that the specified capacities are maintained. The sediment basins are to be treated, if required, to reduce the Total Suspended Solids level to the licensed concentration limit before being discharged to the environment. Treatment can be with gypsum or any other material that has been approved by the EPA.
- When required, a flocculent will be added to sediment basin to increase the efficiency of sediment settlement.
- Section 120 of the *Protection of the Environment Operations Act 1997* and EPL 20077 must be complied with at all times.

- The concentration of a pollutant discharged at the discharge point must not exceed the concentration limits specified for that pollutant in the Table 2.2 below. In this regard, the likelihood any overflow from the sediment basin is most unlikely, given the capacity of the sediment basin system and size of the bund proposed at the base of the final quarry.

Table 3.3: Proposed Water Pollution Limits Faheys Pit

Pollutant	*Units of Measure*	*50 and 90 percentile & 3DGM concentration limit*	*100 percentile concentration limit*
Oil & grease	*Visible*	*NA*	*Nil*
pH	*pH*	*NA*	*6.5-8.5*
Total Suspended Solids (TSS)	*Milligrams per litre*	*NA*	*50*

[NOTES: 1. The concentration limits in the table below do not apply to any discharge from the sediment pond(s) solely arising from a rainfall event exceeding the 90 percentile 5 day rain event in total falling over any consecutive five day period.

2. Controlled discharges from any sediment basins must not exceed the 100th percentile concentration limits set out in the water and/or land concentration limits table above].

3.5.7 Dust Management

Dust can be generated by a variety of different activities that are carried out at the quarry site including: drilling; rock breaking; crushing; extraction; trucks; machinery and blasting. Measures proposed to reduce dust nuisance include:

- Use of water sprays on processing plant and materials stockpiles. The quarry can draw water from the existing sediment basin.
- A water tanker will be regularly used to spray water on working areas during dry and windy weather conditions.
- Quarry trucks leaving the site to the public road system are to have covered loads, with tailgates effectively sealed. All vehicles on site are to be confined to designated roads with a signposted speed limit
- Potentially dusty activities are not carried out when weather conditions give rise to offsite dust emissions. Blasting will be restricted if windy conditions are likely to carry visible dust emissions beyond the quarry boundary where they could create a nuisance. Another measure is to minimise dust emissions from blasting by sequential firing and using minimum force.
- Miscellaneous dust sources such as spillages from trucks and silt from sediment controls are to be regularly cleaned up.
- Proper maintenance and tuning of the vehicles and equipment also assists in avoiding any off-site effects.
- Completed extraction areas will be stabilised and revegetated as soon as practical after completion.

3.5.8 Transport of Quarry Product

The Project Site would be accessed from Armidale Road via an existing site access road traversing Lot 2 DP 1139996 to the quarry. The Project seeks consent to allow up to 60 loaded trucks per day leaving the Project Site with quarry products.

Transportation of quarry products is typically by truck and trailer ('truck and dog') style vehicles to service markets.

Refer to Photograph 3.5 illustrating a typical truck and dog currently utilised by the quarry operator.

All processed quarry products destined for despatch from Faheys Pit would be sourced from the various product stockpiles within the quarry site. The stockpiled material would be weighed and loaded onto haulage vehicles prior to existing the site from the existing haul road that runs from the Project Site to Armidale Road. The quarry truck traffic hauling these loads for delivery to customers and projects would use either trucks owned by Sheridans hard Rock Quarry Pty Ltd, or use trucks owned by sub-contractors.

PHOTOGRAPH 3.5: Typical truck and dog to be used by the quarry

(Source: Sheridans Hard Rock Quarry)

Quarry products would also be transported using smaller haulage vehicles, including semi-trailers and rigid trucks. Once loaded, all haulage vehicles would be required to cover the load prior to exiting the Project Site. The Project would not result in any changes to the approved transportation routes. It is anticipated that over the life of the quarry the majority of product would be hauled along Armidale Road in a westerly direction, however, this could change if government funding is made available to upgrade that part of Armidale Road to the east of the Project Site. The rate of transportation in any one year would be dependent on demand for quarry product and the rates of extraction.

It is proposed to rely on the existing internal access route from Armidale Road to the operating quarry. This internal haul road system would run down into the lower sections as the quarry, wide enough to allow the safe movement of quarry haulage vehicles. The internal haul road system would also enable the transfer of crushed quarry product between the mobile crushing and screening plant within the active extraction area and product stockpiles on the quarry site. These would be formed by bulldozer, gravelled where necessary, and regularly watered to minimise dust potential. As the active extraction area moves and any temporary access roads become redundant, they will be either removed or covered with suitable material as part of progressive landform creation or rehabilitation program. A Driver Code of Conduct, virtually identical to that currently applying to Sheridans Hard Rock Quarry at Hernani, would apply.

3.5.9 Fuel Storage

If required, the primary fuel storage would be within a typical 50,000L self-bunded fuel storage tank (or similar) maintained on site, close to existing plant and equipment, setback from existing forested lands. These storage tanks would have double steel walls that allow for effective and safe storage of fuel, diesel and other liquids. The space between the inner tank and outer wall catches any leakages, consequently reducing the chances of environmental contamination or loss of product. Spillage through the first wall (also called the bund wall) is highly unlikely as the structures are robust, designed to prevent leaks or deluge of the liquids stored. Refuelling of the plant and equipment employed at the Project Site would be undertaken using a smaller 1,200L mobile tank maintained within a bunded area within the processing area. Small quantities of oil and waste oil, typically less than 1,000L, would also be stored on self-bunded pallets near the processing area and on-site amenities block.

3.5.10 Quarry Benching and Finished Quarry Face

The final overall slope proposed for the quarry batters will be approximately 45 degree slope with benches angled at 70 degrees- a design outcome that satisfies current quarry design 'best practice' in the document entitled *Guidelines for Open Pit Slope Design* 2009 promoted by NSW Trade & Investment- Mine Safety. The stability of the quarry and surround areas would continue to be monitored during the project, to ensure a safe work environment.

It is proposed to construct minimum 5m wide benches with a maximum quarry face height of 10m, with these specifications being amended as site conditions and geology dictate- refer to Douglas Partners geotechnical assessment in **Appendix C**. The cut slopes and particularly the proposed access ramp should be regularly inspected by authorised quarry personnel for signs of movement during operation and in the event of adverse weather (say daily rainfall totals exceeding 40 mm). The benches will be rehabilitated on a progressive, ongoing basis to ensure the early establishment of vegetation once quarrying is completed.

▪ 3.6 Hours of Operation of Quarry, Life of Quarry

The accompanying Table 3.3 sets out the proposed hours of operation for activities planned for the project.

Table 3.4: Proposed Hours of Operation

Activity	*Monday to Friday*	*Saturday*	*Sunday, Public Holidays*
Extraction, Processing of Quarry Product	*7.00am to 6.00pm Monday to Friday (ie. 11 hours operation/day)*	*7.00am to 1.00pm on Saturdays (ie. 6 hours operation/day)*	*Nil*
Blasting	*9.00am to 3.00pm*	*Nil*	*Nil*
Maintenance	*6.00am to 6.00pm*	*6.00am to 4.00pm*	*Nil*

[NOTE: The current consent DA40/95 allows hours of operation at the quarry to be 6.00 am and 7.00 pm Monday to Friday and 6.00am to noon on Saturdays.]

The quarry will not operate outside these times, except under exceptional circumstances, where the supply of quarry product for emergency purposes is required, as allowed at Sheridans Hard Rock Quarry at Hernani (DA2014/0098 Condition 13). In this case for the Project, an 'emergency' would relate to the delivery of quarry products needed for emergencies, for example, flood prevention and/or repairs to local or regional or state roads or other infrastructure, and the like.

It should be noted that the 150,000 tonnes per annum extraction rate is a maximum only, set in order to accommodate demand for quarry product during a peak year only. For the purposes of the overall project, an operational quarry life of 30 years is assumed, based on a more modest average of 60,000 tonnes per annum, with an additional 2 years to provide for a period of maintenance following the completion of rehabilitation activities at the quarry. If lower rates of extraction are achieved a longer quarry life would result.

▪ 3.7 Management of the Quarry

Sheridans Hard Rock Quarry Pty Ltd, the quarry operator, will be responsible for all activities on-site and managing all other site personnel. It will be their responsibility to ensure all environmental measures are in place and are being managed according to the development consent, once issued. Responsibilities will include, but are not limited to, the following:

- Comply with the requirements of the development consent, once issued, as well as any EPL conditions.
- Implement controls for on-going management of the quarry in accordance with the above.
- Manage quarry pit works on a daily and longer terms basis, with oversight of production, onsite water and soil management, stockpile management, blast management, disposal of materials, and rehabilitation.
- Develop and maintain environmental performance of the quarry operation. This includes ensuring that site safety protocols are in place and development or implementation of control plans for hazards, including incident management.
- Ensure proper training and oversight of quarry staff and monitor performance of contractors.
- Undertake appropriate updates, reviews and audits of the quarry operation to measure progress and to ensure compliance with the relevant conditions of consents imposed by Clarence Valley Council and the requirements of the NSW EPA. Includes the lodgement of annual reports and attendance at site inspections.
- Managing customer or community complaints, and work with local residents if major issues arise, to ensure that an adequate response is given when environmental issues are raised.
- Respond to environmental incidents and arrange remedial measures to overcome the incident.

▪ 3.8 Employment, Training of Employees

Sheridans Hard Rock Quarry Pty Ltd at Hernani employs a staff of 20 full-time employees, including 7 truck drivers employed to drive the company's trucks, the workforce largely drawn from the local Dorrigo community.

The same staff will be employed on a campaign basis to assist in delivering quarry product from Faheys Pit, with up to an additional 4 staff employed for Faheys Pit alone. Sheridans Hard Rock Quarry Pty Ltd is continuously developing further projects allowing for company expansion and extended employment opportunities. The above workforce does not include truck drivers employed by other contractors, suppliers and other sub contractors periodically engaged by the quarry eg. blasting contractors.

The *Work Health and Safety Act 2011* (NSW) provides a framework to protect the health, safety and welfare of all workers and others in relation to NSW workplaces and work activities, including Hernani Quarry. SafeWork NSW is the WHS regulator for the state, administering acts and regulations related to WHS, including the Work Health and Safety Act 2011, *Dangerous Goods (Road and Rail Transport) Act 2008*, and the *Explosives Act 2003*. All health and safety measures to be applied will be in accordance with the NSW Resource Regulator guide *Health and Safety at Quarries* dated November 2018.

Similar to that currently applying at Sheridans Hard Rock Quarry at Hernani, the quarry operator will have the responsibility of inducting each person in the relevant quarry work procedures before commencing work at the quarry including but not limited to the following:

- Roles and responsibilities. All employees will be required to act responsibly and not cause or allow anything to occur that may harm the environment (such as fuel spills, disturbance to plants and animals in vegetated area to the north of and below the quarry areas, uncontrolled dirty water runoff, or excessive noise)
- Environmental incident management, emergency response plans and reporting procedures. All employees will be required to notify management of any incident or accident that may potentially harm the environment or human health.

Re-training may be required should there be any significant changes to quarry procedures, or if any non-compliance with existing procedures is noted by site inspection, monitoring, or by a regulatory authority or public complaint.

3.9 Waste Management

The only general waste products which will be generated at the quarry are waste oil, unserviceable machinery parts, and site office and lunch room wastes (e.g. paper, plastic, food scraps). Waste disposal will comprise:

- The waste oil will be taken to an oil recycler.
- Waste metal will be sold to a scrap metal merchant.
- All other general waste materials will be taken to Council's landfill site at Dorrigo for disposal.

Separation of recyclable materials (e.g. paper, glass, plastics) will be carried out wherever possible. It will be the responsibility of the quarry operator and contractors to take responsibility for the disposal of any waste that they create on site. If a site office and lunch room is established on site, a recycling bin and general waste bin will be provided to allow the separation of recyclable wastes. The different waste streams shall be appropriately separated and disposed at Council's landfill site. Sanitary facilities for the lunch room and toilet facilities at the workshop have been provided in accordance with the *Building Code of Australia*.

3.10 Emergencies and Hazards Management

Significant events at the quarry that may threaten the environment or public health include excessive rainfall, fire, fuel spillage on the access road, blasting mishap, unauthorised access or major truck accident. Other potential occurrences such as power failure, pump failure or spillage within the quarry would be unlikely to present a threat to the environment or public health as the effects would be contained within the quarry, allowing rectification to be planned and implemented in a co-ordinated manner. Should a major pollution incident occur affecting the external environment, the EPA will be advised by telephone as soon as possible and provided with written details as required. The following measures are to be taken to minimise the risks arising from the above types of emergencies:

- Fuel spill. All fuel to be stored within bunded areas. Fuel trucks will visit the site as required for refuelling purposes. In the event of a spillage:
  - Spilt fuel is to be collected where practicable.
  - The EPA to be contacted in the event of a major pollution incident details.
  - Should a significant amount of loose material be contaminated with spilt fuel it is to be collected and disposed of at a licensed landfill facility.
- Excessive rainfall. The quarry pit has been designed to be capable of retaining runoff from all rainfall within its catchment. While excess water may flood some low-lying parts of the quarry and be a hindrance to operations it will not be an emergency situation. The excess will be flocculated if necessary. Should the capacity of the sediment basin be exceeded, excess water will be discharged into the creek system below. When excessive rainfall is experienced, causing flooding of the quarry pit, the following mitigation measures are proposed:
  - Cease quarrying in flood-affected sections of the quarry.
  - Check drainage and sediment control devices for integrity and make any urgent repairs.
  - Relocate mobile machinery and moveable plant to higher ground, where required.
  - Clean affected areas after the event and check the sediment load within the sediment dam.
  - Flocculate the sediment basin, if required, using gypsum to minimise suspended sediment.

- Blasting mishap: Precautions are in place to prevent any incident occurring during blasting (refer to section 3.5.3).
- Unauthorised access: Access to Faheys Pit is through gates that are locked after hours. The sawmill owner next door has good surveillance over most of the quarry when the quarry is not in use. The quarry itself is not visible from any public viewing location. As such, the threat of unauthorised access is very small.
- Major truck accident: Potential vehicle accidents on the site include collisions. Should a vehicle be involved in a major accident on the premises, staff will initially attend to the needs of any injured personnel. If there is a spill of fuel, emergency response procedures will be initiated as described above. Should there be a spill of extracted material, steps will be taken to recover the material as far as practicable. The Police will be notified where necessary.

3.11 Fire Management

The Project Site was affected by the major bushfires which swept through the region in 2019-2020, burning all trees in the lower-lying portions of the site, but leaving unscathed the western and southern flanks of the site, including the internal quarry access road back to Armidale Road. In short, the threat from fire is real, the forested land on the site having a High fire risk.

Provided existing cleared areas and access are maintained, coupled with the implementations outlined below, the fire risk on the site can be managed to an satisfactory degree. Refer also to Section 4 and Section 7.3.10 for further details.

Proposed fire management measures proposed include:

- Fire fighting equipment to be stored at the quarry site, if any buildings are erected. [NOTE: No buildings are currently proposed by this development application]
- Fire reduction work to be undertaken on a regular basis within the total quarry footprint.
- Extinguishers to be kept on all mobile plant and site vehicles. The extinguishers are to be serviced regularly.
- Access to the quarry to enable access by RFS fire fighting vehicles.
- No explosives kept on site.
- All mobile equipment fitted with spark arresting mufflers.
- Retention of water run-off from the quarry in the sediment basins, suitable for use in fighting fires.
- The company's work instructions include emergency response and evacuation procedures including:
  - Responsibilities of personnel.
  - Rural Fire Service contact details.
  - Regular visual check and testing of equipment.
  - Staff training for fire emergencies, including training in fire awareness and basic fire fighting procedures.

3.12 Site Security

Site security and fencing is currently provided to prevent entry to Faheys Pit by unauthorised persons. Ongoing site security and fencing will comprise:

- The quarry site fencing is maintained, to keep farm animals from the quarry workings and to prevent vehicles inadvertently entering this area.
- The quarry is fenced from Faheys and Bulgins Road, ensuring that public access to the working quarry site is restricted.
- Security lighting of the office area and immediate surrounds.
- Appropriate signage is provided at the entry to the quarry, advising of:

- The need for all visitors to report to the office.
- The need for all visitors to comply with property policies as well as applicable workplace health and safety legislation.
- Prohibition on access without permission and without obtaining notification of any hazards on the quarry site.
- Need for protective clothing/hearing/eye protection in the quarry area.

3.13 Energy Requirements

As the site is not currently connected to mains electricity only one form of energy is likely to be used on the site-at least in the foreseeable future: diesel fuel. The total amount of fuel which will be used by the trucks which will be hauling material from the site will largely depend on the delivery destinations. It is anticipated that much of the material produced from the quarry will be used, at least in the next 10 years of so, for road works on Armidale Road or Waterfall Way.

The amount of fuel used will be a function of the distance travelled. Assuming an average round trip of, say, 100 kilometres (roughly equivalent to base of Dorrigo mountain and back again), fuel requirements for loading and transporting will be approximately 1,500 litres of diesel fuel per thousand (1,000) tonnes of material transported. At a maximum annual extraction/production rate of 150,000 tonnes of material per annum, total fuel usage for loading and transporting quarry products from the quarry is estimated at 227,000 litres of diesel fuel. Fuel will also be required for plant used on site. Fuel requirements have been assumed to be approximately 500 litres of diesel fuel per thousand (1,000) tonnes of material extracted. At a maximum annual production of 150,000 tonnes of material, total fuel usage for plant used on site is estimated at 75,000 litres of diesel fuel. These estimates are maxima only.

The proposed quarry does not sterilise any known potential source of oil or gas.

3.14 Rehabilitation

3.14.1 Overview

Quarrying is a temporary land use, and quarrying is expected to cease production at some point in the future. The closure of the quarry operation typically occurs when the resource is exhausted, and provides opportunities for land disturbed by quarrying to be rehabilitated.

The proposed development is to include a preliminary rehabilitation plan providing in concept form the measures to be employed on-site to enable the protection of existing vegetation, re-establishment of endemic plant communities, earth bunding and screen planting and treatment of final excavated surfaces. Progressive rehabilitation of extraction areas is proposed by rehabilitating slopes from the top of the cut face to the bottom.

Given the location of the site in a bushfire prone area, the proposed vegetation remediation is to be carried out in such a way as to ensure it will not result in an increased bush fire management and maintenance risk to adjoining land holders.

Quarry benches will be capped with a layer of overburden and topsoil, and planted with native species characteristic of vegetation within the surrounding landscape. The quarry pit will be filled to the extent possible using overburden and other material from on-site sources. On completion of quarrying the site is to be rehabilitated to form a free draining and sustainable landform as consistent as possible with surrounding landforms. The working quarry area will be reshaped to enable future use for grazing. Once completed, the aim will be to rehabilitate the quarry site to a stable condition. The relevant guidelines note that the primary aim of the closure and rehabilitation phase of a quarry is to minimise long-term erosion through effective revegetation (source: *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries* (DECC, 2008).

Refer to **Figure 3.4** for details of the rehabilitation proposed and final land use.

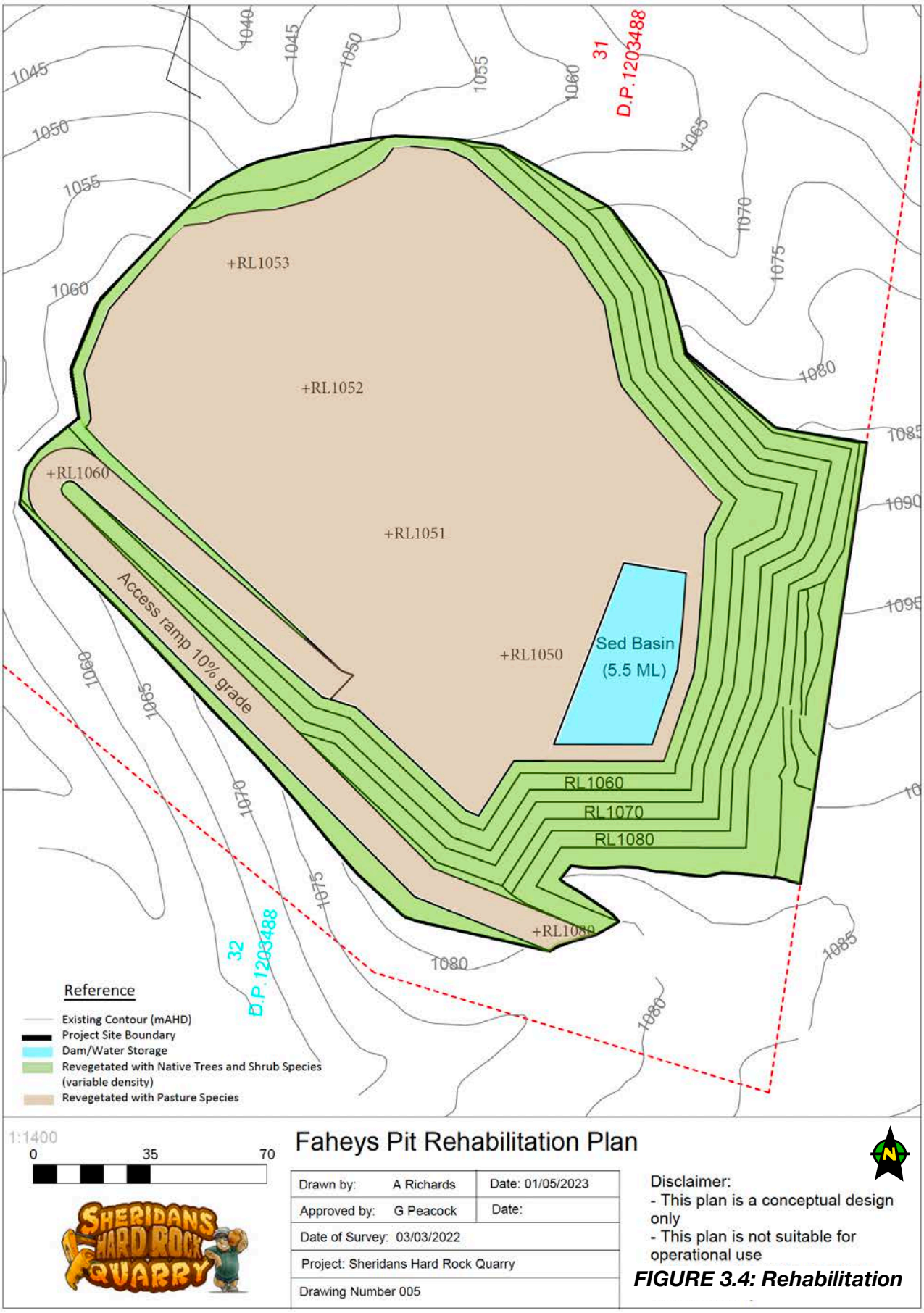


FIGURE 3.4: Rehabilitation

The key components of the rehabilitation process proposed are as follows:

- Removal of all structures, equipment and other materials associated with quarrying from the existing works area, with appropriate erosion and sedimentation control measures.
- Earthworks and landscaping to shape the final worked quarry area. The benches of the active quarry area will be filled to the extent possible using overburden and other material. On completion of quarrying the site is to be rehabilitated to form a free draining and sustainable landform as consistent as possible with surrounding landforms.
- The rehabilitated landform to be covered with topsoil and other material and revegetated using native species and introduced pasture species, as and where nominated.
- The access road from Armidale Road to the Project Site to be retained for future agricultural and/or forestry uses.

When completed, the quarry will be a large excavation into the side of the hill, tov be left in a healthy, rehabilitated and safe condition. The progressive rehabilitation measures, together with final works, will ensure that both regrowth and safety measures have been correctly carried out. The final land surfaces on the quarry floor will be reshaped to stable landforms. The stability of the quarry and surrounding areas would continue to be monitored during the project, to ensure a safe work environment.The timing of rehabilitation works will be dependent on the rate of resource extraction and the final levels of the base of the quarry floor.

The key project rehabilitation completion criteria to be applied to the project site are summarised in the accompanying table.

Table 3.5: Project rehabilitation completion criteria

Feature	Rehabilitation completion criteria
Decommissioning	*All quarry plant and equipment and other infrastructure will be decommissioned and removed*
Landform	*Achieve a stable landform, with no erosion, free of any hazardous materials associated with past use of site as a quarry*
Soil	*Topsoil or a suitable alternative has been spread uniformly over the identified rehabilitation surfaces*
Water	*Sediment basin retained for erosion control and as a water supply for stock. No runoff to pose a threat to downstream water quality*
Revegetation, control of feral pests	*Progressive revegetation of quarry benches as quarrying proceeds on the site. Weed control measures to be implemented. Control of feral pests to be undertaken by landowner*
Bushfire hazard	*Appropriate bushfire hazard controls to be implemented*
Ongoing public safety	*Appropriate mechanisms to be established to control access and manage public safety post-closure*

3.14.2 Final Quarry End Use

The final site end use of the bottom section (floor/void) of the quarry will be as grassed pasture- refer **Figure 3.4**. On completion of quarry operations, the southern-most sediment basin will be retained to form a wetland environment.

The final landforms within the quarried areas will consist of battered slopes leading to a basin at the base of the rehabilitated quarry pit, for sediment control and hydrological balance purposes. Quarry benches will be battered and capped with a layer of overburden and topsoil, and planted with native species.

The rehabilitated quarry pit and pit edges will require ongoing rehabilitation management and maintenance to ensure that the desired vegetation cover is achieved. The areas outside of the active pit are forested lands. Equipment and infrastructure that are not required as part of the intended final land use will then be removed from the site.

3.14.3 Rehabilitation of Quarry

The rehabilitation of the quarry would be undertaken on a progressive basis.

Where practical, progressive rehabilitation of final benches in the quarry pit will also be undertaken, however, this will be reliant on the quarry development progressing to a much greater depth than that now existing. Given this limitation, the potential for progressive rehabilitation of quarry benches during the initial establishment of the expanded quarry pit, prior to reaching the final approved quarry floor level, is limited. Details of the proposed rehabilitation works during operation of the quarry and a conceptual decommissioning plan are included below.

The primary aim of the closure and rehabilitation phase of a quarry is to minimise long-term erosion through effective revegetation. In this case, this comprises the revegetation of quarry benches and replanting of the quarry floor with grass to enable use for grazing of livestock, as well as a shelter for stock and water supply/dam-refer **Figure 3.4**.

The land capability of this area will not alter from current land capability although the area of the quarry void, to be retained following extraction, will be a significant alteration to the original landform of the quarry site. Revegetated areas should be carefully managed for at least two years after the initial rehabilitation works, with intensive management over the first few months. This is to promote rapid vegetation growth and development, and address any problems arising with vegetation establishment. (source: *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries* (DECC, 2008).

When completed, the quarry will be left in a healthy, rehabilitated and safe condition.

The rehabilitation measures proposed, together with final works, will ensure that both regrowth and safety measures have been correctly carried out. The final land surfaces will be reshaped to stable landforms. There will be progressive rehabilitation of quarry benches during the progressive development of the quarry.

- Ripping of soil will assist in rapid tree growth through deep root growth and enhanced soil water infiltration.All areas proposed for replanting with native flora will be deep ripped to an approximate depth of 400– 500 mm, undertaken around the contour of the land at right angles to water flow.
- Direct seeding of native plant seeds is the preferred method of rehabilitating final completed slopes.
- To encourage tree growth and to control weeds an appropriate seed mix is required-the native tree and shrub seed mix sown at a total combined rate of approximately 6.3 kg/ha. Seed will be broadcast evenly onto prepared batter slopes. Care will be taken to ensure it will not be buried. Seeding will be conducted in late spring and early autumn giving superior results due to higher ground temperatures. Species which could be used for revegetation (dependent upon seed availability) are listed below in the accompanying Table 3.5. The species identified are typical of those found in PCT 1121: Round-leaved Gum tall open forest of the eastern New England Tableland Bioregion vegetation community.
- A mixture of native trees, shrubs and grasses endemic to the area will be sown onto the majority of the reshaped quarry pit areas following site preparation. The species list to be used in rehabilitating the final, completed quarry is consistent with the existing species found on site (refer to ecological assessment by Bower Ecology- refer **Appendix H**) and will encourage integration with the surrounding habitat. Endemic species are preferred because they will be suited to the pre-existing conditions and should achieve higher rates of success at establishment.

3.14.4 Species for Rehabilitation

The plant species proposed for both temporary and permanent rehabilitation are summarised in this section, along with suitable sowing rates.

- **Quarry benches**

Rehabilitation of the quarry benches will be done via seeding ground layer and shrub species, as well as planting of tube stock (for tree species). To encourage growth and to control weeds, an appropriate seed mix is required. The native groundcover and shrub seed mix sown at a total combined rate of approximately 10 kg/ha. Seed will be broadcast evenly onto prepared batter slopes. Care will be taken to ensure it will not be buried. Seeding will be conducted in late spring and early autumn giving increased risk of success due to higher ground temperatures. Species which could be used for revegetation (dependent upon seed and tubestock availability) are listed below in the accompanying Table 3.6. The species identified are typical of those found in PCT 3288 Northern Escarpment Messmate Moist Grassy Forest, with the addition of *Cynodon dactylon* to assist with ground cover. In order to reduce the risk of fire hazard to teh neighbouring sawmill and sawmill residence, no trees are to be planted on the quarry benches on the eastern and southern sides of the rehabilitated quarry, with trees only to be planted out on quarry benches on the western and northern sides of the final quarry, with shrubs and groundcovers dominating in the former locations.

Table 3.6: Planting/seeding Palette for Rehabilitation of Quarry Benches

Common name	Latin name	Mix (approx.)
Tree species (@ 5m spacings)		
Blackwood	*Eucalyptus campanulata*	*50%*
Messmate Stringybark	*Eucalyptus obliqua*	*50%*
Shrub layer (seeded @4kg/ha)		
Blackwood	*Acacia melanoxylan*	*40% of mix*
Mountain Hickory	*Acacia falciformis*	*15% of mix*
Silver Wattle	*Acacia dealbata*	*15% of mix*
Forest Oak	*Allocasuarina torulosa*	*5% of mix*
Weeping Bottlebrush	*Acmena smithii*	*10% of mix*
Blueberry Ash	*Elaeocarpus reticulatus*	*5% of mix*
Grevillea Cultivars	*Leptospermum polygalifolium*	*10% of mix*
Ground layer (seeded @6kg/ha)		
Spiny-head Mat-rush	*Lomandra longifolia*	*25% of mix*
Tussock Grass	*Poa labillardieri*	*25% of mix*
Bermuda Grass	*Cynodon dactylon*	*50% of mix*

- **Quarry floor**

It is proposed that upon closure of the quarry, the quarry floor will be seeded with pasture grass to support grazing.

3.14.5 Topsoil and Overburden

Topsoil and overburden material for revegetation and stabilisation of batters within the quarry is to be sourced from soil stored on-site which will have been stockpiled as part of the initial clearing and soil removal process.

Topsoil and overburden will be used across the site for the stabilisation of final, end-use batter slopes and revegetation areas.

The removal of topsoil and overburden will occur predominately during site establishment and early phases of quarry operations at Faheys Pit.

Soil-based material are intended for quarry rehabilitation purposes will be temporarily stockpiled within the quarry footprint area until they can be reused at the site. Because of the small amount of overburden and the nature of the resource it is not expected that large quantities of topsoil or overburden will be generated. Overburden would constitute excavated natural material and can be deposited or re-used on-site. Until required for use in the permanent rehabilitation works, the stockpiles will be:

- Shaped into a low mound up to 1 metre in height (topsoil) or 3.0 metres (overburden), as it becomes available.
- Track-rolled with a dozer or excavator to prevent wind and water erosion.
- After the steps above, sown within 14 days of placement (topsoil) or 28 days (overburden) with a seed / fertiliser mix being a Multigrow (N:P:K of 10:4:6) or similar fertiliser .

Filter fences will be placed downslope of the topsoil and overburden stockpiles, as part of the erosion and sediment control works.

Topsoil and overburden stockpiles are proposed to be located away from trafficked areas and from drainage lines within the active quarry area. Stockpiles will be placed in areas so as to avoid impediment of natural localised drainage lines and minimise the likelihood of water ponding against the stockpile. Stockpiles to be kept longer than six months will be sown with a suitable cover crop to minimise soil erosion and invasion of weed species. Any stockpiles that have evidence of any weeds will be treated prior to the use in rehabilitation, principally by way of scalping.

3.14.6 Maintenance of Rehabilitated Areas

The rehabilitated quarry areas will be maintained by site personnel engaged by the quarry operator or owners until vegetation is well established. Regular inspections shall be carried out to monitor the progress of rehabilitation and identify areas that require maintenance. This maintenance activities will include soil erosion control, control of noxious and environmental weeds, fencing repairs for access control, feral pest control, and bushfire hazard management.

3.14.7 Weed Control

Declared plants, environmental weeds and animal pests are to be controlled in accordance with best practice land management practices. At eh end of quarrying operations all declared weed spaces will be eradicated.

The quarry operator is responsible for the control or eradication of noxious weeds in and around the quarry site.

The quarry operator is familiar with noxious weeds in the area and regularly inspects the site for the presence of noxious weeds. Weed control measures are employed at regular intervals or as required. Weed regrowth is controlled through suitable spray such as Round-up. Stockpiles of topsoil will be established for progressive rehabilitation works, and checked regularly for weeds. Stored stockpiles, where created, are to be suitably seeded or grassed for stabilisation until such time as they are required.

3.14.8 Summary: Rehabilitation

Table 3.7 outlines the steps to be undertaken to minimise the risks arising from rehabilitation, both during and after quarrying the site.

Table 3.7: Quarry rehabilitation practices & mitigation measures

Rehabilitation issue	Proposed rehabilitation practice/mitigation measure
Tree species	*Once quarrying is complete, revegetate quarry floor with open grassland, suitable for grazing purposes. Retain existing stands of trees planted out on quarry benches during the life of the quarry. Supplementary watering of newly planted areas undertaken when required. Trees to be grown on quarry benches.*
Weed control, stabilisation works	*Remove weeds and/or prevent from spreading. Use earthmoving equipment to progressively shape and trim all workings to the stable profile, including bunds.*
Access to the site	*Access to the site to be restricted, to prevent the unauthorised deposition of material.*
Maintain basins/dams after quarrying is completed	*Once quarrying is completed on site, the sediment basin system in the quarry pit will be retained, to aid in erosion control, but also for watering of stock and as a water source in regeneration of vegetation in all proposed rehabilitated areas.*
Monitoring, corrective action	*Regular visual monitoring of fencing, inspection of planted/rehabilitated areas will be undertaken by the quarry operator to determine the need for maintenance works (fertilising, weed control, erosion repair or control works, thinning of plants, pruning) and replacement of failed plantings.Regular visual monitoring of fencing, inspection of planted/rehabilitated areas will be undertaken by the quarry operator to determine the need for maintenance works (fertilising, weed control, erosion repair or control works, thinning of plants, pruning) and replacement of failed plantings.*

▪ 3.15 Monitoring and Recording

3.15.1 Monitoring records

The results of any monitoring required as a condition of consent or EPL are to be recorded and retained including:

- Monitoring of blasting.
- Monitoring of discharges from any licensed discharge point, where required.
- Monitoring of extraction and production, as well as truck numbers- refer Section 3.15.4 below.

All records required to be kept by the quarry operator will be:

- In a legible form, or in a form that can readily be reduced to a legible form.
- Kept for at least 4 years after the monitoring or event to which they relate took place.

3.15.2 Responsible contact person

The name and contact details for the person with the responsibility and authority to respond to Council, authorised government departments and/or members of the public with respect to management of quarry operations, compliance with this consent and any complaints, will be provided to Council, prior to commencement of quarry operations.

3.15.3 Annual reporting

An annual report of quarry operations must be completed and a copy of the report provided to Council within 1 month of each 12 months operation of the quarry. The annual report is to contain details of compliance with the conditions of the consent issued, together with a description of quarry operations undertaken during the 12 month period.

3.15.4 Records of extraction and volumes of material leaving the site

The quarry operator will be responsible for:

- Recording the volume/tonnage of rock won from the quarry by blasting.
- Recording the amount of processed quarry material leaving the site and the number of loaded vehicles.

The above records are to be provided with the annual report referred to in Section 3.15.2 above.

3.15.5 Recording of pollution complaints

The quarry operator will keep a legible record of all complaints made to the operator or any employee or agent of the operator in relation to pollution arising from any activity applicable to the quarry operation, including details of the following:

- Date and time of the complaint.
- The method by which the complaint was made.
- Personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect.
- The nature of the complaint.
- Action taken by the quarry operator in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken by the licensee, the reasons why no action was taken.

The quarry operator will operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities associated with the quarry, including truck traffic.

4. Mitigation Measures

4.1 Introduction

Section 192(1)(e) of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021) requires:

> "*(e) a compilation, in a **single section** of the environmental impact statement, of the measures referred to in paragraph (d)(iv)*". [our emphasis]

Section 192(1)(d)(iv) of the EP&A Regulation 2021 requires:

> "*(iv) a full description of the measures to mitigate adverse effects of the development, activity or infrastructure on the environment*."

In accordance with the above requirements of the EP&A Regulation 2021, the following section comprises details of the measures to mitigate the adverse effects of the proposed quarry development. These measures will be incorporated into and form a part of an overall quarry management plan.

4.2 Mitigation Measures Proposed

The following Table 4.1 provides details of the mitigation measures proposed for the quarry development.

Table 4.1: Mitigation measures proposed by issue

Environmental Issue	*Potential environmental impact*	*Mitigation measures proposed: expanded quarry*
Hazards and risk, including fire, slope failure	*Fires, fuel/ chemical leaks and spills, landslides.*	▸ *Maintain cleared area within quarry footprint- this will also provide a measure of bushfire buffer to the neighbouring sawmill residence and to the quarry work area.* ▸ *Fire extinguishers are in all site vehicles and mobile equipment. The extinguishers are to be serviced regularly.* ▸ *When in operation, the maintenance of a water truck suitable for fire fighting at the site.* ▸ *Any chemical and fuels stored in bunded areas, located and designed to prevent potential fire hazards, as required by AS1940-1993- The Storage and Handling of Flammable and Combustible Liquids.* ▸ *All oil/fuel spills to be immediately cleaned up and the spilled material disposed of in a proper manner.* ▸ *RFS vehicle access is capable of being provided to the site.* ▸ *Retention of water run-off from the quarry in the sediment basin system- an additional source of water for fire fighting purposes.* ▸ *Regular cleaning of litter on site.* ▸ *All mobile equipment fitted with spark arresting mufflers.* ▸ *Employees are to be trained in fire awareness and instructed in basic fire fighting procedures.* ▸ *Protocols to be followed if major traffic accident occurs.* ▸ *As excavation of the quarry progresses, additional investigation and assessment be undertaken to inform any alterations to the proposed layout design and slope stability.*
Management of waste	*Generation of waste during operation of the quarry.*	▸ *Collect recyclable material (waste oil, metal, glass, and plastic) for collection by Council or appropriate recycling contractor. Dispose of non-recyclable domestic waste via council collection service.* ▸ *No building, plant and machinery, or putrescible wastes to be disposed of on site. Inert waste materials to be collected and removed from this site for recycling or to an appropriate licensed waste facility.* ▸ *Unexpected finds protocols to be established.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Air quality	*Generation of dust during operation of the quarry.*	▸ *All activities to be be managed in accordance with the Protection of the Environment Operations Act (1997) and EPL, once approved.* ▸ *Sufficient water to be stored on site for dust suppression activities.* ▸ *Locating the quarry processing plant within the the active quarry area reduces the exposure to winds and reduces dust potential.* ▸ *All loads leaving the site are covered, with tailgates effectively sealed, to minimise dust and debris.* ▸ *Maintaining a high level of repair and servicing for all trucks associated with the quarry.* ▸ *Part of the internal haul route back to the intersection with Armidale Road is already sealed, which minimises dust nuisance. All gravel roads to be regularly maintained and graded, to avoid vehicle meandering.* ▸ *Regular use of water carts as required on the unsealed sections of the internal quarry haul route.* ▸ *All vehicles on site are to be confined to designated roads with a signposted speed limit ie. 30km/hour which is to be strictly maintained.* ▸ *Quarry plant and equipment to be washed frequently, with the turning off all vehicles and plant when not in use, where practicable.* ▸ *Miscellaneous dust sources such as spillages from trucks and silt from sediment controls are to be regularly cleaned up.* ▸ *Regular inspections for excessive visible dust generation will be undertaken and appropriate controls will be implemented when such events occur.* ▸ *Monitoring and reporting of dust complaints.* ▸ *Air quality levels are predicted to comply with applicable amenity criteria at nearest sensitive receptors.*
Soil and water	*Need to control sedimentation and erosion, stormwater.*	▸ *All activities to be be managed in accordance with the Protection of the Environment Operations Act (1997) and EPL, once approved.* ▸ *All stormwater from within the quarry (ie. 'dirty' water) is to be contained in the quarry sediment basin which lies at the base of the active quarry pit area, designed in accordance with 'Blue Book'.* ▸ *Clean' water to be diverted away from areas of disturbance, thus minimising impacts on existing drainage areas outside of the active quarry area and avoiding contamination.* ▸ *Quarry is set back from watercourses to the north.* ▸ *Containing all runoff within the quarry area also reduces the quantity of water flowing downstream during flood periods.* ▸ *No need for any groundwater monitoring. [NOTE: Monitoring bores in the locality reveal groundwater likely 50m below the lowest part oft the quarry]* ▸ *Appropriate stripping and stockpiling controls and procedures required to maximise the value for stored soil used in rehabilitation of the site.* ▸ *Runoff will be managed in the facility by ensuring that the stormwater management system is monitored and maintained.* ▸ *Discharges of 'dirty' water offsite are not predicted.* ▸ *Prepare Pollution Incident Response Management Plan for the quarry, similar to that employed at Sheridans Hard Rock Quarry at Hernani.* ▸ *Concentration of a pollutant discharges must not exceed the concentrations limits specified.* ▸ *Soil and water management plan to be implemented for the quarry.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Noise and vibration	Noise and vibration from construction vehicles and works.	▸ Noise emissions from the quarry, when measured at the nearest sensitive receptor, will not exceed the applicable noise level limits. ▸ Quarrying restricted to 7.00 am and 6.00 pm Monday to Friday, Saturdays: 7.00am to 1.00pm. No work will be undertaken on Sundays or Public Holidays. Council may permit access and operation outside of these periods for emergency purposes. ▸ Noise levels are predicted to to comply with applicable amenity criteria at nearest sensitive receptors. ▸ Quarry plant and equipment are located within the quarry pit, suitably buffered from nearby sensitive receptors. ▸ Maintain the internal quarry haul roads in good condition to prevent corrugations which can contribute to truck road noise. ▸ No compression braking beyond the quarry gate is permitted, a requirement of the currently approved Driver Code of Conduct for the quarry. ▸ Limits on quarry trucks numbers permitted to enter and leave the quarry each working day. ▸ Plant and equipment will be regularly maintained and serviced, to minimise the potential for excessive noise impacts. All machinery to meet current guideline noise levels, including haulage vehicles. Regular upgrading to quieter plant and equipment. ▸ All blasts to be monitored in order to show compliance with the following criteria: airblast overpressure from any blast shall not exceed 120 dBL at the nearest residence and 95% of all blasts over a 12 month period shall not exceed 115 dBL at the residence; and ground vibration from any blast shall not exceed 10 mm/s at the nearest residence and 95% of all blasts over a 12 month period shall not exceed 5 mm/second at this residence. ▸ The detonation of blasts will be restricted to between the hours of 9.00 am to 3.00 pm, Monday to Friday. No blasting will be undertaken outside of these hours.[NOTE: preparation for blasting, including drilling, is allowed outside of these time restrictions]. ▸ Blasting at the premises is limited to 1 blast each day on which blasting is permitted. ▸ All blasts shall be monitored and the results included in the annual quarry report to be provided to both Council and the NSW EPA. ▸ A register of noise/blasting complaints shall be maintained. If noise complaints occur, they will be registered, investigated and responded to in a timely manner to ensure issues are not repeated.
Traffic and transport	Heavy machinery on local roads, road and pedestrian safety.	▸ Restriction of 60 loaded trucks per day to apply. ▸ Driver Code of Practice to apply, aimed at ensuring the safety of employees, contractors, and the general public in and around the project site. ▸ A low (max.30km/hour) speed limit to be applied to waste haulage vehicles on quarry site. This measure also minimises potential risks to fauna on site. ▸ All trucks hauling quarry product on public roads are to be fitted with a dust cover, and such dust cover shall be utilised to cover the load during haulage. ▸ All quarry truck movements within the site will be restricted to designated routes marked out by appropriate signage. ▸ Condition of internal quarry haul road to be regularly maintained, to ensure a satisfactory road surface. Existing intersection with Armidale Road is satisfactory, however, regular maintenance will be required.

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Rehabilitation	*Achieving a satisfactory rehabilitation of the quarry, once completed*	▸ *When completed, the quarry will be a large excavation into the ground. It is both desirable and necessary that it be left in a healthy, rehabilitated and safe condition.* ▸ *Appropriate stripping and stockpiling controls and procedures proposed to maximise the value for stored soil used in rehabilitation of the site.* ▸ *The final land surfaces will be reshaped to stable landforms. This will involve reworking the existing quarry face and extraction pit to achieve regularly shaped slopes which are structurally stable.* ▸ *The rehabilitated areas will be maintained by site personnel until the vegetation is well established. Use of indigenous trees and shrubs wherever appropriate in rehabilitated areas. Supplementary watering of newly planted areas when required.* ▸ *Regular inspections shall be carried out to monitor the progress of rehabilitation and identify areas that require maintenance. This maintenance activities will include soil erosion control, control of noxious and environmental weeds, fencing repairs for access control, feral pest control, and bushfire hazard management.*
Biodiversity	*Clearing of trees and impact on habitats.*	▸ *No tree clearing outside of approved quarry footprint- all works to be undertaken within approved quarry void.* ▸ *Limits on truck speeds limits potential for conflict with fauna.* ▸ *No groundwater dependent ecosystems affected by quarry.* ▸ *Rehabilitation of the quarry slopes with native vegetation at project completion.* ▸ *Prior to the clearing trees on site, an inspection shall be made of all trees to be removed for signs of wildlife. Trees containing wildlife are to be retained until vacated.Hollow-bearing trees should be removed at a time (ie season) selected to avoid potential disturbance to breeding fauna (ie nesting individuals) and torpid individuals (ie hibernating individuals mainly during winter months).*
Cultural heritage	*Impact on archaeological sites potential.*	▸ *In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the proposed activity, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites.* ▸ *In the unlikely event that human remains are discovered, all activities must stop, the affected area cordoned-off and NSW Police and the Heritage NSW (formerly the Department of Planning and Environment [DPE] which replaced the Office of Environment and Heritage [OEH]) Environment Line must be contacted on 1315 55 or (02) 9995 5555.*
Community	*Complaints management.*	▸ *The quarry operator to be responsible for receiving comments and complaints from local residents, owners and government authorities.* ▸ *A register of complaints shall be established at the commencement of quarrying activities within the extension area and maintained for the life of the quarry. The register shall record details of the complaint, contact information and action taken to address the complaint.*
Visual	*Views of the quarry.*	*No special measures are required to ameliorate visual impacts associated with quarrying the site, as no views of the quarry are available from Armidale Road or neighbouring residences, save for the adjoining sawmill residence.*
Annual return	*Annual reporting requirements.*	*An annual report to be submitted to Council, containing a statement of compliance with conditions of approval and monitoring/complaints summary.*

Environmental Issue cont.	Potential environmental impact cont.	Mitigation measures proposed: expanded quarry cont.
Emergencies	*Emergency response to events or incidents that my threaten the environment or public health*	*A quarry management plan, dealing with pollution and incident responses and an emergency responses, will be prepared for the Project, to outline the procedure to be followed in the event of an incident or emergency during construction and operation of the quarry, covering the following measures:* ► *Containment of any fuel spills or leaks. The EPA to be contacted in the event of a major pollution incident.Any contamination arising from fuel spills to be collected and disposed of at a licensed landfill.* ► *Off-site discharges.* ► *Inundation of the quarry during major storm events or floods including relocation of plant, checking of drainage controls and condition of sediment basin.* ► *Fires.* ► *Blasting mishaps- considered most unlikely.* ► *Excessive generation of dust within the quarry and/or internal quarry haul route.* ► *Unauthorised access.* ► *Protocols to be implemented in the event of a major truck accident.* ► *Training and induction protocols. Induction will be provided to all staff and subcontractors outlining their responsibilities in the event of an emergency or incident.* ► *Notification requirements and timeframes to applicable authorities in the event of an emergency or incident.* ► *Review regimes of the quarry management plan. Regular reviews and updates will be made for the quarry management plan as required.*

5. Statutory & Strategic Policy Context

The following section identifies relevant local, State and Commonwealth planning and environment legislation and discusses the application of these planning provisions relevant to the Project.

5.1 Environmental Planning & Assessment Act 1979

5.1.1 Overview, approvals process

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) governs planning and the assessment of development projects in New South Wales, including quarry projects. This planning legislation is administered by Department of Planning & Environment and by local councils.

5.1.2 Regionally Significant Development: EIS Required

This Environmental Impact Statement (EIS) has been prepared by Outline Planning Consultants Pty Ltd to accompany a Development Application (DA) for the continuation and expansion of a small quarry at Tyringham on the Dorrigo Plateau known as 'Faheys Pit' (Project Site). This EIS provides the information and environmental assessment necessary to help understand the quarry project and its likely environmental consequences, and to assist in the assessment and determination of this project application.

The need for an Environmental Impact Statement (EIS) is triggered by clause 26 of Schedule 3 of EP&A Regulation 2021. Section 4.12(8) of the EP&A Act requires that development application for designated development is to be accompanied by an EIS prepared by or on behalf of the applicant in the form prescribed by the regulations.

The Project is classified as regionally significant development pursuant to the provisions of Schedule 6 of the *State Environmental Planning Policy (Planning Systems) 2021* and not State significant development. Consequently, the Northern Regional Planning Panel (NRPP) is the consent authority for this proposed quarry development.

The reasons why the Project is not State significant development relate to the smaller scale of the quarry operation proposed (less than 500,000 tonnes per annum and a resource of less than 5 million tonnes) and the fact that the land on which the quarry Project is to be undertaken does not comprise an 'environmentally sensitive areas' referred to in clause 7(1)(c) of Schedule 1 of State significance (as defined in s.2.2 of *State Environmental Planning Policy (Planning Systems) 2021*). In this regard:

- No part of the Project Site is within the coastal waters of the State, or is identified as "coastal wetlands" or "littoral rainforest"., or is reserved as an aquatic reserve under the NSW *Fisheries Management Act, 1994* or as a marine park under the NSW *Marine Parks Act, 1997*, or declared Ramsar wetland within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999* of the Commonwealth.
- No part of the Project Site is located on land identified as being of high Aboriginal cultural significance or terrestrial biodiversity or riparian significance under the *Clarence Valley Local Environmental Plan 2011* (LEP).
- No part of the Project Site is reserved as a state conservation area under the *National Parks and Wildlife Act,1974*.
- No land, places, buildings or structures listed on the State Heritage Register under the *Heritage Act, 1977* occur within the Project Site.
- No part of the Project Site is reserved or dedicated under the *Crown Lands Act, 1989* for the preservation of flora, fauna, geological formations or for other environmental protection purposes.
- No part of the Project Site is declared as critical habitat under the NSW *Threatened Species Conservation Act,1995* or *Fisheries Management Act, 1994*.

The EIS responds to the Planning Secretary's Environmental Assessment Requirements (SEARS) for this project, issued on 30 August 2022, included in **Appendix A** of this EIS. In accordance with the issued SEARs, this EIS provides an assessment of the environmental impacts of the proposed quarry development and sets out the mitigation and management measures, along any potential impacts arising from the proposed development.

The land which is the subject of the development application, proposed for a proposed quarry development (the Project Site, or Site) lies within an area administered by Clarence Valley Council. The Project Site has been previously approved for the purposes of a quarry, all be it for a much smaller quarry footprint and quarry output.

5.1.3 Integrated Development Checklist

Under the provisions of the EP&A Act, approvals may need to be obtained from other government agencies, in addition to obtaining a development consent. If a proposal does require approval from another government agency, it will be dealt with it as an 'integrated development' application pursuant to s.4.46 of the EP&A Act. Relevant approvals required under the provisions of the integrated development provisions of the EP&A Act are summarised below.

Table 5.1: Integrated Development Checklist for Project

Approval Authority	Law Requiring Approval	Applicability
Dept Planning & Environment (Environmental Protection Authority (EPA))	*ss.43(a), 47 & 55 Protection of the Environment Operations Act 1997*	***Applicable**. An environment protection licence (EPL) will be required once development consent is granted to the proposed quarry development.*
Dept Premier & Cabinet (formerly Office of Environment & Heritage)	*Approval required under s.58 Heritage Act 1977*	*Not Applicable. No Heritage Order applies.*
Dept Transport & Roads (Transport for NSW-TfNSW), Clarence Valley Council	*s.138 Roads Act 1993- works over or on public roads, including connection to a classified road*	*Not Applicable. No new roads or access points are proposed, nor is there any need for upgrading of the existing intersection with Armidale Road. Refer also to Note below.*
Dept Premier & Cabinet (formerly Office of Environment & Heritage)	*s.90 of National Parks & Wildlife Act 1974*	*Not Applicable. No potential for Aboriginal sites being affected, following on site investigations.*
Dept Primary Industries (NSW Fisheries)	*Permits required under s. 144, 201, 205 and 219 of Fisheries Management Act 1994*	*Not Applicable. No marine impacts proposed as per the relevant sections of this Act.*
Dept Planning & Environment (Resources Regulator)	*Approval to alter or to erect improvements under s.15 of Mine Subsidence Compensation Act 1961*	*Not Applicable*
Dept Planning Industry & Environment (Resources Regulator)	*Grant of mining lease under ss. 63 & 64 Mining Act 1992*	*Not Applicable.*
Dept Planning & Environment	*s. 9 Petroleum (Onshore) Act 1991*	*Not Applicable.*
Dept Police & Emergency Services (Rural Fire Service)	*s.100B of the Rural Fires Act 1997*	*Not Applicable. Although the land is bushfire prone no s.100B authorisation is required.*
Dept Industry (Resources Regulator)	*Ss 89,90 & 91 of Water Management Act 2000*	***Applicable**. License required given that development proposed lies within 40 metres of a number of 1st order streams. No anticipated groundwater impacts likely. No bores required.*

NOTES TO TABLE 5.1:
Section 4.46(3) of the EP&A Act provides that developments which also require consent under Section 138 of the *Roads Act 1993* are not integrated development if the council is both the development consent authority under the EP&A Act and the relevant Roads Authority providing consent under the Roads Act. In general, the Roads Act provides that a Local Council is the Roads Authority for all the roads within its local government area except freeways. In this instance, as a Council is the relevant Roads Authority, the Development Application is not integrated development by virtue of this part of the *Roads Act 1993*.

Where a development is integrated development, s.4.47(3) of the EP&A Act gives the consent authority power under that Act to impose any conditions that an approval body could impose as a condition of its approval.

Even though there is a very wide power to impose conditions, the power of a determining authority to impose any condition nominated by the other government agencies is limited to only those conditions that fairly and reasonably relate to the proposed development and are for a purpose related to the relevant powers of that particular agency under the integrated development provisions of the EP&A Act.

Section 4.47(2) of the EP&A Act requires, inter alia, that before granting development consent to an application for consent to carry out the development that is 'integrated development' for the purposes of the Act, the consent authority must obtain from each relevant approval body the General Terms of any Approval (GTA) proposed to be granted in relation to the development.

The following 'integrated development' approvals will be required as a result of the project:

- Given that extraction of more than 30,000 tonnes per year of quarry resource is proposed to be extracted in any one year an 'integrated development' approval is required from the NSW Environmental Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997*.
- Given that extraction is proposed within 40 metres of a watercourse, an 'integrated development' approval is also required from the Department of Industry-Water (Water NSW) under the *Water Management Act 2000*.

The granting of development consent under the EP&A Act for the application to allow for the proposed quarry development does not exhaust the approvals process necessary for the commencement of a proposed operations.

The above Acts and the EP&A Act (under which this DA is to be determined) are interlocking, parallel schemes of regulation.

The interlocking nature of the scheme is even more evident when the EP&A Act is considered, in particular concerning integrated development (which applies here).

The scheme envisages that the requirements of the EP&A Act would need to be first obtained: *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited (No2)* [2010] NSWLEC 104 per Preston CJ, and more recently by the NSW Court of Appeal in *Hunter Industrial Rental Equipment Pty Ltd v Dungog Shire Council* [2019] NSWCA 147 decision dated 20 June 2019.

5.1.4 Consistency with Objects of EP&A Act

The Project the subject of this EIS is considered to be consistent with the objects of the EP&A Act, as summarised in the following Table 5.2.

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Table 5.2: Checklist of the Project against objects of EP&A Act 1979

Objects	Compliance of the Project
"(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,"	*The Project Site already supports an existing established operating quarry. The Project seeks to maximise the safe and economic recovery of the valuable quarry resource known to underlay the site.* *It avoids the need to utilise a new site for a new quarry project.* *Moreover, the project will promote social and economic benefits to the local and regional economy, creating further local job opportunities, at the same time as minimising impacts on the natural environment and local amenity.*
"(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,"	*The design of the quarry project has involved consideration of potential traffic, water quality, bushfire, air quality, noise and quarry impacts generally. The Project incorporates design features to reduce the potential for adverse impacts. Additional safeguards and mitigation measures have been proposed to minimise potential impacts during the operation of the Project.* *All of the above are considered to be consistent with the objectives of ecologically sustainable development.*
"(c) to promote the orderly and economic use and development of land,"	*The quarry project promotes the orderly and economic use of a site already being used for the purposes of quarrying. It will entail the orderly expansion of an existing quarry.*
"(d) to promote the delivery and maintenance of affordable housing,"	*Not applicable to this project.*
"(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,"	*The land proposed for the expansion of the quarry is already cleared land. No threatened species likely to be affected by the Project. The Project has been sited and designed to minimise the impacts to the environment. Mitigation and management measures have been proposed to encourage the protection of the environment.*
"(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),"	*The site has no heritage listing. Following an extensive consultation with indigenous groups and site survey as a part of the now-approved quarry, no Aboriginal items have been found on the site or significance identified.*
"(g) to promote good design and amenity of the built environment,"	*Not applicable to this project, given that it is in a rural area.*
"(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,"	*Not applicable to this project, given that it is for the purpose of a quarry project.*
"to promote the sharing of responsibility for environmental planning between the different levels of government in the State, and"	*Noted. Once approved, the monitoring of the quarry will be the shared responsibility of both Clarence Valley Council (regarding the conditions of consent generally) and the EPA (regarding the operation of 'scheduled activities' under any license issued under the Protection of the Environment Operations Act, 1997). A Controlled Activity Approval will also be required from Water NSW.*
"(j) to provide increased opportunity for public involvement and participation in environmental planning and assessment."	*The EIS has been prepared following discussions with local and state government and others, in accordance with the requirements of the issued SEARS.*

Based on the above assessment the proposed quarry development is considered to be consistent with the objects of the EP&A Act.

5.1.5 Section 4.15 matters

Section 4.15 of the EP&A Act requires that a variety of matters be taken into consideration when determining a development application.

A checklist of these matters and where they have been addressed in the EIS is outlined in the accompanying Table 5.3.

Table 5.3: Section 4.15 Checklist

Matters for Consideration s.4.15	*Relevant EIS Section*
(a) The provisions of: ***Any environmental planning instrument***	*Refer to Section 5.2 & Section 7.2 of this EIS.*
Any proposed planning instrument	*Not applicable.*
Any development control plan	*The applicable development control plan is the Clarence Valley Development Control Plan - Development in Rural Zones. Refer Section 5.3 and Section 7.2 of this EIS.*
Any planning agreement or draft planning agreement that has been entered into	*No planning agreements have been entered into under s.7.4 (former s.93F) of the EP&A Act for this quarry project.*
The regulations (to the extent that they prescribe matters for the purposes of this paragraph)	*Refer to Sections 1.4 ,5.1 and 7.2 of this EIS.*
Any coastal zone management plan	*Not applicable.*
(b) The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	*Refer EIS Section 7.3 in conjunction with Section 3 and Section 4 of this EIS- the latter containing details of mitigation measures proposed.*
(c) The suitability of the site for the development	*The project site is suitable for the proposed quarry expansion project. The site is already approved and developed (in part) for the purposes of a quarry. Considered further in this EIS report. Refer also to Section 7.4 of the EIS.*
(d) Any submissions made in accordance with this Act or the regulations	*Comments to be received during the EIS exhibition process.Refer Section 7.5 of this EIS.*
(e) The public interest	*Refer Section 7.6 of this EIS.*

▪ 5.2 Environmental Planning Instruments etc.

5.2.1 Clarence Valley LEP 2011

The *Clarence Valley Local Environmental Plan 2011* (LEP) is the comprehensive environmental planning instrument applying to the quarry site. The Project Site is zoned RU1 Primary Production. ”Extractive industries” as defined, are a use permissible with the consent of Council in this zone. Additionally, the Project Site is not located within any conservation zone nor has it been identified as possessing any terrestrial biodiversity or riparian values. To the north lies a large swathe of forested land zoned for forestry purposes: RU3 Forestry- refer **Figure 5.1**. The Department of Planning LEP Practice Note PN 09-005, dated 10 September 2009 explains the relationship between LEP, aims, objectives and zoning provisions. It states, inter alia:

> *“It is important not to confuse aims and objectives with each other, and with planning tools. As stated in clause 1.2 of the [Standard Instrument], an LEP is required to set out the particular overarching aims of the plan. Each zone then includes core objectives which describe in more detail the purpose of the land it refers to. Permitted land uses and principal development standards are the key tools to be used to achieve objectives of a zone. This means there are three levels of information (aims, zone objectives and land use controls) and they form a hierarchy of policy intention.”*

The compliance of the quarry project with the objectives of the RU1 Primary Production zone are set out in the following Table 5.4.

Table 5.4: Compliance of the Project with RU1 Zone Objectives

RU1 Zone Objectives	***Compliance***
"To encourage sustainable primary industry production by maintaining and enhancing the natural resource base"	*Quarries form an important part of the resource base of any local area. Local infrastructure projects require readily accessible road making material- hence the need for the continued extraction of quarry material from Faheys Pit.*
"To encourage diversity in primary industry enterprises and systems appropriate for the area"	*Not applicable to the project*
"To minimise the fragmentation and alienation of resource lands"	*The proposed quarry development does not involve the fragmentation and alienation of resource lands. In fact, it seeks to expand a quarry containing a proven quarry resource.*
"To minimise conflict between land uses within this zone and land uses within adjoining zones"	*The quarry is located in a sparsely populated rural area, is well buffered from rural dwellings and has direct access to a regional road system. These features, together with the design of the quarry, will assist in minimising conflict with neighbouring land uses.*
"To prevent dispersed rural settlement."	*Not applicable to the project.*
"To ensure that development does not unreasonably increase the demand for public services or public facilities."	*The quarry will not unreasonably increase the demand for public services or facilities bar the need to utilise the regional road, Armidale Road, for quarry truck traffic.*
"To ensure development is not adversely impacted by environmental hazards"	*The quarry is unlikely to impacted by environmental hazards. The quarry is unlikely to be affected by any site contamination potential. Strict controls will be applied to the quarry in terms of the control of dust, noise and blasting impacts. The vegetated land surrounding the quarry has been identified as being bush fire prone. Various mitigation measures are proposed to address fire hazards within the proposed quarry, once operational.*

The LEP mapping shows that Faheys Pit quarry site is free from the following planning or environmental constraints:

- Wetlands or other lands with a high ecological or environmental value, including riparian lands.
- Scenic protection.
- Acid sulfate soils (source: *Clarence Valley Local Environmental Plan (LEP) 2011 Acid Sulfate Soils Map - Sheet ASS_008*).
- Heritage-listed features, including Conservation Area, Aboriginal Place of Heritage Significance or Conservation Area- Landscape designations, by reference to *Clarence valley LEP 2011 Heritage Map Sheet HER_009A*.
- Flood prone land, by reference to *Clarence Valley LEP 2011 Drinking Water Catchment Map Flood Planning Map Coastal Risk Planning Map Riverbank Erosion Planning Map Urban Release Area Map Sheet CL1_009)*.

The quarry is within a bushfire zone (Category 1)- refer **Figure 5.2** and is within a Drinking water catchment - refer **Figure 5.3** (source: *Clarence Valley Local Environmental Plan 2011 Drinking Water Catchment Map Flood Planning Map Coastal Risk Planning Map Riverbank Erosion Planning Map Urban Release Area Map Sheet CL1_009).* The Nymboida River is the main water supply source for about 100,000 residents in the Clarence Valley and Coffs Harbour local government areas. The Nymboida River also gravity feeds water to Shanon Creek Dam when required. Surface water would be managed such that all design stormwater flows are wholly contained within the expanded quarry footprint, to limit the discharge of sediment-laden water into the drinking water catchment.

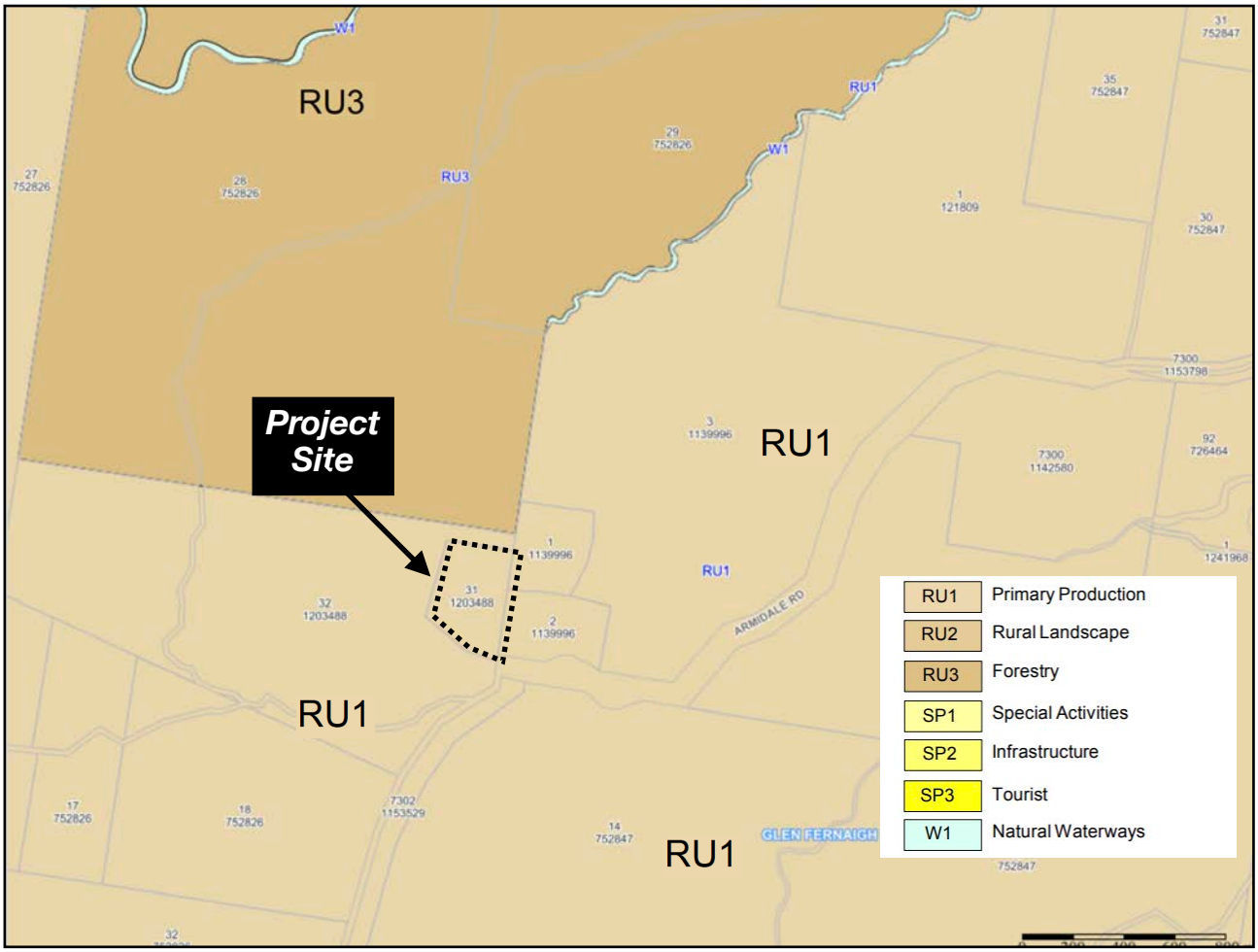


FIGURE 5.1: Zoning Map Showing Location of Project Site- Zoned RU1

(Source: Clarence Valley Council online mapping)

The following Table 5.5 summarises the compliance of the proposed quarry development with other relevant provisions of the Clarence Valley LEP 2011.

Table 5.5: Compliance with other relevant provisions of Clarence Valley LEP 2011

Other LEP provisions	Compliance
Clauses 4.1- 4.2C	*Not applicable. No rural housing or subdivision proposed*
Clause 4.6	*No variation sought*
Clause 5.4 Miscellaneous uses	*Extractive industries are not listed under this clause of the LEP*
Clause 5.9 Preservation of trees or vegetation	*An ecological assessment report has been prepared in support of the removal of trees within the proposed quarry footprint- refer* ***Appendix H*** *.*
Clause 5.10 Aboriginal heritage	*Complies. No sites or objects found. Refer* ***Appendix I*** *for details.*
Clause 5.11 Bush fire hazard	*Not applicable*
Clause 7.3 Flood planning	*Not applicable. No rural housing or subdivision proposed*

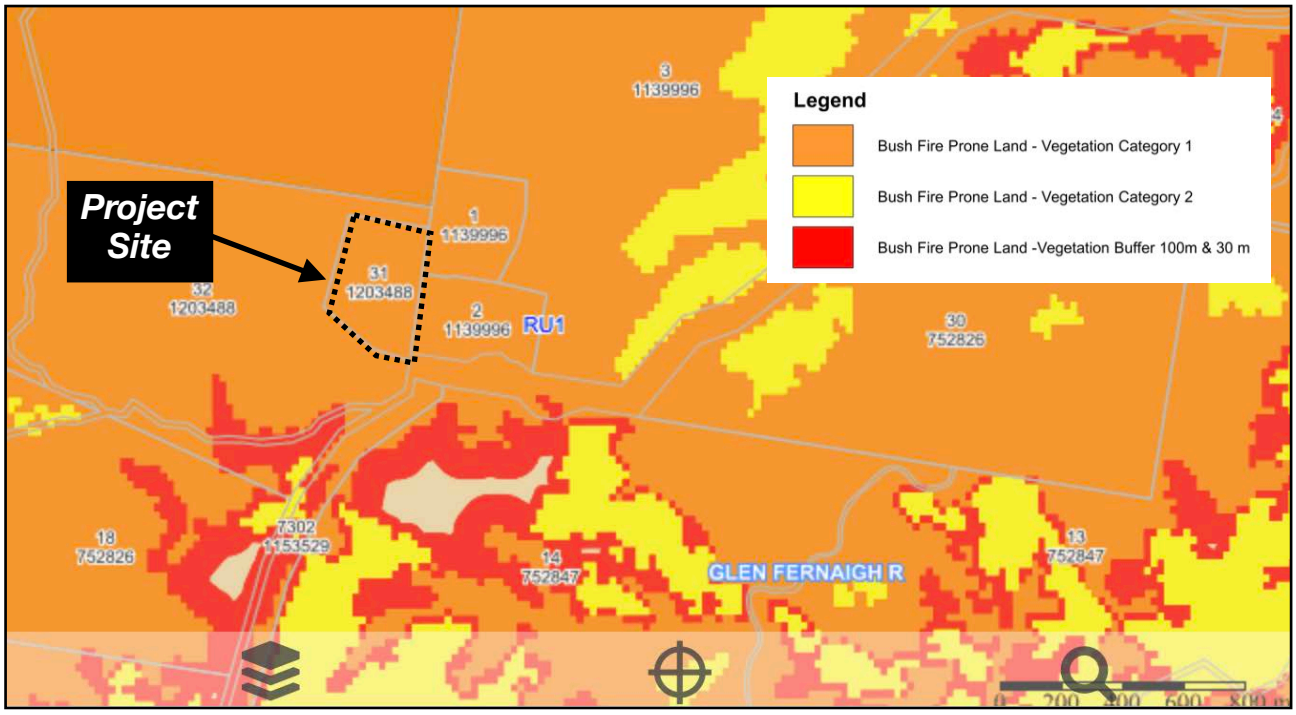


FIGURE 5.2: Faheys Pit is within a bushfire zone -Category 1

(Source: Clarence Valley Council online mapping)

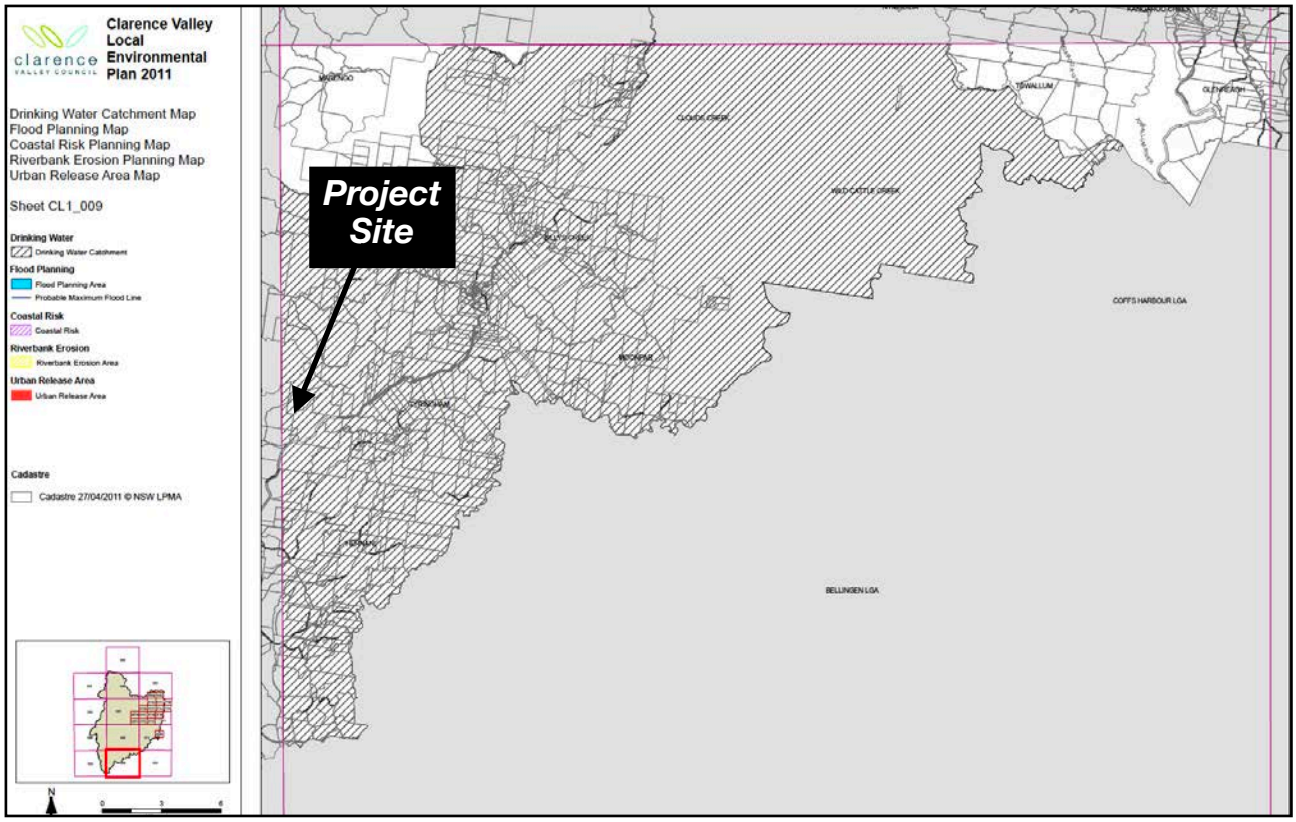


FIGURE 5.3: The LEP identifies the Project Site as lying within a designated Drinking Water Catchment- shown with cross hatching

(Source: Clarence valley Local Environmental Plan 2011 Drinking Water Catchment Map Flood Planning Map Coastal Risk Planning Map Riverbank Erosion Planning Map Urban Release Area Map Sheet CL1_009)

5.2.2 Clarence Valley Development Control Plan - Development in Rural Zones

In addition to the Clarence Valley LEP 2011, the provisions of *Clarence Valley Development Control Plan - Development in Rural Zones* also applies to the Project Site.

The purpose and status of development control plans are set down in s.3.42 of the EP&A Act:

> *"3.42 Purpose and status of development control plans(cf previous s 74BA)*
>
> *(1) The principal purpose of a development control plan is to provide guidance on the following matters to the persons proposing to carry out development to which this Part applies and to the consent authority for any such development—*
>
> *(a) giving effect to the aims of any environmental planning instrument that applies to the development,*
>
> *(b) facilitating development that is permissible under any such instrument,*
>
> *(c) achieving the objectives of land zones under any such instrument."*

It is relevant to note that in *Hillcrest Rose Bay Pty Ltd v Woollahra Municipal Council* [2021] NSWLEC 1662 on 28 October 2021 the Land and Environment Court made it clear that where a development control plan contains relevant provisions— and those provisions set standards with respect to an aspect of the development — the consent authority "*is not to require more onerous standards with respect to that aspect of the development*". This could be pertinent to Part R of the DCP, which seeks to impose more onerous ecological conditions than those applying under the Clarence Valley LEP- or the BC Act for that matter.

It is noteworthy, however, that the DCP does not contain any provisions relating to extractive industries *per se*.

The quarry complies with the general objectives of the DCP, summarised in the following Table 5.6.

Table 5.5: Compliance with Clarence Valley DCP Rural Zone Objectives

Relevant Clause of DCP	Degree of Compliance with DCP
C1(a) Development responsive to site constraints and surrounding environment	*The proposed quarry development is responsive to existing site constraints and proposes appropriate measures to mitigate impacts associated with an expanded quarry operation on the Project Site.*
C1(b) Development which is of a high quality and is sensitive to the rural character of the locality	*The operation of the expanded quarry will not unduly impact on rural character, either in terms of noise or traffic or blasting or visual impacts. If properly planned and designed, quarries are an appropriate use for remote rural locations, like Tyringham.*
C1(c) Development that is functional and appropriate for the type of land use /activity being provided	*The site is suited to quarrying. Council originally granted consent to a quarry on the Project Site in 1995. The proposed Project is a logical extension to this established land use.*
C1(d) Development/land uses that provide adequate buffers to residential development to reduce conflicts between rural/agricultural uses and residential amenity	*The proposed quarry is reasonably buffered from neighbouring residential uses. Moreover, the Project Site adjoins two other land uses: a local council-owned quarry operation, known as Ellis' Pit; and an existing sawmill operation. These other land uses would have an impact on neighbourhood amenity. The haul route has been sealed by the quarry operator in sections that run past existing rural residences, ensuring acceptable noise/vibration levels are achieved.*

Clause C4 of the DCP is most pertinent to this development application.

The compliance of the Project with clause C4 of the DCP is summarised in the following Table 5.6.

Table 5.6: Compliance of the Project with Clarence Valley DCP Clause C4

Relevant Clause of DCP Clause C4	Applicability to quarry proposal Faheys Pit
C4(1) Impacts on primary production	*The existing quarry is reasonably buffered from other agricultural land uses.*
C4(2) Impacts on adjoining land	*It is considered that the proposed quarry expansion will not unduly impact on rural amenity and is reasonably buffered from other nearby land uses. A Council-owned quarry adjoins the quarry, as does an existing sawmill.*
C4(3) Impacts on vegetation-conservation, landscape or scenic values	*The proposed development seeks to increase the quarry footprint over lands that are currently cleared. No further significant impacts on vegetation, conservation or scenic values are anticipated.*
SEPP C4(4) Impacts on water resources	*All stormwater to be generated by the proposed quarry operation is to be contained within the active quarry pit, with no downstream and/or off-site impacts. The quarry will be designed to have sufficient water storage to meet the demands for water generated by quarry uses.*
C4(5) Impacts on availability of extractive resources	*The proposed development will maximise the utilisation of a known extractive resource.*
C4(6) Impacts on riparian areas	*The quarry extends into and over a known watercourse, however, the quarry will be designed to ensure that all quarry-generated stormwater is wholly contained within the quarry.*
C4(7) Impacts on cultural sites	*No impacts likely.*
C4(8) Visual impacts	*No views of the existing or proposed quarry are likely from any adjoining rural residences or from Armidale Road.*

In addition to the above, the proposed development complies with other relevant provisions of the DCP in terms of setbacks from surrounding land uses (C5), the flood-free nature of the land (C9), and the intention to employ acceptable water management practices within the expanded quarry development (Part G of the DCP).

5.2.3 State Environmental Planning Policy (Resources and Energy) 2021

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 was repealed on 1 March 2022 and has been incorporated into a new *State Environmental Planning Policy (Resources and Energy) 2021* as Chapter 2, Parts 2.1-2.5. This state environmental planning policy (SEPP) aims for the sustainable operation and management of mineral, petroleum and extractive material resources. Extractive industries are permissible with consent under this SEPP, the SEPP allowing extractive industries on any land where agriculture is permissible. This SEPP requires that determining authorities consider the following when assessing any application for such development including:

- The compatibility with surrounding land uses. The Project contains a raft of mitigation measures that aim to ensure that the impacts of associated with the modest expansion proposed can be satisfactorily mitigated.
- The efficiency of resource recovery. The Project seeks to secure access to a proven quarry resource through an extension of the currently approved quarry footprint.
- Access to a larger quarry resource will mean the the life of the quarry- including use of local roads for haulage- will be extended.
- The rehabilitation of the land will occur in once quarrying is completed within each of the various quarry benches.
- To encourage ecologically sustainable development through the environmental assessment, and sustainable management of extractive material resources. The Project satisfies this objective. The Project contains numerous measures that, taken as a whole, will assist in ensuring that this outcome is achieved.

A compatibility assessment of the proposed quarry expansion with the provisions of this SEPP are considered in the following Table 5.7.

Table 5.7: Compliance of the Project with SEPP (Resources and Energy) 2021

Relevant clause in SEPP	***Applicability to quarry proposal Faheys Pit***
Clause 2.9 - Permissibility	*Extractive industries are permissible on the Project Site.*
SEPP Clause 2.17 - ***(a) consider:*** ***(i) the existing uses and approved uses in the vicinity, and*** ***(ii) potential for significant impact on the preferred uses of land in the vicinity of the development, and*** ***(iii) compatibility with any existing, approved or likely preferred uses***	*The land has an operational history of extraction for approximately the last 60 years and is a part of the character of the locality. Moreover, Faheys Pit continues to be used for extractive operations.* *The quarry is reasonably well buffered from surrounding rural dwellings and agricultural uses. It understood that the sawmill and sawmill residence do not enjoy development consent and, if this is so, Council is yet to consider clause 2.17(a) in respect to these uses. The proposed development seeks a modest increase in the size of the current quarry footprint. It is not anticipated to raise any concerns in terms of incompatibility with neighbouring land uses.*
(b) public benefits of the development and the land uses referred to in paragraph (a) (i) and (ii) ***(c) measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii)***	*Various specialist assessments have been undertaken regarding the potential impacts from the development on adjoining land uses and habitats. These studies conclude that acceptable impacts will ensue.* *The expanded quarry will result in benefits to the local and regional economy, will help generate employment opportunities, as well as enable continuing reliance on this quarry pit for road making purposes in the future.*
Clause 2.19-Compatibility	*The land is located in the vicinity of a Council-owned quarry -Ellis' Pit- not considered to be a competitor given that the pit services Council road projects only. The Project Site also adjoins and existing sawmill. To the north and to the west of the quarry is forested lands. Having regard for the above, no incompatibility issues arise. Notwithstanding the point raised above in respect of clause 2.17(a) above, an agreement has been signed with the owner of the sawmill.*
Clause 2.20 ***(a) Impacts on water resources*** ***(b) Impacts on threatened species, biodiversity avoided or minimised to the greatest extent possible*** ***(c) Greenhouse gas emissions are minimised***	*The quarry has been designed to ensure that there is sufficient water to carry out the quarrying operations, including the requirements for sedimentation and erosion control, as well as dust suppression.* *There is no proposal to pump water from any nearby watercourse.*
Clause 2.21 -Resource recovery	*The proposed quarry expansion will enable the optimisation of a quarry resource from a well established quarry.*
Clause 2.22 - ***transport***	*Transportation of quarry product will be along the same approved internal quarry haul route back to Armidale Road. The traffic assessment finds that the existing access arrangements back to Armidale Road are satisfactory.*
Clause 2.23 - ***Rehabilitation***	*Quarrying, once completed, will require rehabilitation. A rehabilitation plan has been prepared in support of the Project.*

State Environmental Planning Policy (Resources and Energy) 2021 overrides the provision of local environmental plan (LEP) generally (s.2.6). Additionally, it overrides any such provisions of an LEP that may require the consent authority to be: "*satisfied as to certain matters specified in the plan, development for that purpose may be carried out on that land with development consent without the consent authority having to be satisfied as to those specified matters*." (s.2.10(2)). The Project thus complies with relevant provisions of *State Environmental Planning Policy (Resources and Energy) 2021*.

5.2.4 Compliance with Other State Environmental Planning Policies

The accompanying Table 5.8 provides a summary of the compliance of the Project with a relevant State environmental planning policies.

Table 5.8: Compliance of the Project with State Environmental Planning Policies (SEPPs)

Relevant SEPP	Summary of SEPP provisions	Compliance: Project
State Environmental Planning Policy (Transport and Infrastructure) 2021	*The SEPP provides a planning regime for the assessment of traffic generating development across NSW- principally that having a frontage to a classified road.*	*Yes. Pursuant to s.2.118, the site has frontage to Armidale Road which is identified as a classified road. An increase in quarry truck traffic is proposed. The traffic assessment by Streetwise finds that the safety, efficiency and ongoing operation of Armidale Road will not be adversely affected by the proposed quarry development.*
State Environmental Planning Policy (Resilience and Hazards) 2021	▸ *Requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy.* ▸ *Pursuant to s 4.6 of the Resilience and Hazards SEPP a consent authority must consider contamination and remediation prior to the determination of a development application.* ▸ *Planning controls for the remediation of contaminated land.*	▸ *The proposed quarry development is not considered to be potentially hazardous or offensive. Moreover, extractive industries are not defined as such in the LEP.* ▸ *The proposal is for the continuation of existing established quarrying operations.* ▸ *Given the historical use of the site, any contamination is unlikely and no site remediation required, thus satisfying the requirements of State Environmental Planning Policy (Resilience and Hazards) 2021 Ch 4, s.4.6(1).* ▸ *Less than 50,000L of diesel would be stored on the site and this storage would be located greater than 20 metres from other infrastructure or activity. Any fuel storage will be self-bunded and in full conformance to the Australian Standard AS1940-2017.* ▸ *Quarry stormwater ('dirty water') will be treated within the quarry site.* ▸ *Quarry truck traffic can use the existing haul route without giving rise to any safety or similar concerns.* ▸ *Blasting and processing of quarry products to be undertaken in accordance with EPA blasting criteria.* ▸ *The Project Site is not on land identified by EPA records under the Contaminated Land Management Act 1997.* ▸ *Proposed safe handling of the Dangerous Goods, including spill prevention and clean up requirements, and the transport and storage of Dangerous Goods.*
State Environmental Planning Policy (Biodiversity and Conservation) 2021	▸ *Encourages the conservation and management of natural vegetation areas.* ▸ *Assessment of any likely impact on koalas or koala habitat must be assessed.*	▸ *The proposed development will result in quarrying over cleared land previously used for forestry purposes. The Project will result in the clearing of native vegetation that exceeds the biodiversity offsets scheme threshold pursuant to the Biodiversity Conservation Act 2016.* ▸ *No clearing of vegetation that is or forms part of a heritage item, that is within a heritage conservation area, that is or forms part of an Aboriginal object or that is within an Aboriginal place of heritage significance.* ▸ *The project site has no evidence of habitation by koalas. It is not core koala habitat for the purposes of the SEPP nor is it within proximity to core koala habitat.* ▸ ***Refer Section 7.3.5 for details**.*
State Environmental Planning Policy (Planning Systems) 2021	*Defines certain developments that are projects of state or regional significance.*	*The project is of a type that triggers the relevant criteria for Regionally significant development, requiring the consent of the Northern Region Planning Panel.*

The Project thus complies with the relevant provisions of the State environmental planning policies cited above.

5.2.5 Compliance with North Coast Regional Plan 2041

The *North Coast Regional Plan 2041* (REP) was updated and finalised in December 2022. It encompasses a vision, goals and actions geared towards delivering greater prosperity in the years ahead for those who live, work and visit the NSW North Coast. The plan is not meant to be detailed land use plan, but rather, it provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions.

Quarries provide the essential materials to enable major road upgrades and other related infrastructure projects to occur. The above is reflected in Objective 15 of the REP, where it states the need for improving State and regional connectivity, in particular east-west connectivity. It identifies further major road upgrades on Waterfall Way (p.53).

> "*A focus on east-west connectivity is now essential to create a better-connected and more resilient transport network….The Bruxner, Gwydir, Waterfall Way and Oxley Highways are the key routes connecting regional cities and centres within the region and to the New England North West Region*." (p.53 of the REP)

The need to enable the development of the region's natural resources- like hard rock quarries- is recognised in Strategy 10.1 and 10.2:

> "*13.1 Enable the development of the region's natural, mineral and forestry resources by directing to suitable locations land uses such as residential development that are sensitive to impacts from noise, dust and light interference.*
>
> *13.2 Plan for the ongoing productive use of lands with regionally significant construction material resources in locations with established infrastructure and resource accessibility.*"

In regard to the above, the Project will enable the ongoing productive use and expansion of a known existing quarry resource that will have the ability to service major road upgrades and other projects in the region as well as provide continued employment growth.

Objective 3 of the REP is to: "*Protect regional biodiversity and areas of high environmental value*". All vegetated land within the region, not already set aside for conservation purposes, has been identified in the REP as "Potential high environmental value land" (Figure 3 of the REP). The environmental values of the project site are discussed in detail in the Bower Ecology report- refer **Appendix H** And Section 7.3.5 of the EIS.

Objective 4 of the REP is: "*Understand, celebrate and integrate Aboriginal culture*". In this regard an Aboriginal Due Diligence assessment was undertaken, involving an on-site investigation of the project site with the participation and guidance of the Dorrigo Plateau Local Aboriginal Land Council. No sites were found on the Project Site, and due to past land disturbance it is unlikely that Aboriginal objects have survived here. The investigation also concluded that the Project Site is not within an archaeologically sensitive landscape, and the high level of past disturbance means that the potential for in situ archaeological deposits is considered low. Refer to **Appendix I** for details.

Objective 5 of the REP is: "*Manage and improve resilience to shocks and stresses, natural hazards and climate change*". In this regard the project has regard for the bushfire prone nature of the land surrounding the quarry and has adopted appropriate mitigation measures to deal with this threat. The water storage capacity of sediment basins on the Project Site have been designed to accommodate climate change and the increasing vulnerability of the region to heatwaves, droughts and bushfires, in particular, as confirmed in the water balance assessment by Martens and Associates, consulting engineers- refer to **Appendix G** for details.

Objective 8 of the REP is: "*Support the productivity of agricultural land*". Strategy 8.1 of the REP is: "*Local planning should protect and maintain agricultural productive capacity in the region by directing urban, rural residential and other incompatible development away from important farmland.*" The Project Site is not mapped in the REP as comprising land identified as comprising 'Important Farmland' (source: *North Coast Regional Plan 2041* Figure 4), nor is it identified as comprising Strategic Agricultural Land on the Dorrigo Plateau (source: *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 Strategic Agricultural Land Map -Sheet STA_053*).

5.2.6 Any Draft Local Environmental Plans

A check of all outstanding planning proposals applicable to the Clarence Valley LGA on the NSW Planning Portal on 2 June 2022 reveal that there are no draft local environmental plans that apply to the Project Site.

▪ 5.3 Applicable Legislation and Other Guidelines

5.3.1 Protection of the Environment Operations Act 1997

The granting of development consent under the *Environmental Planning and Assessment Act 1979* to further develop the quarry will not exhaust the approvals process necessary for the expansion of quarrying operations on the subject land. The *Protection of the Environment Operations Act, 1997* requires licensing for industries, like quarries, once consent has been obtained, for extractive industries that extract in excess of 30,000 tonnes per annum.The quarrying activities currently carried out at Faheys Pit are not scheduled activities within the meaning of the *Protection of the Environment Operations Act 1997*, however, the expanded quarry operation will be classified as scheduled activity, requiring the issue of an Environment Protection Licence (EPL) for an extractive activity to crush, grind or separate or extract, process or store under the provisions of Section 55 of the *Protection of the Environment Operations Act, 1997*.

ss7 (1) and 50 (2) of this Act make it clear that it and the EP&A Act-under which this DA is to be determined- are interlocking, parallel schemes of regulation. The same interlocking, parallel schemes of regulation can be said of the relationship between the EP& Act and the *Water Management Act 2000* , discussed in Section 5.3.2.

The interlocking nature of the scheme is even more evident when the EP&A Act is considered, in particular Division 5 of Part 4 concerning integrated development (which applies here). The scheme envisages that a development consent will need to be first obtained under the EP&A Act prior to any EPL being issued: *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited (No2)* [2010] NSWLEC 104 per Preston CJ, and most recently by the NSW Court of Appeal in *Hunter Industrial Rental Equipment Pty Ltd v Dungog Shire Council* [2019] NSWCA 147 decision dated 20 June 2019 in the matter of a quarry operation at Martins Creek, in the Hunter Valley region of NSW) which at [166] and [177] states, inter alia:

> *"166. Land usage is subject to a range of statutory controls which, in broad terms, operate cumulatively. Thus, for the purposes of the operations carried out at Martins Creek, the appellants needed development consent under the Planning Act and also a licence under the Protection of the Environment Operations Act 1997 (NSW) (the 1997 Act)….*
>
> *177. The evident purpose of s 50, and indeed s 58(6) of the [Protection of the Environment Operations Act 1997: "the 1997 Act"], is to ensure that the [EP&A Act] and the 1997 Act operate in tandem and do not result in conflicting permissions. Thus, if consent is required under the [EP&A Act], and has not been obtained, the EPA cannot grant a licence under the 1997 Act."*

Moreover, and related to [177] above, an EPL cannot be lawfully issued if it is inconsistent with the issued development consent per the decision of Justice Pain in *Hy-Tec Industries (Queensland) Pty Ltd v Tweed Shire Council* [2019] NSWLEC 175 dated 14 November 2019.

5.3.2 Water Management Act

The *Water Management Act 2000* (WM Act) provides formal means for the protection and enhancement of the environmental qualities of waterways and their in-stream uses as well as to provide for the protection of catchment conditions. It also governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced. The object of this Act is to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.

The WM Act regulates the use of land where there may be interference with groundwater or where it involves works within 40m of of a watercourse: termed 'waterfront land'. In this regard, the Project is proposed to incorporate one 1st order stream within the expanded quarry footprint, and is within 40m of some other 1st order watercourses. It is noted that the former watercourse comprises mainly cleared land, and the latter is setback from the outer edge of the quarry footprint. Any proposed extractive industry development within 40m of 'waterfront land' triggers the need for an EIS, as well as the need for an 'integrated development approval under the EP&A Act. Before commencing any proposed controlled activity on waterfront land, an application must be submitted to Natural Resources Access Regulator, and obtained, for a Controlled Activity Approval (CAA) under the WM Act. In the case of the Project, it is proposed to establish a main sediment basin at the base of a 1st order watercourse that runs through the centre of the proposed quarry footprint. An existing basin is to be found at the top of the current quarry pit, also draining into the same watercourse. Schedule 1 of the *Water Management (General) Regulation 2018* (WM Regulation) identifies classes of dam which are exempt from licensing requirements, including dams used to contain sediment or to control erosion, which includes quarry sediment basins, that are located on a minor stream.

Based on the NSW Department of Water & Energy document *Farm Dams – Do you need a licence* (2008): "*Minor streams are defined by the Strahler stream ordering method as 1st and 2nd order streams that do not have permanent river flow*". As the sediment basin system serving the quarry will receive water from within the quarry site the provisions of Schedule 1 (3) of the WM Regulation are satisfied and are thus exempt from the need to obtain a licence under the WM Act. In terms of groundwater, and on the basis of existing Water NSW groundwater bore data, it is unlikely that future excavation on the site will encounter groundwater (refer to Section 2.2.3 for details). As the quarry appears to be about 50 metres above known groundwater levels, groundwater is not likely to be encountered on site, nor is it to be relied upon as a water source at the quarry.

5.3.3 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act), passed by NSW Parliament in November 2016 and came into effect on 25 August 2017. The BC Act repeals the *Threatened Species Conservation Act 1995*, the *Native Vegetation Act 2003*, *Nature Conservation Act 2001* and part 6 of the *NPWS Act 1974*. The matters relating to the listing of threatened species, threatened ecological communities, key threatening processes. biodiversity impact assessment, offsetting and related offences are now contained within the BC Act. A precondition to the grant of development consent under the EP&A Act is found in s 7.16(2) of the of the BC Act. This provides:

> "*The consent authority must refuse to grant consent under Part 4 of the Environmental Planning and Assessment Act 1979, in the case of an application for development consent to which this Division applies (other than for State significant development), if it is of the opinion that the proposed development is likely to have serious and irreversible impacts on biodiversity values*."

The NSW Department of Planning & Environment has published criteria to assist in the application of the principles in cl 6.7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation), in the form of the *Guidance to assist a decision-maker to determine a serious and irreversible impact* (September 2019)(Guidance document). Entities that meet the criteria under one or more of the principles in clause 6.7 of the BC Regulation are identified as entities at risk of a serious and irreversible impact (SAII) in the Threatened Biodiversity Data Collection housed in BioNet and displayed on the Department website. In section 3, the Guidance document provides a framework for decision-makers to take into account the scale of an impact and the potential for avoidance and mitigation within the context of the principles in cl 6.7 of the BC Regulation and the supporting criteria.

Recent judgements in the Land and Environment appear to have widened the understanding of what is to be regarded as a serious and irreversible impact (SAII) on biodiversity values for the purposes of the BC Act: *IRM Property Group (No. 2) Pty Ltd v Blacktown City Council* [2021] NSWLEC 1306: *Tomasic v Port Stephens Council* [2021] NSWLEC 56: and *Planners North v Ballina Shire Council* [2021] NSWLEC 120- the latter two decisions being that of Preston CJ. Refer Section 7.3.5 of this EIS for a more detailed consideration and assessment.

5.3.4 Rural Fires Act 1997

Bush fire prone land is recorded on maps prepared by local councils and certified by the Commissioner of the NSW Rural Fire Service (RFS). Section 100B of the *Rural Fires Act 1997* requires that a bush fire safety authority is required from the Commissioner for uses including residential development or 'special fire protection purpose' including schools, child care centres and seniors housing. No such authority is required to be issued for an extractive industry. The Project Site is mapped by the RFS as comprising bushfire prone land- refer to DPIE Property Report- in **Appendix D** and **Figure 4.2**.

Under the EP&A Act, development on bush fire prone land must generally meet the requirements of the RFS document entitled *Planning for Bush Fire Protection* unless the consent authority has consulted with RFS. However, there are no specific requirements set down in this document relating to extractive industries or facilities associated with this use. *Planning for Bush Fire Protection* recommends that for Buildings of Class 5 to 8, which conceivably could include quarry buildings the following objectives should be applied in relation to access, water supply and services, and emergency and evacuation planning:

- "*to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation*;"(p.76). In this regard the quarry has a formed internal haul route running directly back to Armidale Road.
- "*to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;*" (p.76). It is proposed that work instructions will be issued to all employees to include emergency response procedures, applicable during a fire emergency. Additionally, the Project will provide for fire fighting equipment to be stored at the quarry site, including fire extinguishers.
- "*to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building*;"(p.76). In this regard the Project will provide a water supply in the form of two sediment basins capable of being used for fire fighting purposes. Fire extinguishers are to be provided in all mobile equipment. The extinguishers are to be serviced regularly.
- "*provide for the storage of hazardous materials away from the hazard wherever possible*."(p.76) In this regard the Project provides for all fuel storage facilities to be located and designed to prevent potential fire hazards, as required by *AS1940-1993- The Storage and Handling of Flammable and Combustible Liquids*. Any fuel storage areas to be bunded and separated from the neighbouring forested lands by a minimum of 23 metres.

Refer Sections 3 and 4 for details of bushfire measures proposed. [NOTE: The current Project does not include any proposed buildings.] Quarries are not identified in *Planning for Bush Fire Protection* as comprising 'hazardous industry' and, as such, no special Fire Safety Study is required in support of this project. As as part of good quarry practice, various measures are to be proposed at Faheys Pit to effectively control or manage any bushfire threat, including but not limited to the following:

- Fire fighting equipment to be stored at the quarry site. This includes fire extinguishers. Fire extinguishers are to be provided in all mobile equipment. The extinguishers are to be serviced regularly. AS2444 provides details on the various extinguishers available, their use and effectiveness for various types of fire. Signage will be located at all extinguisher locations on the quarry site to indicate the extinguisher type and suitability for the fuels, oils or other products stored on site.
- Any fuel storage facilities will be located and designed to prevent potential fire hazards, as required by *AS1940-1993- The Storage and Handling of Flammable and Combustible Liquids*. Any fuel storage areas to be bunded.
- Work instructions to employees to include emergency response procedures, applicable during a fire emergency.
- As per Section 8.3.6 of *Planning for Bush Fire Protection*, relating to mining and petroleum production - but not quarries- a Bush Fire Emergency Plan is to be prepared as part of an overall quarry management plan.

5.3.5 Contaminated Land Management Act 1997

The NSW *Contaminated Land Management Act 1997* is administered by the EPA. It establishes a process where the significant contamination of land is investigated and, where appropriate, remediated. The Project Site is not identified as 'contaminated' under this Act- refer to the Contamination Report in **Appendix E** for further details.

5.3.6 Mining Act 2011,Work Health and Safety (Mines & Petroleum Sites) Act 2013

Quarry rock, stone or gravel is not defined as a "mineral" for the purposes of the *Mining Act 2011* , and is therefore not regulated by this legislation. However, under the provisions of the *Work Health and Safety (Mines & Petroleum Sites) Act 2013* quarry rock, stone or gravel is defined as a "mineral" and is thus covered by this Act and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*. Accordingly, work health and safety practices at Faheys Pit and other quarries in New South Wales are regulated by the NSW Mines Regulator (currently called the NSW Natural Resources Access Regulator).

The NSW Natural Resources Access Regulator has released health and safety guidelines for the operation of quarries in NSW, in the document entitled *Health and safety at quarries* ,dated November 2018.

5.3.7 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EBPC Act)

The EPBC Act regulates actions that could lead to significant impacts to Matters of National Environmental Significance (MNES). Relevant MNES includes threatened and migratory species, and threatened ecological communities. Under the EPBC Act, proponents are required to 'refer' the project to the Commonwealth Department of Agriculture, Water and the Environment (DAWE) if the project is likely to result in significant impacts to MNES. If upon review of the referral documentation, DAWE assess the project as a 'non-controlled action' no further assessment under the EPBC Act is required. Alternatively, if DAWE assess the project to be a 'controlled action', they will outline what further assessment will be required.

Refer Section 7.3.5 of this EIS for a more detailed consideration and assessment.

6.Community Engagement

6.1 Overview

The Project Site is located within a sparsely populated rural area, adjoining a Council-operated quarry and a sawmill. As a consequence, the number of rural residences in the near vicinity is comparatively low, with only one rural residence within 1km of the Project Site and a total of 3 rural dwellings within 2km of the Project Site. The Project Site is reasonably buffered from neighbouring residences and is surrounded by forested lands, ensuring that it is visually obscured from neighbouring residences.

with SEARS issued by the Department of Planning Industry and Environment requires that: "*During the preparation of the EIS, you must consult the relevant local, State and Commonwealth government authorities, service providers and community groups, and address any issues they may raise in the EIS.*" The SEARS then nominates those parties that need to be consulted. The project team, including Sheridans Hard Rock Quarry Pty Ltd, has carried out consultation with various stakeholders and in particular:

- Environment Protection Authority (EPA).
- NSW Department of Planning & Environment, including specialist divisions.
- Clarence Valley Council.
- Transport for NSW (TfNSW) Grafton office.
- Neighbouring sawmill owner, and occupiers likely to be impacted by the proposal.
- Local Aboriginal community, as part of a due diligence consultation process.

Details of the consultation carried out by the project team are set out in the following sections. It describes the consultation process and the issues raised, and response to these issues. Where amendments have not been made to address an issue, a short explanation is provided. Refer **Appendix G**.

6.2 Consultation Undertaken

Outline Planning Consultants Pty Ltd initially consulted with the then Department of Planning and Environment ("DPE", 'the Department') as required under Clause 3 of Schedule 2 of the EP&A Regulation to obtain the Planning Secretary's Environmental Assessment Requirements (SEARs) for the Project. This consultation involved providing the Department with a Scoping Report introducing the Project and providing an overview of the Project, its environmental setting, strategic and statutory context and proposed community engagement.

The Department circulated the Scoping Report to Clarence Valley Council and to various State Government agencies seeking their requirements relating to respective issues to be addressed in the EIS for the Project. The Secretary's requirements were forwarded to Outline Planning Consultants Pty Ltd on 6 September 2022, with further comments from the Biodiversity and Conservation Division (BCD) of the Environment and Heritage Group in the Department of Planning and Environment and Resource Regulator sent a few days later.

Outline Planning Consultants Pty Ltd and specialist consultants engaged to undertaken various assessments for the EIS subsequently followed up with a number of the State Government agencies nominated by DPE in the SEARS, seeking further comments or clarifications relating to the Project.

The accompanying Table 6.1 lists all agencies and other organisations consulted, either as a part of the SEARs process or subsequent t the issue of the SEARS.

Table 6.1: Consultation process and outcomes

Government agency or party consulted	Consultation and outcomes
Clarence Valley Council	*Council provided input into the preparation of the EIS through a SEARS submission, at a Teams meeting held on 29 September 2022. Traffic data for Ellis' Pit was also obtained from Council's Engineering Department by traffic consultants Streetwise.*
Transport for NSW (TfNSW)	*No SEARs advice was provided by TfNSW. EIS addresses all issues raised by TfNSW in their submission accompanying the issued SEARS. There has been further email and telephone communications between the parties in 2022.*
Department of Planning & Environment	*A response was also received from the Department's Environment, Energy & Science Group, as well as Resources and Geosciences Division (Geological Survey of NSW). Refer* ***Appendix J****.*
Dorrigo Plateau Local Aboriginal Land Council	*A Due Diligence assessment of the Project Site, involving a site inspection with representatives of the Dorrigo Plateau Local Aboriginal Land Council (DPLALC) and Niche Environment and Heritage (Niche), was undertaken in June 2022. it was determined by DPLALC and Niche that due to the high levels of disturbance and landscape within the Project Site, no further investigation or impact assessment was required. Refer* ***Appendix J****.*
Rural Fire Service	*This EIS has been prepared in accordance with SEARS comments received from the NSW Rural Fire Service.*
EPA	*This EIS has been prepared in accordance with SEARS comments received from EPA.*
Neighbouring owners and occupiers of land	*In July and August 2022 a Fact Sheet about the proposed expansion of Faheys Pit was circulated to neighbouring residences within 2km of the Project Site by way of letter-boxing and at the local community centre. No responses have been received to date. Face-to-face discussions were held with Sheridans Hard Rock Quarry representatives and the adjoining landowners to the east and to the south-west of the quarry site, and with Council.*

▪ 6.3 Proposed Future Consultation

The quarry operator, Sheridans Hard Rock Quarry Pty Ltd, propose to maintain a proactive approach to ongoing engagement, in particular with near neighbours, once the quarry development is approved. This will include the following:

- Direct contact with its fence-line neighbours to the east, namely, the Council pit and the sawmill owner, at a frequency agreed upon with each neighbour, including an invitation for a site visit to view the proposed activities operating within the quarry.
- Direct contact with other surrounding rural property owners when approached or at a frequency that is otherwise reasonably requested by the property owner.
- Notification of blast events to nearest residences.
- Receiving and responding to any complaints. The quarry operator will keep a legible record of all complaints made to the operator or any employee or agent of the operator in relation to pollution arising from any activity applicable to the quarry operation

Under the provisions of the EP&A Act the development application and accompanying EIS will be placed on public exhibition for comment. During the exhibition period, anyone may make a written submission on the quarry project. Relevant Government agencies will also be notified for comment and, in the case of the EPA, for General Terms of Approval. The proponent will respond to any submissions received by Clarence Valley Council during the public exhibition period, which may include follow up consultation with interested parties.

7. Environmental Assessment

The following section assesses the likely environmental and planning impacts arising from the proposed quarry expansion on the Project Site.

7.1 Overview

The identification and prioritisation of environmental issues associated with the proposed quarry development has enabled the impact assessment contained in the EIS to focus on key impacts and environmental mitigation strategies.

Details of all quarry mitigation measures are contained in Sections 3 and 4 of the EIS report and comprise a part of the quarry development proposed. They are to be be read in conjunction with the following assessment.

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021) form the statutory framework for planning approval and environmental assessment in NSW. The identification of approval pathways and assessment requirements are set out in environmental planning instruments (EPIs) that may be made under Division 3.3 (State environmental planning policies) or Division 3.4 (local environmental plans) of the EP&A Act.

7.1.1 Compliance with Section 4.15 of EP&A Act

Section 4.15(1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies to the determination of this development application. It requires an assessment of the impact of various planning and environmental issues engaged for consideration by s 4.15. In this regard Section 4.15(1) provides:

> *"(1) In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:*
>
> *(a) the provisions of:*
>
> *(i) any environmental planning instrument, and*
>
> *(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
>
> *(iii) any development control plan, and*
>
> *(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and*
>
> *(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),*
>
> *(v) Repealed*
>
> *that apply to the land to which the development application relates,*
>
> *(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*
>
> *(c) the suitability of the site for the development,*
>
> *(d) any submissions made in accordance with this Act or the regulations,*
>
> *(e) the public interest."*

A summary of the overall compliance of the quarry development with the preceding s.4.15 matters for consideration is set out in the accompanying Table 7.1.

Table 7.1: Compliance of Quarry Development with Relevant Section 4.15 Matters (Summary)

Relevant matters for consideration s.4.15	Compliance of Proposed Quarry Development
(a)(i) The provisions of: Any environmental planning instrument	*The quarry development is permitted by Clarence Valley Local Environmental Plan (LEP) 2011 and is also permissible with consent under State Environmental Planning Policy (Resources and Energy) 2021. It also complies with the provisions of applicable SEPPs and the North Coast Regional Plan. Refer Section 5.2 of this EIS for details.*
(a)(iii) Any development control plan	*The proposed development is generally consistent with the Clarence Valley Development Control Plan for Development in Rural Zones (DCP) 2011. [NOTE: There are no provisions within this DCP that specifically apply to extractive industries.] Refer Section 5.2.2 for details.*
(a)(iv) The regulations	*The details required to accompany this development application under s.24 of the EP&A Regulation 2021 are contained in this EIS report, accompanying specialist reports, and application form.*
(b) Likely impacts	► *The Project optimises the quarry operation and enables full economic recovery of the quarry resource, enabling the servicing of roads and infrastructure projects and providing employment for workers -positive social and economic impacts.* ► *The quarry management and mitigation measures proposed will minimise the impact on neighbouring sensitive receivers, in particular in terms of noise and air quality.* ► *The truck numbers/volumes proposed can be satisfactorily accommodated by the internal quarry haul route, the existing intersection, and Armidale Road.* ► *There will be no likely adverse impacts on the environment or agriculture. Almost all of the proposed quarry site is cleared or disturbed land, with no ecological or habitat significance.* ► *The Project Site has not been identified as containing any significance in terms of Aboriginal or European heritage values. With the exception of the adjoining sawmill, the quarry will not be visible from any nearby residences or from Armidale Road.* ► *Stormwater flows can be satisfactorily accommodated with the quarry footprint. All drainage from within the active quarry area will be directed to the sediment basin system, to be then re-used for dust suppression and processing of quarry rock.* ► *Acceptable air quality impacts are predicted. A raft of dust abatement measures are to be implemented on site.* ► *Acceptable noise and blasting impacts are predicted. Noise levels generated by the quarry or by quarry traffic will comply with the relevant noise criteria.*
(c) Suitability of the site	*The Project Site contains an existing approved quarry, and is suitable for continued quarrying activities. The land the subject of the proposed quarry development is mostly cleared and disturbed land. The project site is well removed from residential areas in a relatively remote rural location. It has safe and adequate access arrangements.*
(e) Public interest	*The proposed quarry development is considered to be in the public interest as it has positive social and economic outcomes, and has satisfactory environmental impacts. The proposal would contribute to the economy locally and through employment generation and the provision of materials for roads and other infrastructure projects in the region.*

7.1.2 Compliance with ESD Principles

The Project complies with the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act)- refer to Section 5.1.4 of this EIS for further details. In addition to the above, the objects of the EP&A Act at s.1.3 include (b) "*the facilitation of ecologically sustainable development*" (ESD). ESD is defined in s 4 of the EP&A Act by reference to the definition in s 6(2) of the *Protection of the Environment Administration Act 1991* (NSW). The accompanying Table 7.2 shows that the proposed quarry development satisfies the principles of ecologically sustainable development as set down in clause 193 of the EP&A Regulation 2021.

Table 7.2: Compliance of the Project with ESD principles

ESD Principle	What the Principle provides	How the Project is consistent with the relevant ESD Principle
The Precautionary Principle	*Considers any threat of serious and irreversible environmental damage and uncertainty.*	*The proposed quarry development will operate with certainty in a safe and environmentally responsible manner which meets the requirements of local council and State government agencies, and accepted industry standards. After a full evaluation of the potential environmental impacts of the project, as considered in this EIS, it is concluded that the quarry can operate within acceptable noise, blasting, air quality, soil, water, environmental, archaeological, traffic and visual criteria. No serious or irreversible environmental damage results from the Project, nor does does it give rise to any uncertainty in terms of what is proposed, its likely impacts, or relationship to adjoining development:(Oates v Northern Beaches Council [2021] NSWLEC 1684 at [29] and Telstra Corporation v Hornsby Shire Council [2006] NSWLEC 133.)*
The Integration Principle	*The decision-making processes should effectively integrate both long-term and short-term economic, environmental and social considerations.*	*Management measures have been proposed that will ensure that acceptable impacts will ensue in both the short-term and the long-terms. Quarries tend to be a long-term user of land, providing much-needed quarry products to local and regional communities for generations. During the operation of the quarry, employment benefits will arise in terms of workers at the quarry itself and in the broader community. The roads projects that the quarry development will serve- and in particular the Waterfall Way road upgrading project- will benefit all members of the community, as well as future generations. In the longer term the quarry will be progressively rehabilitated and returned to forest.*
Intergenerational Equity principle	*The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.*	*The proposed quarry development, which involves extending the life of the quarry, will provide benefits for future generations by providing a secure source of road making material close to markets and to committed infrastructure projects in the longer term.* *The environmental management measures that are contained in the currently approved quarry plan of management have been developed to minimise the impact of the project on the environment and community to the extent reasonably practicable.The proposed lateral extension of the quarry was also designed such that elements of the existing environment available to this generation, including the natural environment, water and local biodiversity, would continue to be available to future generations.*
Biological Diversity Principle	*The conservation of biological diversity and ecological integrity.*	*The land the subject of the Project is cleared land with no ecological values of note. As such, there is anticipated to be no additional adverse impacts on the surrounding biological environment arising from the proposed quarry development.*
Valuation and Pricing of Environmental Resources principle	*Improved valuation, pricing and incentive mechanisms as well as environmental factors should be included in the valuation of assets and services.*	*Satisfied in that the Project seeks to fully utilise a known quarry resource. The Project optimises the valuation and pricing of the resource with minimal impact by maximising its efficient extraction. Moreover, the Project Site has limited value to agriculture.*

▪ 7.2 Section 4.15(1)(a): Planning Instruments, DCPs, Regulations etc.

7.2.1 Background and Overview

In this case, the principal environmental planning instruments that are responsible for shaping the quarry development on the Project Site and in facilitating approval of the proposed quarry development include:

- *Clarence Valley Local Environmental Plan (LEP) 2011* which permits 'extractive industries', as defined, in the RU1 zone and sets down the objectives of the zone and other planning provisions. Relevantly, the Project Site is not located within any conservation zone.Refer **Figure 7.1**.
- Various state environmental planning policies (SEPPs), and in particular, *State Environmental Planning Policy (Resources and Energy) 2021*. The project is consistent with all relevant SEPPs assessed in this EIS.

It is also noteworthy that the provisions of the state environmental planning policy relevant to the proposed quarry development prevail to the extent of any inconsistency with any other environmental planning instrument.

s.2.6 of *State Environmental Planning Policy (Resources and Energy) 2021* states:

> *"(1) Subject to subsection (2), if this Chapter is inconsistent with any other environmental planning instrument, whether made before or after this Chapter, this Chapter prevails to the extent of the inconsistency."* [NOTE 1: Sub clause (2) does not apply in this case. NOTE 2. As confirmed by Sheahan J in *Bella Ikea Ryde Pty Ltd v City of Ryde Council (No 2)* [2018] NSWLEC 204 in a decision dated 17 December 2018.]

The provisions of other state environmental planning policies also apply- refer to Section 5.2 of the EIS.

The Project complies with the above relevant environmental planning controls and guidelines, including the provisions of the EP&A Regulation 2021. Refer also Section 5 of the EIS.

The Clarence Valley LEP 2011 is the comprehensive local environmental planning instrument applying to the project site. The LEP is a conventional, modern one based on the Standard Instrument Template. Importantly, the project Site Site is not zoned for conservation purposes.

In this regard the Project complies with the applicable aims, zone objectives and land use controls contained in the *Clarence Valley LEP 2011* and relevant SEPPs.

The above approach to assessing a project in terms of zoning was confirmed most recently in the NSW Land & Environment Court judgement of Robson J in *Omid Mohebati-Arani v Ku-ring-gai Council* [2017] NSWLEC 143.

The above approach to assessing a project in terms of zone objectives was confirmed by the NSW Land & Environment Court to follow the decision of *Schaffer Corporation v Hawkesbury City Council (1992)* 77 LGERA 21, at [21] in assessing the compatibility of a development with the zone objectives, as follows:

> *"…the guiding principle then is that development will be generally consistent with the objectives, if it is not antipathetic to them. It is not necessary to show that the development promotes or is ancillary to those objectives, nor even that is compatible." (referred to in Land & Environment Court judgement in the matter of New Street No. 1 Pty Ltd v Waverley Council [2017] NSWLEC 1592 24 October 2017).*

7.2.2 Any Proposed Instrument (s.4.15(1)(a)(ii))

No applicable proposed instrument applies to the Project or to the Project Site- refer Section 5.2.6 of the EIS.

7.2.3 Any Development Control Plan (s.4.15(1)(a)(iii))

The quarry complies with the general objectives of the DCP, summarised in Table 5.6 in Section 5.2.2.of the EIS.

7.2.4 Any Planning Agreement (s.4.15(1)(a)(iiia))

No planning agreement has ben entered into with regard to the operation of the proposed quarry development.

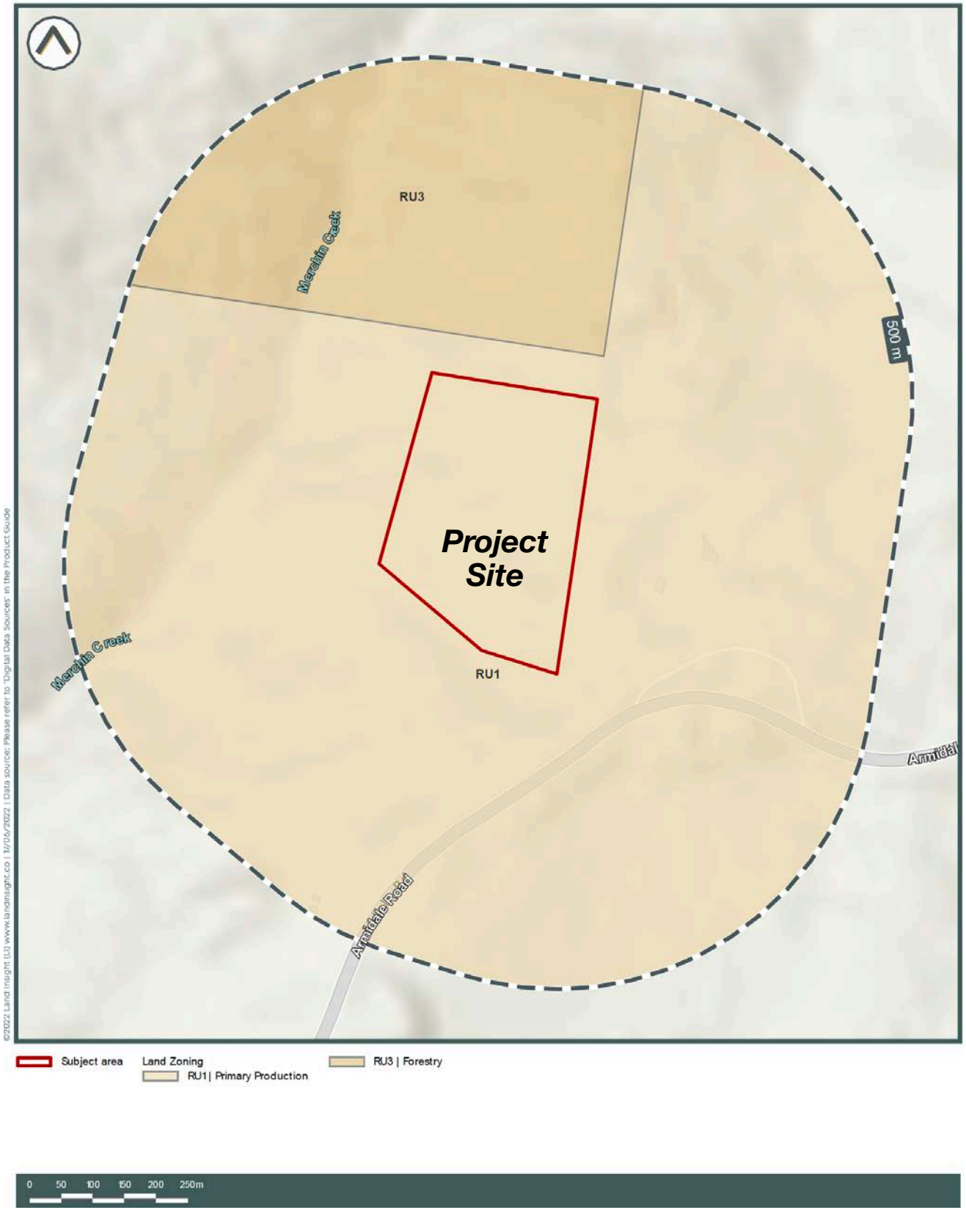


FIGURE 7.1: Quarries are a permissible use in the RU1 zone, and the Project Site. Importantly, the Project Site is not zoned for conservation purposes

(Source: Ballpark Environmental)

7.2.5 "The Regulations" (s.4.15(1)(a)(iv)): NSW Environmental Planning & Assessment Regulation 2021

The term "the Regulations" refers to the *Environmental Planning & Assessment Regulation 2021* (EP&A Regulation 2021), which commenced on 1 March 2022. The proposed quarry operation is identified as 'designated development' in accordance with clause 26 of Schedule 3 of the EP&A Regulation 2021. As such, the application must be accompanied by an EIS. The application has been processed in accordance with the requirements of the regulations relating to Designated Development. As the proposal is also recognised as 'Integrated Development', as approvals are required from the EPA and Water NSW. Clauses 190 and 192 of the EP&A Regulation 2021 relate to the form and content of an EIS, respectively. These requirements, and where they are addressed in this EIS, are set out in the accompanying Table 7.3 and Table 7.4.

Table 7.3: Compliance with clause 190 of EP&A Regulation 2021: Form of an EIS

An environmental impact statement must contain the following information	*Where contained in the EIS*
(2)(a) the name, address and professional qualifications of the person who prepared the statement,	*Certification page.*
(b) the name and address of the responsible person	*Certification page.*
(c) the address of the land	*Cover page and Certification page, as well as Executive Summary.*
(d) a description of the development, activity or infrastructure	*Executive Summary and Section 3.*
(e) an assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure	*Sections 2, 3, 4 and 7.*
(3) EIS declaration	*Certification page.*

Table 7.4: Compliance with clause192 of EP&A Regulation 2021: Content of an EIS

An environmental impact statement must also include each of the following	*Where contained in the EIS*
(1)(a) a summary of the environmental impact statement	*Executive Summary.*
(b) a statement of the objectives of the development, activity or infrastructure	*Section 3.1.*
(c) an analysis of any feasible alternatives	*Section 3.15.*
(d) an analysis of the development, including-	
(i) Description of the development	*Executive Summary and Section 3.*
(ii) General description of the environment likely to be affected or significantly affected by the development	*Section 2.*
(iii) Likely impact on the environment	*Section 7.*
(iv) Full description of mitigation measures	*Sections 3, 4 and 7.*
(v) A list of approvals that must be obtained	*Section 5.*
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d)(iv)	*Section 4.*
(f) Reasons justifying the carrying out of the development	*Executive Summary, and Section 8.*

The above tables show that the requirements of clauses 190 and 192 of the EP&A Regulation 2021 have been satisfied.

▪ 7.3 Section 4.15(1)(b): Likely Impacts

Quarrying inevitably involves clearing of land and excavation and removal of resource material. As such, the focus for any impact assessment will be on impact minimisation (*Gunlake Quarries Pty Limited v The minister for Planning* [2022] NSWLEC 1570). The NSW Land and Environment Court has found that the description of the development the subject of the development application is not just restricted to the nature, extent and other features of the development but can also include ameliorative measures to prevent, mitigate, remedy or offset impacts of the development.

However, in order to be able to be considered in answering the inquiry of likely impact, the ameliorative measures proposed must be considered as part of the development application: *per* Preston CJ in *Newcastle & Hunter Valley Speleological Society Inc v Upper Hunter Shire Council and Stoneco Pty Limited* [2010] NSWLEC 48 at [83]. In the same judgement the Chief Judge also found that:"*likely" means "a real chance or possibility" and "significantly" means "important", "notable", "weighty" or "more than ordinary""* at [84]. Similarly, the Court has determined that "the likely impacts of that development" should not be interpreted narrowly; they encompass not just the direct and immediate impacts of a proposed development on the site where construction will occur but also off - site impacts (*Ballina Shire Council v Palm Lake Works Pty Ltd* [2020] NSWLEC 41 at [6] per Preston CJ).

Mitigating factors

Following the above, the mitigation measures proposed form a functional part of the proposed development. These measures are described in Section 3 of the EIS and summarised in Section 4. In addition to the above, the following mitigating factors need to be also recognised as part of any assessment of the Project:

- The site is already approved, in part, for the purposes of a quarry, including the use of heavy machinery and heavy truck traffic.
- Rehabilitation of the Project Site is proposed following the progressive cessation of quarrying. Appropriate techniques and measures will be applied to ensure that appropriate species of grasses, trees and shrubs are planted out.
- Save for the adjoining sawmill development and Council's quarry, no views are possible of the proposed quarry from any neighbouring residence or from Armidale Road.
- The Project Site has been found to possess no archaeological or heritage values.
- The Project Site does not comprise either 'prime' or 'important' or BSAL agricultural land.
- The proposed quarry footprint is almost completely cleared.
- The Project Site is not subject to landslip hazard, or subsidence or acid sulphate soils.
- The proposed quarry operation will not intersect with local groundwater.
- The small patches of forested area fringing the Project Site is not a threatened ecological community under the NSW *Biodiversity Conservation Act 2016* (BC Act) or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The area of remnant vegetation clearing associated with the proposal (0.2ha) is unlikely to result in a significant impact to matters regulated under the BC Act or EPBC Act, and referral under the EPBC Act is not required.
- The Project Site is flood-free, however, the proposed quarry development is in proximity to some 1st order watercourses.
- The Project Site enjoys the benefit of an existing internal road which connects directly with Armidale Road. The existing intersection can safely and efficiently accommodate the quarry truck traffic volumes proposed.
- The Project Site is sufficiently buffered from sensitive receivers in a relatively remote rural location.

Having regard for the above, any environmental impacts arising from the project can be adequately assessed and managed through the imposition of appropriate conditions of approval, per the findings of the NSW Land and Environment Court in *Dellara Pty Ltd v Minister for Planning and Penrith City Council* [2012] NSWLEC 1186 at [160].

Key impacts to be assessed

The key impacts addressed in the this sub-section of the EIS focus on the following, in accordance with the SEARs requirements:

- **Noise**. Noise impacts of the Project on sensitive receivers, including monitoring and mitigation strategies to be adopted.
- **Blasting**. Blasting impacts of the Project on sensitive receivers, including monitoring and mitigation strategies to be adopted.
- **Air quality**. Air quality impacts on the surrounding area and measures to mitigate potential impacts.
- **Water**. Control of stormwater leaving the project site, impact on groundwater, and prevention of erosion.
- **Biodiversity**. Consideration of impacts on biodiversity values.
- **Heritage**. Consideration of heritage impacts of the Project.
- **Traffic and transport**. Consideration of existing and proposed traffic flows on the surrounding road network.
- **Land resources**. Potential impacts on soils and land capability (including potential erosion and land contamination, agricultural worth) and proposed mitigation, management and remedial measures.
- **Waste**. Waste streams generated by the project and mitigation measures proposed.
- **Hazards and risk** including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods.
- **Visual**. Consideration of visual impacts of the Project on surrounding properties and from Armidale Road.
- **Social and economic**. Likely social and economic impacts of the Project, including the significance of the resource and costs and benefits of the Project.
- **Rehabilitation**. Consideration of the rehabilitation measures proposed, justification of the final landform, and rehabilitation strategy.

7.3.1 Noise

Overview

Quarries have the potential, if unchecked, to produce significant levels of noise and vibration. As such, mitigation measures are required in order to ensure that the impact of noise on neighbours is appropriately mitigated and managed.

In this case, Faheys Pit has as its nearest-and adjoining- neighbours an operating quarry owned by Council, known as Ellis' Pit, and an operating sawmill. No buffers exist between the proposed quarry development and these two land uses. The objective of noise control is to minimise any disturbance to the amenity of the locality and to control noise to within EPA criteria at the nearest residences. The issued SEARS require that the EIS for the Project address potential noise impacts.

A noise assessment was undertaken by Vipac Engineers and Scientists Ltd to determine potential noise impacts on nearby sensitive receivers from the proposed quarry development- refer **Appendix K** and **Figure 7.2** for details. Environmental noise monitoring took place at the most exposed sensitive receptor, located some 550m to the south-west of the Project Site. It is noteworthy that the quarry operator has in place a noise agreement with the owner of the adjoining sawmill, identified as sensitive receiver NSR1 in **Figure 7.2**.

This sub-section of the EIS provides a summary of the findings of the assessment in relation to potential impacts associated with the Project on noise. The proposed equipment for the ongoing quarry operation will utilise existing equipment currently in use on site for the current quarry operation. A maximum of 60 loaded quarry trucks per day is proposed.

FIGURE 7.2: Location of nearest sensitive receivers (NSR)

(Source: Vipac)

Noise Sensitive Receptors (NSR)

The locality is sparsely populated, with the nearest rural residences described in the following- refer **Figure 7.2**:

- NSR1 - The quarry is approximately 550m to the north-east of the nearest rural dwelling not associated with the quarry: 'Karingal', on Lot 32 DP 1203488 at No. 9722 Armidale Road, Tyringham.
- NSR2 - The quarry is approximately 1.1km to the north-east of the next nearest rural dwelling not associated with the quarry, on Lot 18 DP 752826 at No. 134 Armidale Road, Tyringham.
- NSR3 - The quarry is approximately 1.8km to the WSW of the next nearest rural dwelling not associated with the quarry, on Lot 30 DP 752826 at No. 9435 Armidale Road, Tyringham.
- NSR4 - The quarry is approximately 2km to the south-west of the next nearest rural dwelling not associated with the quarry: 'Ring Tree', on Lot 3 DP 1139996 at No. 9408 Armidale Road, Tyringham.
- NSR5 - The sawmill adjoining Faheys Pit, on Lot 2 DP 1139996 No. 9630 Armidale Road, also has a residence located about 140m from the quarry pit on Faheys Pit, however, it is a use associated with the quarry.

Noise Criteria

The SEARs for this Project required an assessment of the following noise issues:

- The construction and operational noise and off-site transport noise impacts of the development in accordance with the *Interim Construction Noise Guideline* (ICNG), *NSW Noise Policy for Industry* (NPI) and *NSW Road Noise Policy* (RNP) respectively.
- Reasonable and feasible mitigation measures to minimise noise emissions.
- Monitoring and management measures.

The noise criteria applied in the noise assessment by Vipac are determined in accordance with the above.

Quarry development in the initial construction phase will consist of construction of berms for drainage, additional internal haul road improvements, the establishment of erosion and sediment controls, and levelling of pads to accommodate quarry plant and equipment required on site. The need for any blasting in the initial stage of the quarry expansion is expected to be limited, given that most of the substrate appears to be weathered material only- refer to geotechnical report at **Appendix C**. Otherwise, a bulldozer or an excavator-but not both at the same time-will be employed to carry out this work in the construction stage. The following standard hours for construction activities apply, anticipated to last for approximately 6 weeks:

- 7.00am to 6.00pm Monday to Friday.
- 8.00am to 1.00pm Saturdays.
- At no time on Sundays or Public Holidays.

The above hours do not apply in the event of direction from police, or other relevant authorities, for safety reasons or where required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

The operational phase of the quarry project can commence once the construction phase is completed.The operational phase of the quarry will apply the following hours of operation:

- 7.00am to 6.00pm Monday to Friday.
- 7.00am to 1.00pm Saturdays.
- At no time on Sundays or Public Holidays.
- Hours of blasting are to be restricted to 9.00am to 3.00pm Monday to Friday.

The project specific noise criterion limits the noise that a development can make in accordance with the NSW *Noise Policy for Industry* (NPI) (2017) in order to limit the impact of the development on the existing noise sensitive receptors. The NPI states that where the rating background noise level is found to be less than 35dB(A) for the daytime periods, then it is set to 35dB(A). The amenity criterion is specific to land use and associated activities. It aims to limit continuing increases in noise levels. The maximum ambient noise level for a residential receiver in a rural area should not exceed the acceptable noise levels specified in the following:

- Day (7.00am to 6.00pm): 50dB(A) LAeq.
- Evening (6.00pm to 10.00pm): 45dB(A) LAeq.
- Night (10.00pm-7.00am): 40dB(A) LAeq.

The quarry development proposes to operate between the hours of 7.00am-6.00pm. Therefore, only the Day period has been considered for assessment. The intrusiveness criterion states that the equivalent continuous noise level of the source should not be more than 5 decibels above the rated background level when measured over a 15 minute period. It aims to control intrusive noise impacts in the short term for residences ie. LAeq, 15 minutes to be less than or equal to the Rating Background Level (RBL) + 5 dB. In this case the RBL was assessed to be 35dB(A), with the Project Specific Noise Level thus being 40dB(A).

Quarry Noise Impact Assessment

Vipac has prepared comprehensive noise impact assessment for the proposed project. Details of the noise modelling approach undertaken by Vipac for the noise assessment are provided in **Appendix K**. conservative approach has been selected for the consideration of potential noise impacts. The mobile plant items used in the Vipac noise prediction model are representative of the fleet of existing quarry excavation and processing equipment typically used by Sheridans Hard Rock Quarry Pty Ltd to achieve the maximum production scenario, and are detailed in **Appendix K**.

Noise prediction modelling was carried out by Vipac to assess the potential impact associated with the proposed quarry operations at the nearest noise sensitive receptors for the proposed operational scenarios. The predicted noise levels representative of each scenario for both neutral conditions and worst-case conditions during the day period are presented in the accompanying Table 7.5. These results been reproduced graphically as Noise Contour Maps and are shown in **Figures 7.3-7.6**.

Table 7.5: Predicted quarry noise levels (dB $L_{Aeq\ 15\ min}$)

Scenario	Criteria	Scenario 1 Stage 1- Road and Sediment Basin Establishment		Scenario 2 Stage 1 – Quarry Operation		Scenario 3 Stage 2 'Final Stage – Quarry Operation	
Rec #		Neutral	Worst Case	Neutral	Worst Case	Neutral	Worst Case
NSR1	40	23	27	31	36	33	38
NSR2		<10	<10	18	23	12	17
NSR3		<10	<10	<10	15	<10	15
NSR4		<10	<10	<10	14	<10	13
NSR5		41	44	41	44	40	44

(*Source: Table 8-1 of Vipac noise assessment report*)

Noise levels are predicted to comply at the majority of receptors, with the exception of NSR5 (sawmill dwelling). It is acknowledged there is a current agreement between the Quarry operator and the owners of NSR5, acknowledging the predicted noise impacts. Therefore, the noise impacts on this receptor is accepted and not discussed further.

The proposed quarry adopts various measures for 'best practice' quarry noise management including the following:

- The quarry is anticipated to operate on a campaign basis only, serving major roads projects- in particular the Waterfall Way road upgrade project- when and if required. Outside of these times of peak demand for quarry product, there will be times when the quarry will not be in use.
- Mobile plant and equipment restricted to 7.00 am and 6.00 pm Monday to Friday and 7.00am to 1.00pm on Saturdays. No work will be undertaken on Sundays or Public Holidays. [NOTE: The current consent DA40/95 allows hours of operation at the quarry to be 6.00 am and 7.00 pm Monday to Friday and 6.00am to noon on Saturdays.]
- All machinery used on the site to be well maintained and operated in a proper and efficient manner, with mufflers fitted to all vehicles.
- The internal haul road to be regularly maintained . The front section of the internal haul route, nearest Armidale Road, is sealed.
- Speed limits apply to the haul route.No compression braking beyond the quarry gate is permitted.
- Noise agreements have been signed with the owner of the sawmill, to the east, and the owner of the nearest dwelling to the south-west. With the landowner agreements in place there are no specific requirements for noise mitigation associated with the Project

Traffic Noise Impact Assessment

The Project Site has direct vehicular access to Armidale Road, a sub-arterial road. In accordance with the requirements of the NSW *Road Noise Policy 2011* (RNP) an external Assessment Criteria/Target Noise Level of 60dB(A) LAeq (15 hour) applies. Residences experiencing increases in total traffic noise levels of 12 dB or more above existing traffic noise (LAeq (15 hour)) is likely to trigger community reaction, and should also be considered for mitigation. The Vipac assessment finds that traffic noise generated by the project will comply with the RNP.

Vipac have applied *Calculation of Road Traffic Noise* (CoRTN) method to calculate traffic noise associated with the proposed additional quarry truck movements on the existing haul route. I is anticipated that existing traffic noise levels for all other receptors are below the current criteria for both local roads and principal haulage routes.

The accompanying Table 7.6 below presents Vipac's traffic noise predictions for existing traffic, alongside future predicted traffic volumes at the nearest residential receptors. Note that because noise levels of the existing traffic are unknown, the results are intended to provide a conservative indication based on a worst-case scenario of the sole use of heavy vehicles travelling to and from the site.

Table 7.6: Predicted traffic noise

Noise Levels, $L_{Aeq,\ 15\ hour}$ dB(A)– façade corrected					
Receptor	**Predicted Existing Traffic**	**Predicted Future Traffic**	**Criteria**	**Predicted Compliance?**	*Maximum Difference* (Existing v Future) ≤2dB(A)*
NSR1	42	43.1	60	✓	*1.1*
NSR2	46.3	47.4		✓	*1.1*
NSR3	45.1	46.2		✓	*1.1*
NSR4	46.6	47.7		✓	*1.1*
NSR5	45.9	47		✓	*1.1*

*Only applicable for receptors where it is anticipated existing traffic noise levels already exceed the criteria.

(*Source: Table 8-2 of Vipac noise assessment report*)

Vipac predict that existing and future traffic noise levels at existing residential receptors are predicted to comply with the criteria without the need for acoustic mitigation. Predicted noise levels at receptors along the existing haul route are also predicted to comply with the criteria, with minor increases in noise level of 1.1dB(A) at each location. Given the increase in noise levels between existing and future traffic flow are also well below the relative increase criteria (ie. existing traffic + 12dB), Vipac conclude that the increased traffic from the proposed quarry development is predicted to comply with the relevant road traffic noise criteria.

Vipac conclude that the traffic noise associated with the additional quarry truck movements on the proposed and existing haul routes associated with the quarry are predicted to comply with the criteria without the need for acoustic mitigation measures.

Noise Impact Assessment: Conclusion

On the basis of Vipac's assessment of predicted traffic noise and quarry noise, and subject to the implementation of appropriate noise mitigation measures and maintenance of suitable landowner agreements, the the continued (and expanded) operations at Faheys Pit is capable of complying with the relevant noise criteria at surrounding sensitive receivers.

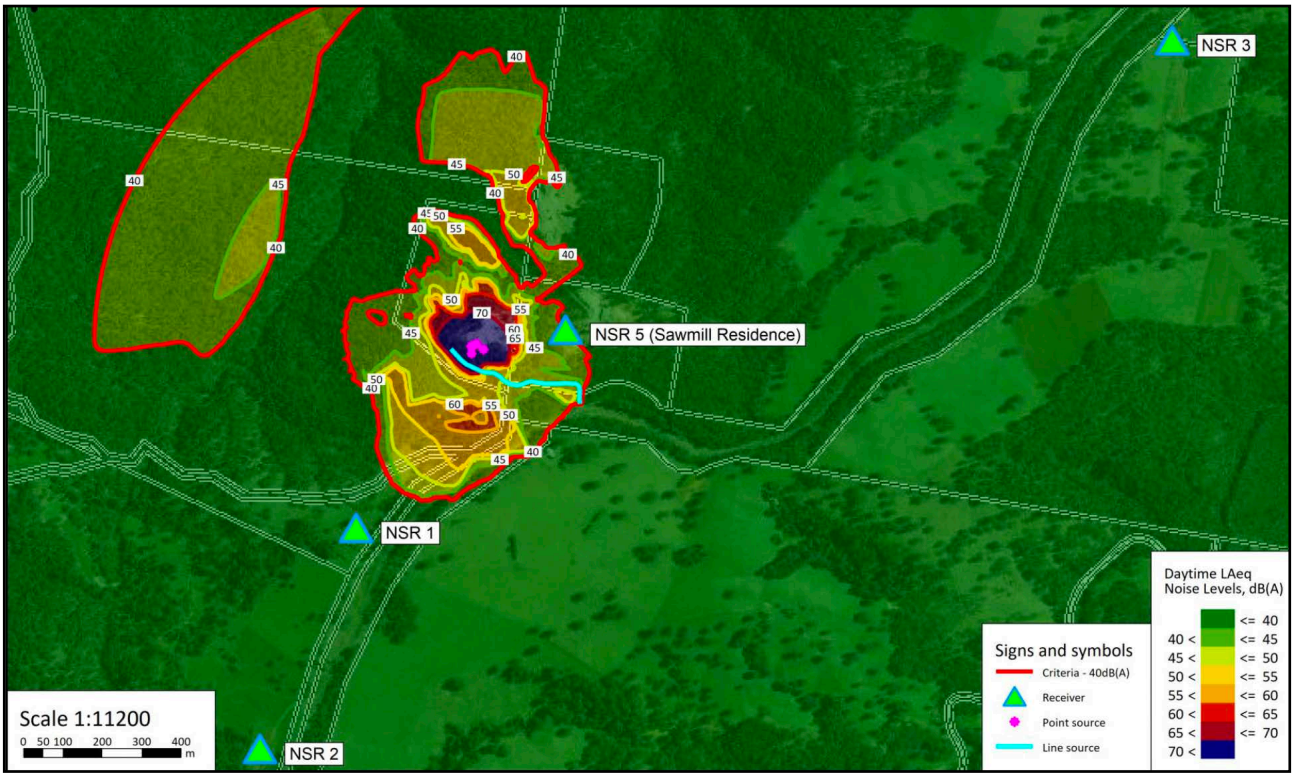


FIGURE 7.3: Quarry operational noise Stage 1 neutral conditions

(Source: Vipac Figure A3)

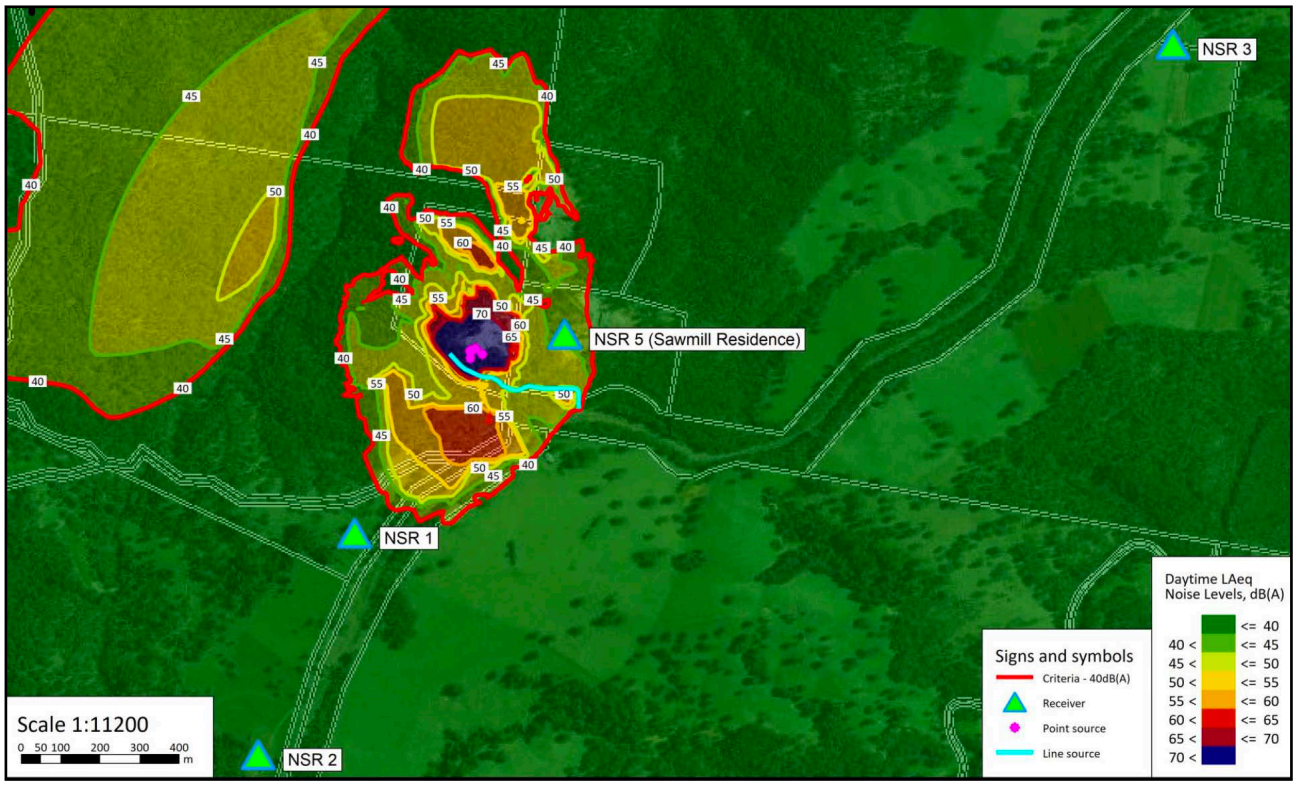


FIGURE 7.4: Quarry operational noise Stage 1 adverse conditions

(Source: Vipac Figure A4)

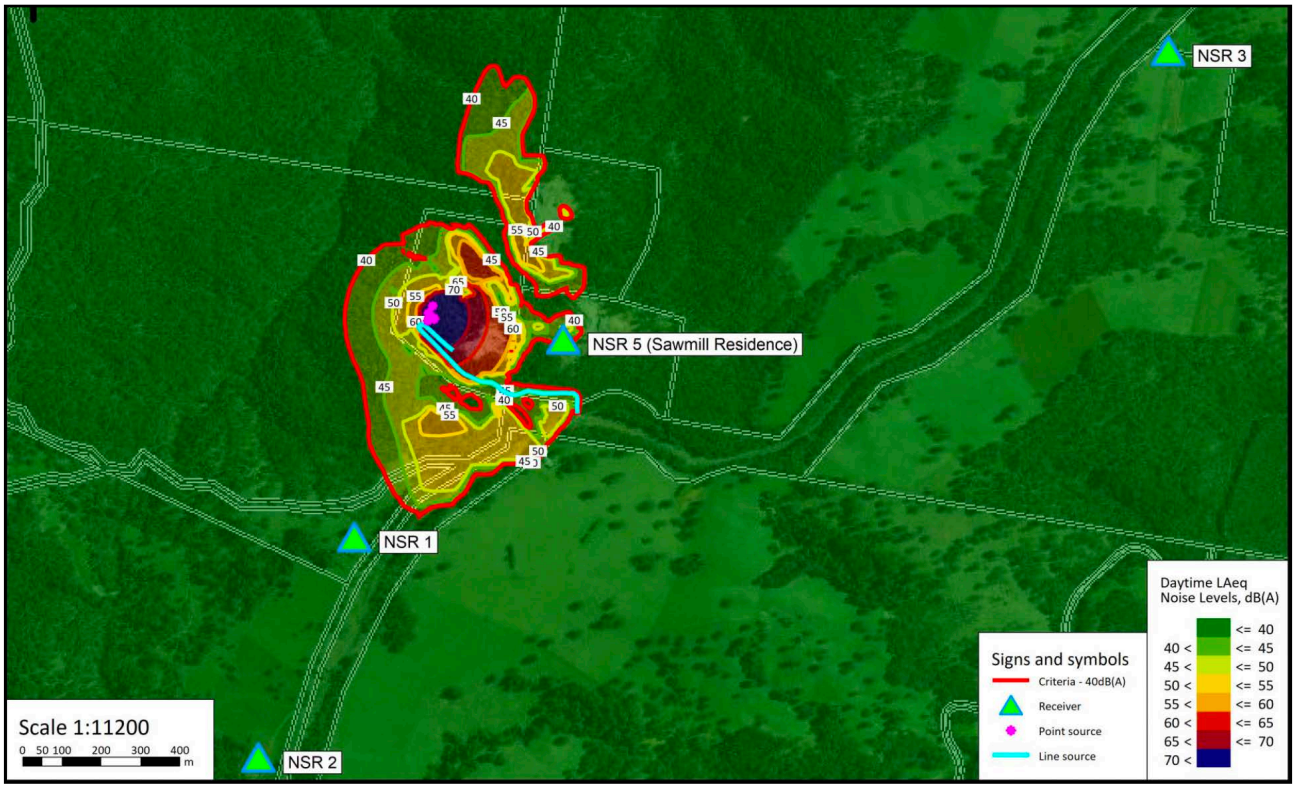


FIGURE 7.5: Quarry operational noise Stage 2 neutral conditions

(Source: Vipac Figure A5)

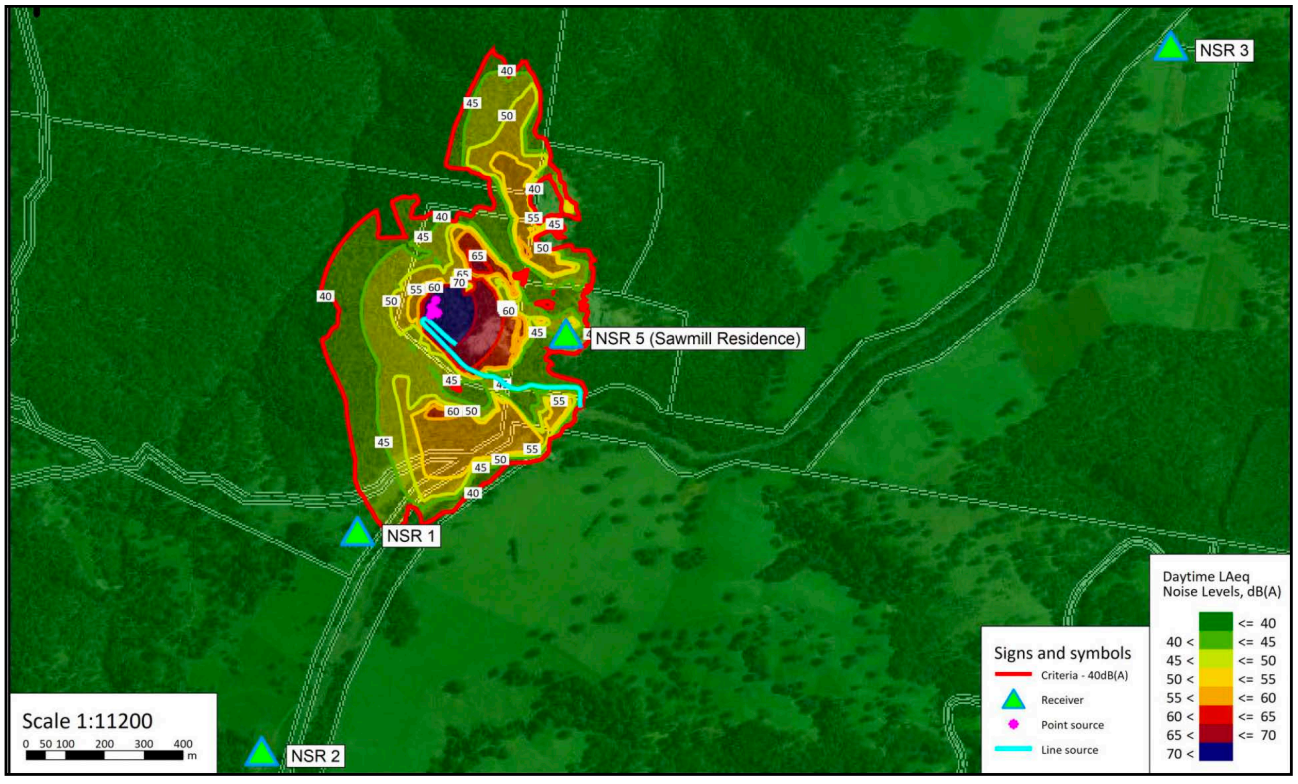


FIGURE 7.6: Quarry operational noise Stage 2 adverse conditions

(Source: Vipac Figure A6)

7.3.2 Blasting and vibration

Overview

Vipac Engineers and Scientists Ltd (Vipac) was commissioned to conduct a blast impact assessment for the proposed quarry development- refer **Appendix K**.

Ground vibration and airblast overpressure are two common environmental effects of blasting that can cause human discomfort.

The quarry is proposed to operate from 7:00 am to 6:00 pm Monday to Friday, and from 7:00 am to 1:00 pm on Saturdays. Blasting would only occur between the hours of 9:00am and 3:00pm Monday to Friday.

Blasting Overpressure and Ground Vibration Standards

Blasting is to be undertaken within accepted ground vibration and air blast overpressure requirements. The Australian and New Zealand Environment Conservation Council (ANZECC) provides the following guidelines to minimise the annoyance due to blasting overpressure and ground vibration. Vibration criteria are also determined in accordance with the NSW *Assessing Vibration: A Technical Guideline* (2006) and EPA guidelines.

Refer Section 3.5.3 of the EIS for further details of blasting protocols and mitigation measures proposed, to be integrated into an overall quarry management plan once the quarry project is consented to.

The EPA standards for blast ground vibration and airblast overpressure at quarries has been provided in Table 3.2, but for convenience has been reproduced in the accompanying Table 7.7.

Table 7.7: EPA Quarry Blasting Limits

Noise/Blasting item	*Principal Standard (Limit) Nearest Residence*	*Maximum Level Permitted Nearest Residence*
Airblast Overpressure	*Airblast overpressure of 115 dBL (Lin Peak). This level may be exceeded on up to 5% of the total number of blasts over a period of 12 months*	*Airblast overpressure should not exceed 120 dBL (Lin Peak) at any time*
Ground Vibration	*Ground vibration level of 5 mm/s peak particle velocity (PPV).This level may be exceeded on up to 5% of the total number of blasts over a period of 12 months*	*Vibration should not exceed 10 mm/s peak particle velocity (PPV) at any time*

The most recent blast at Faheys Pit on 31 July 2023 achieved compliant airblast overpressure and ground vibration levels recorded near the neighbouring sawmill residence (NSR 5).

Summary of Findings: Blasting

From the above assessment by Vipac it can be concluded that blasting activities associated with the continued (and expanded) operations at Faheys Pit can be safely completed without damage to surrounding structures or nearby sensitive receivers provided that blasting parameters remain in line with previous blast conditions.

It is an EPA requirement for monitoring of all future blasting operations, to ensure compliance is achieved at the closest receptors.

7.3.3 Air Quality

Dust Generation Sources

By their very nature, quarries have the potential to generate dust and minor exhaust emissions. Crushing and screening of the quarry resource, once won from the working quarry face, are also a significant source of dust.

Provided that dust is adequately controlled, the potential for any nuisance at any nearby residences can be minimised to a satisfactory degree.

The overall objective of any quarry dust management regime will be to achieve acceptable air quality standards through the control of dust movement offsite and within the quarry. Such management measures are to form a part of any final quarry management plan, once the Project is approved.

Quarry activities at the site which have the potential to impact on air quality of the locality include the following:

- Removal of topsoil and overburden, extraction of rock from the quarry face and transportation of rock to the processing plant and away from the site. This includes the operation of plant including earthmoving machinery, digging equipment, loading, and dumping vehicles, haul trucks within the quarry and along the internal quarry haul route.
- Quarry crushing and screening operations, including the depositing of rock into primary and secondary crushers, openings at bins and chutes, quarry screening operations, material transfer points, and movement of crushed rock along conveyors.
- Dust generated by wind blowing over conveyors, stockpiles and disturbed areas, as well as during drilling and blasting operations including drilling of holes, stemming, and blasting activities.
- Dust generated by stockpiles, the loading and transport of quarry product.

Dust Mitigation Measures

The identification of potential sources of dust/air emission from the quarry site and quarry haul route has facilitated the nomination and design of various practical, effective mitigation measures for the control of dust. They include the following:

- Use of water sprays on processing plant and materials stockpiles.
- A water tanker to be regularly used to spray water on working areas and the internal haul route back to near Armidale Road, to reduce dust nuisance. The last 50m of the internal haul route back to Armidale Road is sealed, further reducing the potential for dust impacts.
- Covering of loads.
- Blasting will be restricted if windy conditions are likely to carry visible dust emissions beyond the quarry boundary where they could create a nuisance. Another measure is to minimise dust emissions from blasting by sequential firing and using minimum force.
- Proper maintenance and tuning of the vehicles and equipment also assists in avoiding any off-site effects.
- Stabilising and revegetating of topsoil and overburden stockpiles.
- Enforcing a 40 kph maximum speed limit on haul and access roads to minimise dust generation.
- Maintaining vegetated buffers between operational areas and site boundaries.

Most of these measures have already been employed at the quarry. It is also noteworthy that the forested lands that virtually encircle the quarry site will further assist in shielding stockpiles and working quarry areas from prevailing winds.

Impact Assessment: Air

Vipac Engineers and Scientists Ltd was commissioned by Outline Planning Consultants Pty Ltd to conduct an air quality impact aAssessment for the proposed quarry development. The assessment evaluated the potential impacts of air pollutants generated. The cumulative impacts of the quarry development have been assessed against the criteria specified in the NSW EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* technical document. Refer also to **Appendix L**.

The air quality impact assessment was carried out as follows:

- An emissions inventory of Total Suspended Particles (TSP), particulate matter (PM10-Particulate matter less than 10 microns in size, PM2.5-Particulate matter less than 2.5 microns in size) and deposited dust for the construction and operation of the quarry was compiled using National Pollutant Inventory (NPI) and United States Environmental Protection Agency (USEPA) AP-42 emissions estimation methodology for the Project.
- Estimated emissions data was used as input for air dispersion modelling. The modelling techniques were based on a combination of The Air Pollution Model (TAPM) prognostic meteorological model (developed by CSIRO), and the CALMET model suite used to generate a three-dimensional meteorological dataset for use in the CALPUFF dispersion model.
- The atmospheric dispersion modelling results were assessed against the air quality assessment criteria as part of the impact assessment. Air quality controls are applied to reduce emission rates where applicable.

The results of the modelling have shown that the TSP, PM10, PM2.5 and dust deposition predictions comply with the relevant criteria and averaging periods at all sensitive receptors, summarised in the accompanying Table 7.8.

Table 7.8: Summary of Air Quality Predicted Impacts-Project in Isolation

Pollutant	Averaging period	Criteria	Range of Predictions at Nearest Receptors	Compliance
			Operation	
TSP	Annual	90 $\mu g/m^3$	0.03-5.58 $\mu g/m^3$	Yes
PM10	24 Hour	50 $\mu g/m^3$	0.54-35.89 $\mu g/m^3$	Yes
	Annual	25 $\mu g/m^3$	0.03-3.28 $\mu g/m^3$	Yes
PM2.5	24 Hour	25 $\mu g/m^3$	0.14-7.81 $\mu g/m^3$	Yes
	Annual	8 $\mu g/m^3$	0.01-0.68 $\mu g/m^3$	Yes
Dust Deposition	Monthly Total	2 g/m^2/month	0.01-0.72/m^2/month	Yes

(Source: Vipac 4 May 2023 *Faheys Pit Impact Assessment Air Quality Assessment* Table ES-1)

TSP, dust deposition and annual average PM10 and PM2.5 predictions are also less than criteria for the Project including background at SR2 to SR5. Whilst the 24 hour average PM10 and PM2.5 predictions are above, the exceedances are driven by the elevated background adopted for the assessment, which are already above the criteria.

No additional exceedances of the criteria at these receptors are predicted to occur as a result of the proposed quarry operations and that best management practices will be implemented to minimise emissions as far as is practical. In the absence of the elevated background therefore, Vipac anticipate no exceedances of the criteria. As specified in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*, under these circumstances Vipac conclude that no additional assessment is therefore required at these receptors.

However, model predictions exceed the 24 hour and annual average PM10 and PM2.5 criteria at SR1- the sawmill residence nearby to the Project. It is understood that an agreement exists between the Proponent and the residence such that impact assessment is not required for this location.

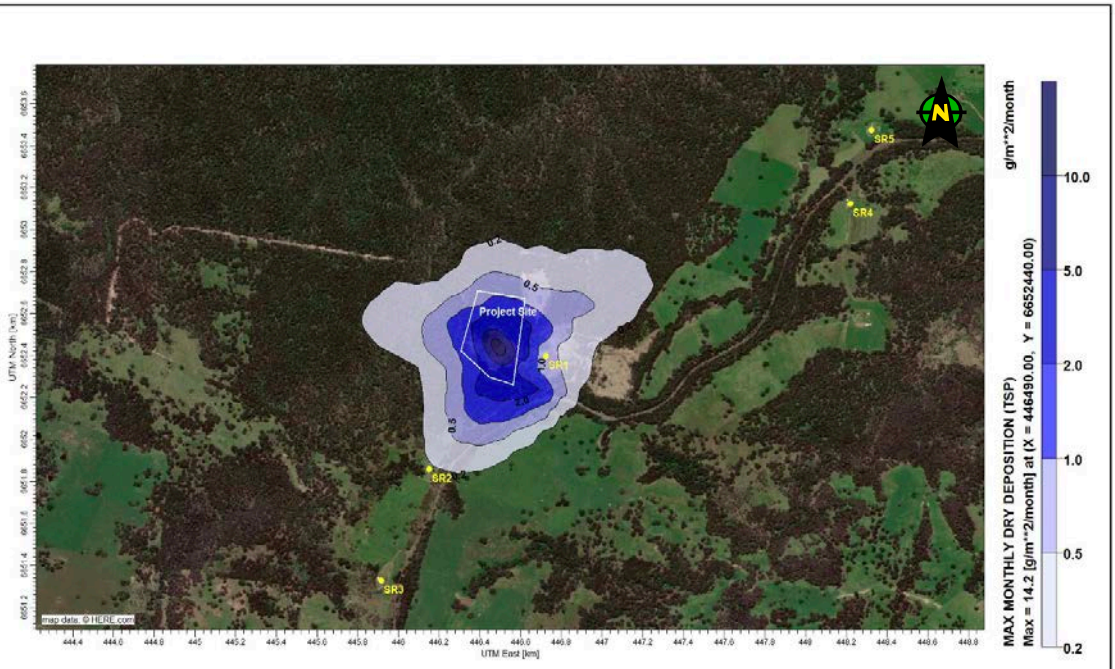
Vipac conclude that air quality should not be a constraint to the proposed quarry development.

Table 7.9: Summary of Air Quality Predicted Impacts-Cumulative

Pollutant	Averaging period	Criteria	Range of Predictions at Nearest Receptors Operation	Compliance
TSP	*Annual*	*90 µg/m^3*	*46.43-51.98 µg/m^3*	*Yes*
PM10	*24 Hour*	*50 µg/m^3*	*233.14-268.49 µg/m^3*	*No*
	Annual	*25 µg/m^3*	*23.23-26.28 µg/m^3*	*Yes, except for SR1*
PM2.5	*24 Hour*	*25 µg/m^3*	*87.84-95.51 µg/m^3*	*No*
	Annual	*8 µg/m^3*	*7.81-8.48 µg/m^3*	*Yes, except for SR1*
Dust Deposition	*Monthly Total*	*4g/m^2/month*	*2.01-2.72/m^2/month*	*Yes*

(Source: Vipac 25 November 2022 *Faheys Pit Impact Assessment Air Quality Assessment* Table ES-2)

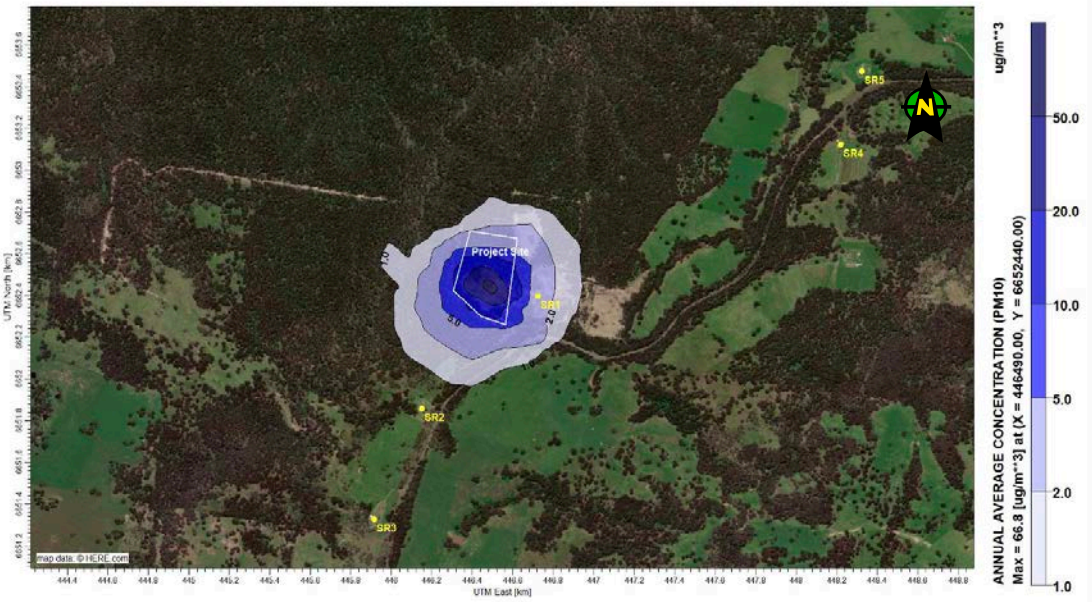
Refer **Figures 7.7-7.12**.



Pollutant:	Averaging Period:	Percentile:	Criteria:
Dust Deposition	Month	100th	2 g/m²/month

Comment: Incremental

FIGURE 7.7: Predicted Dust Deposition Monthly
(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)

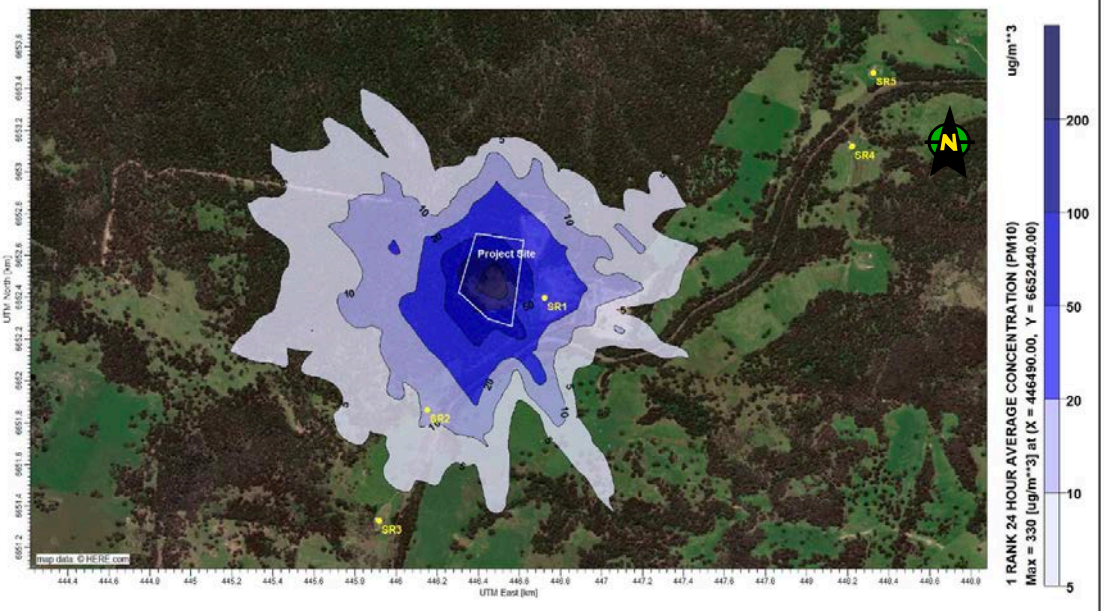


Pollutant:	Averaging Period:	Percentile:	Criteria:
PM_{10}	Annual	100th	25 µg/m³

Comment: Incremental

FIGURE 7.8: Predicted PM_{10} ANNUAL

(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)

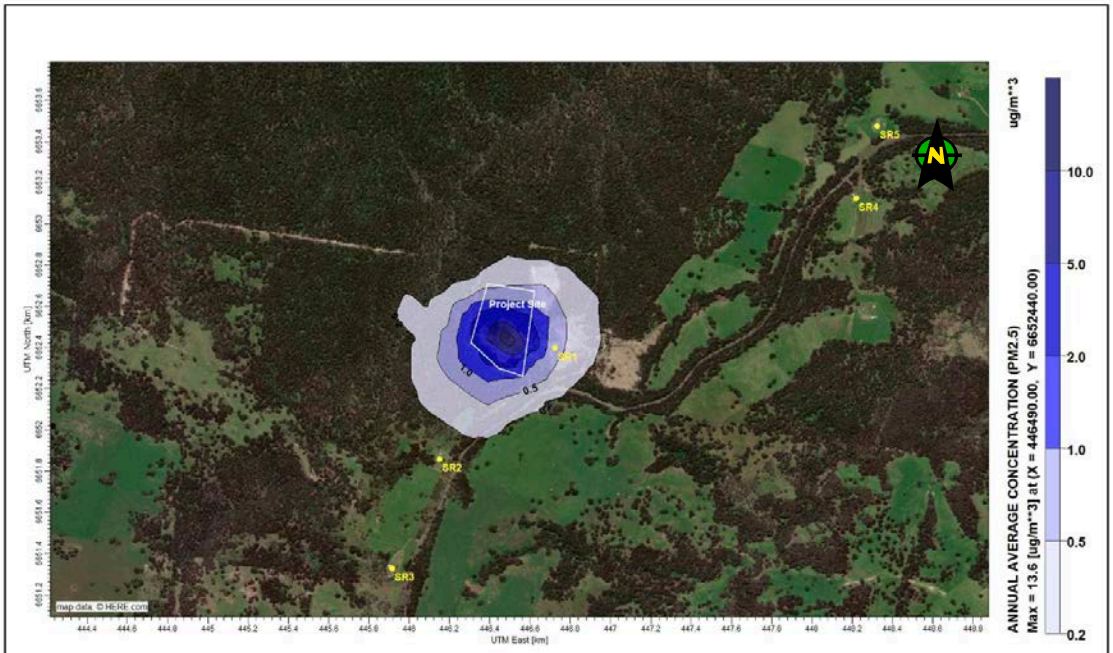


Pollutant:	Averaging Period:	Percentile:	Criteria:
PM_{10}	24 Hour	100th	50 µg/m³

Comment: Incremental

FIGURE 7.9: Predicted PM_{10} 24 HOUR

(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)

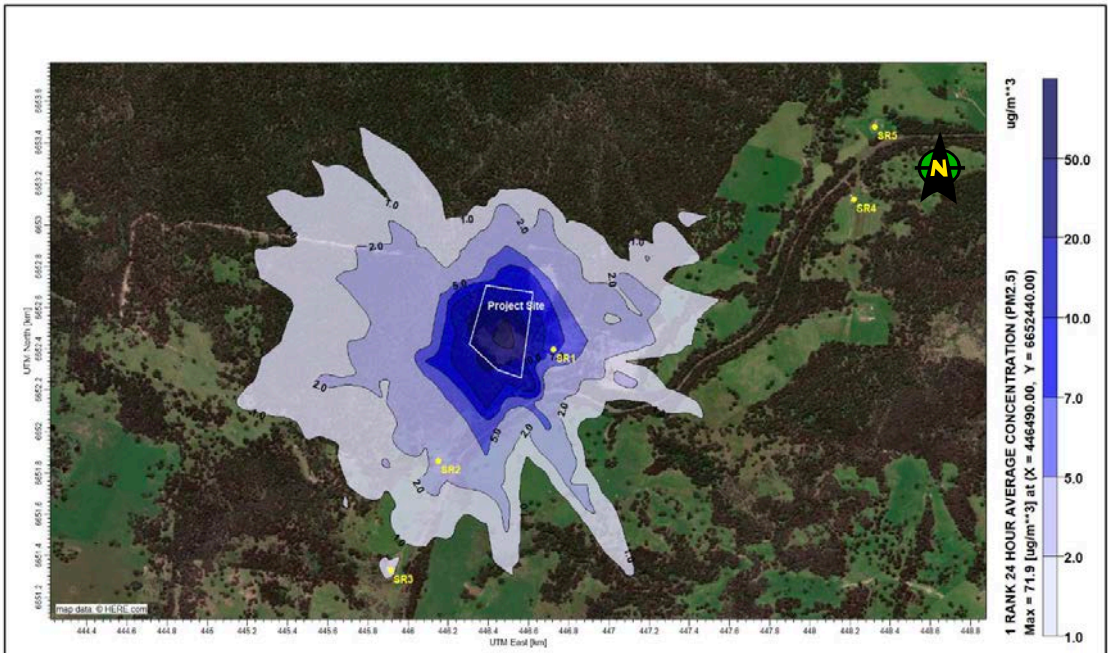


Pollutant:	Averaging Period:	Percentile:	Criteria:
$PM_{2.5}$	Annual	100th	8 µg/m³

Comment: Incremental

FIGURE 7.10: Predicted $PM_{2.5}$ ANNUAL

(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)

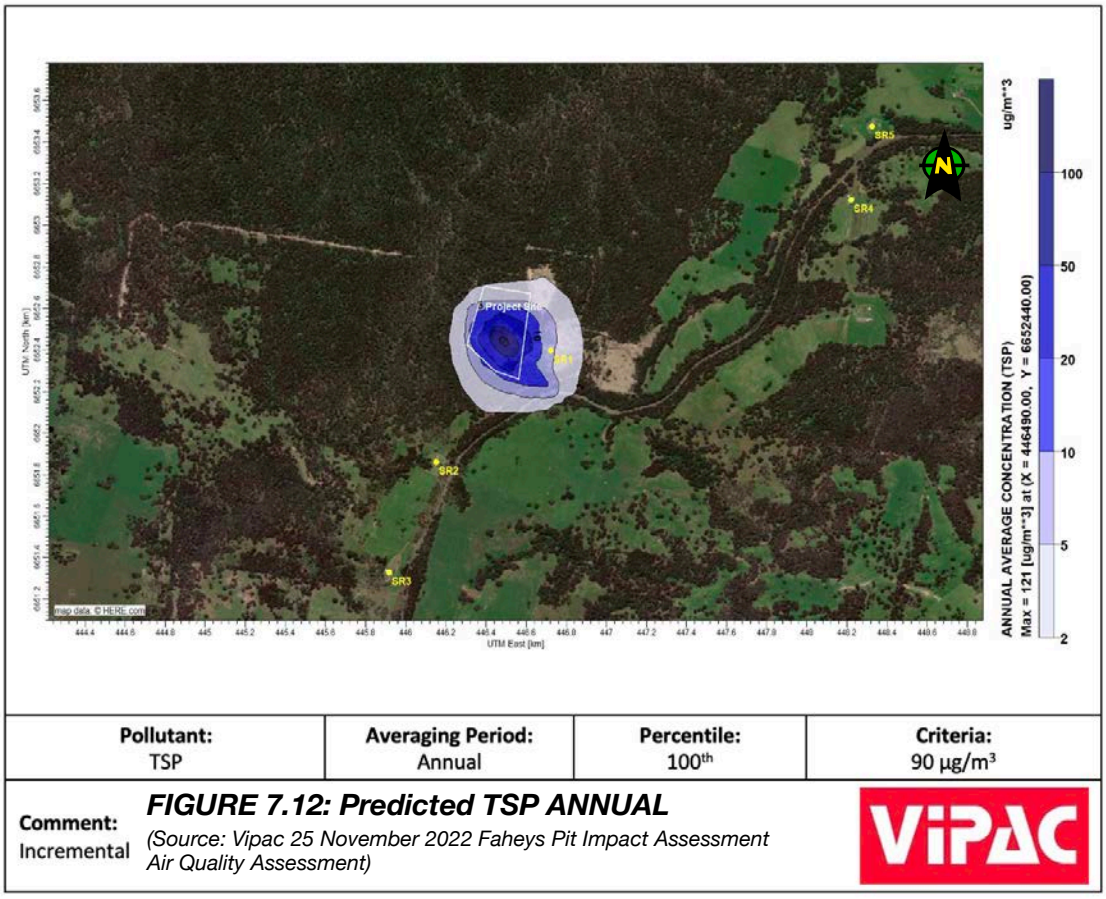


Pollutant:	Averaging Period:	Percentile:	Criteria:
$PM_{2.5}$	24 Hour	100th	25 µg/m³

Comment: Incremental

FIGURE 7.11: Predicted $PM_{2.5}$ 24 HOUR

(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)



Pollutant:	Averaging Period:	Percentile:	Criteria:
TSP	Annual	100th	90 µg/m³

Comment: Incremental

FIGURE 7.12: Predicted TSP ANNUAL

(Source: Vipac 25 November 2022 Faheys Pit Impact Assessment Air Quality Assessment)

7.3.4 Water

Overview

All of the Project Site is located within the Merchin Creek catchment. Merchin Creek is situated approximately 230m west from the western boundary of the Project Site and approximately 280m from the quarry expansion footprint. It flows into Blicks River, approximately 3.5 to the north. Blicks River then flows into the Nymboida River, a further 22 km downstream, within the Nymboida- Binderay National Park.

The proposed quarry footprint is approximately 4.1ha. The Merchin Creek catchment area, including the Project Site, is approximately 19 square kilometres, or 1,900ha. The proposed quarry footprint occupies approximately 0.21% of the Merchin Creek catchment. Stated another way, the expansion of Faheys Pit at its maximum footprint will reduce the Merchin Creek catchment area by 4.1ha, corresponding to a approximately 0.21% reduction in the catchment area of this waterway- a negligible impact only. Refer **Figure 7.13**.

The owners as well as the quarry operator, Sheridans Hard Rock Quarry Pty Ltd, are committed to developing a Soil and Water Management Plan (SWMP) for the expanded quarry. Principles for the effective management of soil and water resources are provided in this EIS, including provision for erosion control in disturbed areas, the containment of site stormwater runoff and and sediment in the sediment basins proposed, as well as site rehabilitation works undertaken on a progressive basis.Once quarrying commences in disturbed expansion areas the creation of quarry faces and benches result in these areas becoming catchments for the quarry void, hence reducing the area requiring additional erosion and sediment controls. The quarry void is not self-draining and runoff is collected in a sump which is pumped to the onsite dams for reuse for product moisture, dust control and rehabilitation works or eventual discharge offsite within pH, suspended solids and oil and grease criteria under an existing Environment Protection Licence (EPL).

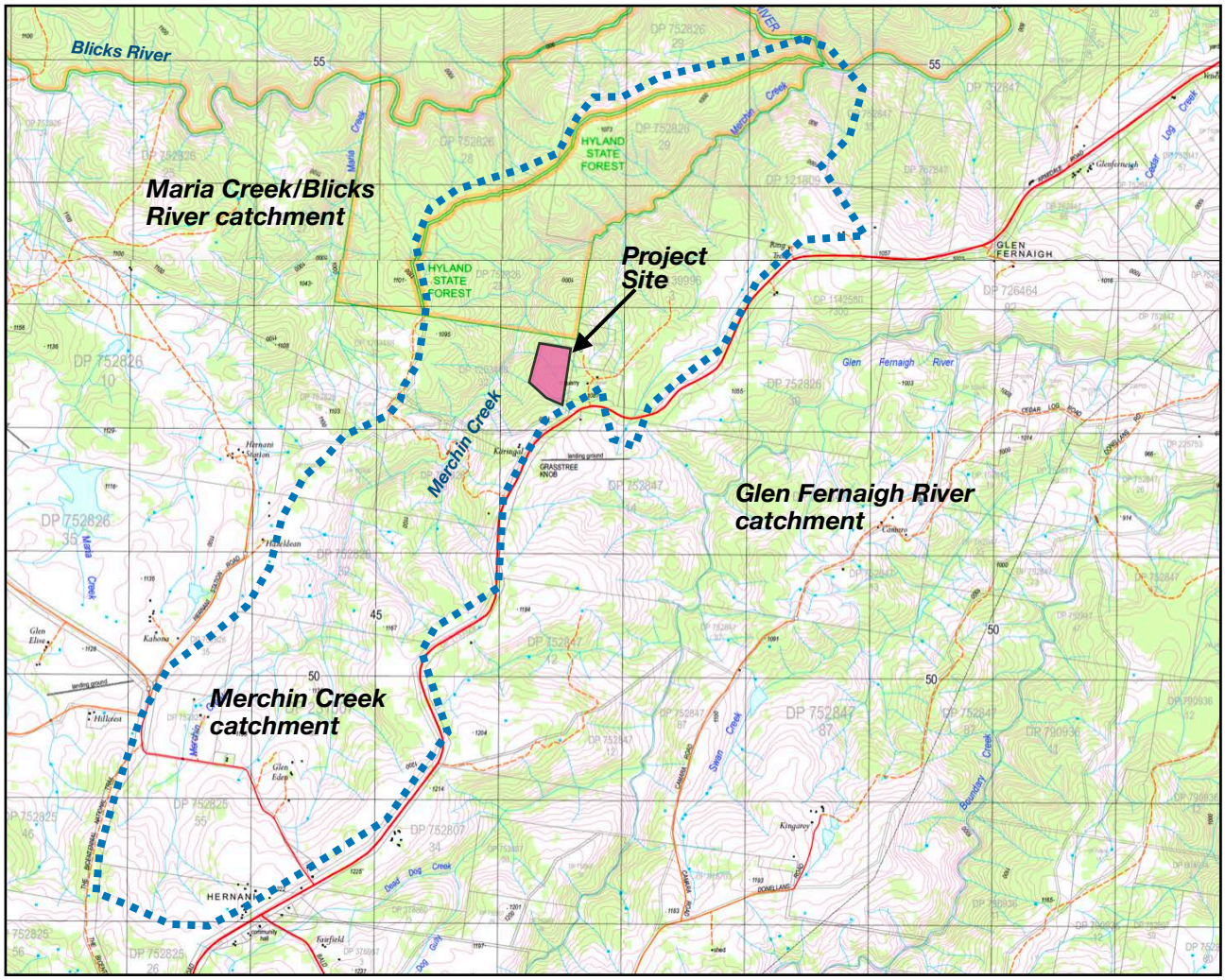


FIGURE 7.13: The quarry development comprises 0.21% of the Merchin Creek catchment

((Map Base Source: Hernani and Marengo1:25,000 Topographic maps 9337-2N & 9337-1S, 1km grid))

The potential offsite impacts from erosion and sedimentation will be managed through the implementation of appropriate mitigation and management which will be outlined in a Soil and Water Management Plan (SWMP). The following issues have been considered as a part of the impact assessment:

- The existing and proposed quarry area is situated on an elevated hill well above the estimated 1 in 100 year flood level. The land is well- drained and free from depressions, low-lying or flood-prone areas.
- The existing and proposed quarry area implements a range of on site controls to ensure that there will be minimal potential for impacts on local water resources.
- A sediment basin is proposed within the quarry area capable of accommodating design water storage needs- refer **Appendix G**. The quarry expansion site will be drained internally, and no discharges are proposed to surface waterways. No on- or offsite flooding would occur, nor would any drainage system be impacted.
- There is currently no groundwater extraction occurring at the quarry and groundwater pumping is not part of the proposed project.
- The applicant proposes that no fuels or oils are to be stored or buildings constructed on land sub*ject* to drainage problems. As is the current practice at the quarry, all fuel will be located within bunded areas.
- A bund is currently constructed around the upslope section of the quarry. This bund will be expanded in order that upslope waters are diverted around the working quarry.

The implications of flood events or water management for the proposed development will therefore not be significant. The water management impacts of the proposal would comply with relevant goals. This includes soil and erosion control impacts. Discharges of any excess waters from the proposed water management system will be licensed under the *Protection of the Environment Operations Act 1997*.

Erosion & Sediment Controls

The volume of sediment-laden stormwater runoff will be satisfactorily minimised by implementing the following erosion controls (per *Managing Urban Stormwater: Soils and Construction Volume 2E Mines and Quarries* (NSW DECC, 2008):

- Minimise the area of exposed soils.
- Stabilise exposed areas.
- Reduce erosive effect of stormwater. The proposed water management system is to be operated as a closed system. All runoff from within the quarry is to be directed to the stormwater sumps/basins proposed, located in the upper and lower portions of the quarry. Sedimentation basin capacities have been designed to exceed those required by the 'Blue Book'. Water captured within the sedimentation basins may be immediately reused for dust suppression within the quarry.
- Manage unsealed roads. Much of the internal quarry road system is already sealed. Unsealed sections will be watered in order tor reduce dust nuisance.
- Protection of quarry product stockpiles from upslope stormwater flows. In order to protect stockpiles a suitable stormwater flow diversion system will be established immediately up-slope of any dedicated quarry stockpile area.
- Site exit controls. Site exit points will have appropriate controls such as shaker ramps to prevent off-site transport of suspended solids.
- 'Clean' water to be diverted where practicable around the working quarry area.
- Maintenance. All structures for erosion control will be maintained on a regular basis, and will be repaired as necessary. Sediment accumulation within the sedimentation zones is to be regularly assessed. Where sediment accumulation fills the specified sediment storage zone sediment is to be removed from that basin.

Groundwater

Nearby groundwater data was reviewed in order to establish indicative groundwater levels in the vicinity of the project site. Based on recorded groundwater levels in nearby bores a the groundwater level at the extraction area of the quarry was estimated at RL1,000m AHD- refer **Figure 2.6** for groundwater bore sites. This is approximately 50 metres lower than the proposed lowest extraction level and about 45 metres lower than the lowest excavation level, thus it is unlikely that groundwater will be impacted by the proposed quarry development. To date, advice of the quarry operator is that groundwater ingress has not been observed.

Water management

Clause 21 of the *Water Management (General) Regulation 2018* under the *Water Management Act 2000* provides for several exemptions from the requirement for a Water Access Licence (WAL). These include –

> "*Schedule 1 - Excluded Works, Item 3*
>
> *Dams solely for the capture, containment and recirculation of drainage and/or effluent, consistent with best management practice or required by a public authority (other than Landcom or the Superannuation Administration Corporation or any of their subsidiaries) to prevent the contamination of a water source, that are located on a minor stream*."

Adequate storage volume is proposed to be provided in order to comply with the requirements of *Managing Urban Stormwater: Soils and Construction – Volume 1* (4th ed, Landcom 2004) and *Managing Urban Stormwater: Soils and Construction – Volume 2E Mines and Quarries* (Department of Environment and Climate Change NSW, 2008).

For design purposes the following parameters are adopted for sedimentation basin design in the quarry void and the two sediment basins proposed, namely:

- Stage 1: Existing 6.05 ML (upper) sediment basin to be retained and 5.86 ML (lower) basin to be constructed.
- Final stage: 5.5 ML (upper) sediment basin retained and lower basin from Stage 1 removed.

Refer to **Appendix G** for storage basin calculation details.

Overland Flow and Flooding

Small, generally 1st order streams run through or past the quarry, prior to joining other watercourses which then drain into Merchins Creek. Given the significant elevation of the quarry compared to Merchins Creek to the west and to the north, the quarry area is not considered to be at risk of mainstream flood inundation from this watercourse.

Riparian corridors

Riparian corridor mapping was undertaken based on the Strahler order of watercourses in vicinity of the site and associated vegetated riparian zone buffer distances in accordance with the NRAR (2018) guidelines- refer **Figure 2.3**.

A 1st order stream runs through the central portion of the proposed quarry footprint. Another 1st order stream lies 10m or more to the north of the proposed quarry footprint. The Natural Resource Access Regulator (NRAR) is responsible for matters under the *Water Management Act, 2000* (WM Act) and associated regulation. The management of development on waterfront land (being that land within 40 m of the top of the highest bank of an identified waterway) is the subject of Part 3 of the WM Act. In support of this Act, NRAR has prepared *Guidelines for Riparian Corridors* (NRAR, 2018). These guidelines describe the use of the 'Strahler' system for stream ordering to identify the width of riparian corridor (referred to as vegetated riparian zone or VRZ) that is required to be associated with an identified waterway. VRZ requirements are specified in Table 1 of NRAR (2018) and reproduced in Table 7.10 below.

Table 7.10: Recommended riparian corridor widths

Watercourse type	VRZ width (each side of watercourse)	Total RC width
1st order	10 metres	20 metres + channel width
2nd order	20 metres	40 metres + channel width
3rd order	30 metres	60 metres + channel width
4th order and greater	40 metres	80 metres + channel width

Note: Where a watercourse does not exhibit the features of a defined channel with bed and banks, the NRAR may determine that the watercourse is not waterfront land for the purposes of the WM Act.

(*Source: Natural Resource Access Regulator Guidelines for Riparian Corridors Recommended Riparian Corridor Widths Table4-19)*

In summary, the proposed quarry development satisfies the above in that:

- Proposes to contain all quarry runoff within the (1st order) catchment of the quarry footprint.
- It is setback by a minimum of 10m from the 1st order watercourse located to the north of the proposed quarry footprint.

Water balance

A MUSIC model was developed to inform both the water balance for the proposed quarry development. The water balance characteristics of the production).Consulting engineers Martens & Associates prepared a water balance assessment for dry, wet and average rainfall years for the quarry operating at peak production. Refer to **Appendix G** of this EIS.

The site is not serviced by a town water supply and has no reticulated wastewater service. Site water demands are therefore to be met through the capture and reuse of stormwater runoff, for dust suppression, and imported potable water, when required on site. [NOTE: the current application does not seek approval for the establishment of a site office or amenities] Water balance is assessed considering these components:

- Site Water Demand. Consideration of quarry and operational water demands.
- Site Water Supply. Assessment of site water supply comprising surface water runoff.
- Site Water Balance. The balance of supply and demand is assessed based on a range of climatic conditions to determine water supply and demand.

Water balance is assessed for a range of rainfall scenarios for the following purposes:

- Average rainfall year-with annual rainfall equal to average rainfall of all years (1,141.5 mm)
- Dry year– with annual rainfall equal to 10th percentile rainfall of all years to assess 'worst case/severe' water demand (757.3 mm).
- Wet year- with annual rainfall equal to 90th percentile rainfall of all years to assess 'worst case/severe' water surplus (1571.9 mm).

Refer to **Appendix G** for calculated water balances for a 'dry' year and for a 'wet' year for Stages 1 and the Final Stage of the project, and Section 3 of this EIS showing sediment dam locations.

The site water balance for an 'average' year in Stage 1 is presented in the accompanying Table 7.11.

Table 7.11: Site water balance- average year Stage 1

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	*36.63 ML*	*Road dust suppression*	*1.0ML*
Storage (evaporative and seepage) losses	*-6.13ML*	*Quarry production*	*4.0ML*
		Non Potable Balance	*25.5ML*
		POTABLE WATER	
Rainwater	*0.03ML*	*Staff amenities*	*0.03ML*
Potable Balance			*-0.03LML*

(Source: Martens & Associates- refer **Appendix G** for details)

The site water balance for an 'dry' year in Stage 1 is presented in the accompanying Table 7.12.

Table 7.12: Site water balance- dry year Stage 1

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	*24.02 ML*	*Road dust suppression*	*1.0ML*
Storage (evaporative and seepage) losses	*-6.11ML*	*Quarry production*	*4.0ML*
		Non Potable Balance	*12.91ML*
		POTABLE WATER	
Rainwater	*0.03ML*	*Staff amenities*	*0.03ML*
Potable Balance			*-0.03LML*

(Source: Martens & Associates- refer **Appendix G** for details)

The site water balance for an 'wet' year in Stage 1 is presented in the accompanying Table 7.13.

Table 7.13: Site water balance- wet year Stage 1

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	55.92 ML	Road dust suppression	1.0ML
Storage (evaporative and seepage) losses	-6.13ML	Quarry production	4.0ML
		Non Potable Balance	44.79ML
		POTABLE WATER	
Rainwater	0.03ML	Staff amenities	0.03ML
Potable Balance			-0.03LML

(Source: Martens & Associates- refer **Appendix G** for details)

The site water balance for an 'average' year in the quarry Final Stage is presented in the accompanying Table 7.14.

Table 7.14: Site water balance- average year Final Stage

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	36.63 ML	Road dust suppression	1.0ML
Storage (evaporative and seepage) losses	-3.19ML	Quarry production	4.0ML
		Non Potable Balance	28.44ML
		POTABLE WATER	
Rainwater	0.03ML	Staff amenities	0.03ML
Potable Balance			-0.03LML

(Source: Martens & Associates- refer **Appendix G** for details)

The site water balance for an 'dry' year in the quarry Final Stage is presented in the accompanying Table 7.15.

Table 7.15: Site water balance-dry year Final Stage

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	24.02 ML	Road dust suppression	1.0ML
Storage (evaporative and seepage) losses	-3.18ML	Quarry production	4.0ML
		Non Potable Balance	15.84ML
		POTABLE WATER	
Rainwater	0.03ML	Staff amenities	0.03ML
Potable Balance			-0.03LML

(Source: Martens & Associates- refer **Appendix G** for details)

The site water balance for an 'wet' year in the quarry Final Stage is presented in the accompanying Table 7.16.

Table 7.16: Site water balance-wet year Final Stage

Supply	ML/year	Demand	ML/year
		NON POTABLE WATER	
Runoff to sediment basins	*55.92 ML*	*Road dust suppression*	*1.0ML*
Storage (evaporative and seepage) losses	*-3.19ML*	*Quarry production*	*4.0ML*
		Non Potable Balance	*47.73ML*
		POTABLE WATER	
Rainwater	*0.03ML*	*Staff amenities*	*0.03ML*
Potable Balance			*-0.03LML*

(Source: Martens & Associates- refer **Appendix G** for details)

The water balance analysis prepared by consulting engineers Martens & Associates assessed the adequacy of water at the site for necessary quarry operations, as well as evaluating necessary management strategies for management of excess generated surface water runoff. The completed water balance assessment report concludes:

> "*The water balance assessment demonstrates that for all years (average, dry and wet) the site shall generate and capture sufficient runoff within the proposed site sedimentation basins to provide for all non-potable water demands (5 ML/year). A potable water deficit is estimated based on the requirements for site staff in the order of 30 kL/year which can be provided via collected roof water and/or water tanker delivery*." (Page 13 of Martens & Associates report- refer **Appendix G** for details)

As identified earlier in this EIS, the proposal is integrated development under the provisions of the *Water Management Act 2000*, so that referral to the Natural Resources Access Regulator (NRAR) is required.

7.3.5 Biodiversity

Overview

It is noteworthy that the Project Site is not mapped on the NSW Government's online Biodiversity Values Map- refer **Figure 7.14**. No areas of outstanding biodiversity values (AOBV) overlay the project site. Both the *Biodiversity Conservation Act 2016* and *Biodiversity Conservation Regulation 2017* apply to the Project Site. As the proposed development proposes less than 1ha of clearing no offsets or Biodiversity Development Assessment Report (BDAR) are required- refer to the assessment by Bower Ecology in **Appendix H**.

In accordance with s.11 of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* the Bower Ecology ecological assessment also considers the potential for impact on the Koala. The assessment finds that the proposed quarry development will not have any impact on koalas or koala habitat. The Bower Ecology ecological assessment provides a summary of the potential impacts to threatened flora and fauna species from the Project, along with vegetation communities and potential habitat across the entire Project Site.

Vegetation

Almost all of the quarry footprint has been cleared land. The land clearing was undertaken on the Faheys Pit site after the devastating bush fires earlier that year killed the trees below the working quarry area on the above property. In response to a perceived imminent threat of fire in the 2021 fire season, the trees and flammable undergrowth were subsequently cleared by the adjoining sawmill from an area of approximately 2ha and the logs salvaged by the adjoining sawmill.

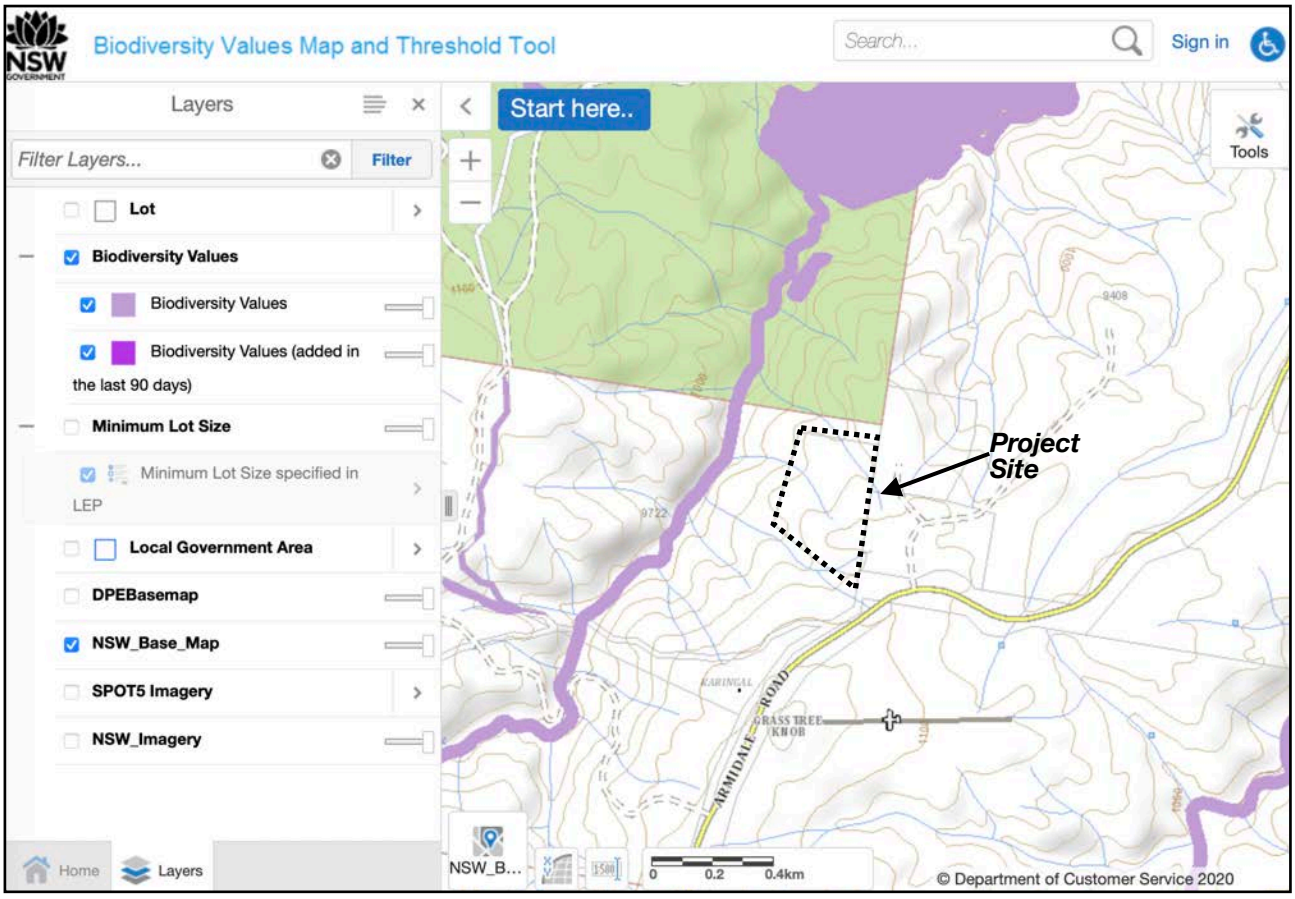


FIGURE 7.14: Biodiversity Values mapping and the Project Site
(Source: NSW Government online Biodiversity Values Map 11 July 2023)

Faheys Pit within the NSW North Coast IBRA region and the Chaelundi IBRA sub-region (NSW Government, 2023) and is located on the western edge of the Dorrigo Plateau, west of the township of Dorrigo. The remnant vegetation found within the proposed quarry footprint and surrounding forest comprises vegetation community Plant Community Type (PCT): 3288 "*Northern Escarpment Messmate Moist Grassy Forest*". Although PCT 3278 is also mapped on site (State Government of NSW and Department of Planning and Environment 2023d), PCT 3288 was judged the most appropriate PCT considering the vegetation and geology on site. PCT 3288 is not associated with a Threatened Ecological Community (TEC) under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

This PCT comprises *Eucalyptus campanulata* and *Eucalyptus obliqua* (co-dominant) in the canopy, with *Eucalyptus brunnea* forming a subdominant component of the canopy. The abundance of the ground cover species *Lomandra longifolia*, *Pteridium esculentum* and *Imperata cylindrica* also assisted with identification of the vegetation as PCT 1121.

No wetlands were observed during the site visit, however there were exiting ephemeral drainage lines (first order streams) directly east of the existing quarry pit. There are no areas containing karst, caves, cliffs, rocks, or other geological features of significance, within the project footprint.

No flowing water was observed during the site visit by Bower Ecology. The drainage lines had no obvious defined banks and the vegetation did not appear to support flora that are more adapted to wet areas (such as streams). This provides an indication that the ecological values of the streams are not any more significant than the surrounding vegetation. Despite this, they do provide an important hydrological function in supporting downstream areas.

PHOTOGRAPH 7.1: Photograph of cleared land to the north of the active quarry pit at Faheys Pit, with retained vegetation in background

(Source: Bower Ecology)

Survey of Flora and Fauna

Fauna surveys were conducted by Bower Ecology between 24 and 29 January 2023, inclusive, apart from targeted tree-hollow surveys and targeted Sooty Owl surveys, which took place on 6 and 7 March 2023 and 17 to 20 April 2023 respectively.

- Four nights of surveys were undertaken by using an Anabat Swift detector to record bat calls (24 to 27 January 2023, with recordings active from sunset to sunrise). This meets survey effort requirements for both *Chalinolobus dwyeri* and *Vespadelus troughtoni.* No caves, overhangs, crevices, or other suitable breeding habitat for these two species exist within the subject land or within 100 m of the area proposed quarry.
- The frogs listed *(Litoria subglandulosa* and *Mixophyes balbus)* require permanent or ephemerally-flowing streams with permanent pools. A meander survey determined that no suitable breeding habitat exists for the frog species listed. As no suitable habitat was present, targeted frog surveys were not required.
- Surveys for Red Goshawk and the Black-breasted Button Quail were conducted during all vegetation and fauna surveys.
- Surveys for *Olearia flocktoniae (*Dorrigo Daisy Bush*) Tasmannia glaucifolia (*Fragrant Pepperbush*) and Rhodamnia rubescens (*Scrub Turpentine*)* were undertaken. Surveys for these species were carried out in late January, during *O. flocktoniae's* flowering time and suitable survey time for *R. rubescens.*

- The Brush-tailed rock wallaby *Petrogale penicillata* was surveyed via habitat assessment as well as deployment of three baited motion-sensor cameras baited with a mixture of honey, peanut butter and oats.
- Targetted surveys for Sooty Owl were conducted, looking for suitable breeding habitat. The surveys took place on 6 and 7 March 2023. Details of every tree bearing a hollow of diameter 10 cm or greater (NSW Government, 2023c) were recorded. Hollow size was estimated by an experienced researcher who used binoculars and a thermal drone to observe the hollows. Thermal imaging was used to identify occupants of hollows, and the ground around each hollow-bearing tree was inspected for signs of use. These signs included a concentration of feathers or droppings on the ground, and pellets nearby. In accordance with the required survey effort for Sooty Owl, six (6) call playback sessions and spotlighting surveys were conducted from 17 to 20 April 2023. Hollow-bearing trees that had been identified as suitable for the Sooty Owl were again inspected for signs of use or breeding.
- As the area proposed for clearing is currently zoned RU1, Chapter 3 (NSW Government 2021a) of the NSW State Environmental Planning Policy (SEPP) (Biodiversity and Conservation, 2021) applies (NSW Government, 2021). The list of trees recorded on-site was compared with the list of koala habitat trees in Schedule 2 Koala use tree species of the SEPP. Thirteen two-minute surveys were conducted using the Koala Spot Assessment Technique. As a result of desktop searches and on-site scat surveys, it was established that no core koala habitat is present on the project site. Moreover, it is noted that the project site is outside the NSW *Areas of Regional Koala Significance* (DPE, 2015), and the Clarence Valley Council's *Comprehensive Koala Plan of Management* does not include the site of the quarry (Clarence Valley Council, 2015).
- Three (3) motion-sensor cameras were positioned across the project footprint area (Figure 15). Each camera lens was pointed towards a bait (mixture of rolled oats, peanut butter, and honey) inside a cage and affixed to a tree. The cameras and baits were installed and left for four nights before collection. All photographs were inspected for threatened species.
- A total of 19 species of flora were found within the floristic plots set up on the project site.

Avoidance and Minimisation of Impacts on Flora and Fauna

The following impact minimisation and avoidance measures have proposed, including the following:

- The proposed quarry excavation has been limited to that required to access the resource only. Of a total site area of 11.46ha, 64% of the site is to be retained under native vegetation.
- The limits of new work areas and 'no-go areas' will be delineated using appropriate signage and barriers. Trees to be marked where required for protection. Pre-clearing survey to be undertaken.
- 10 large nest boxes will be installed to the west of the project footprint. Nest box condition will be monitored, and each will be maintained.
- No vegetation clearing is proposed outside of approved quarry footprint - all works are to be undertaken within approved quarry void / proposed entrance road upgrade.
- There will be limits on truck speeds to minimise potential conflicts with fauna. A low (max. 30km/hour) speed limit will be imposed.
- No groundwater dependent ecosystems are affected by the proposed quarry development.
- Quarry design guidelines influence the minimum size(s) of the sediment dams required for water management on the subject land. The project has been designed to conform with these constraints and minimise hydrological impacts both within and beyond the subject land.
- Quarry operating hours will be limited to 11 hours/day Monday–Friday (7 am–6 pm), and 6 hours on Saturdays (7 am–1 pm). Nocturnal quarry activities will not occur, limiting the potential impact on native fauna. Animals recorded on site are unlikely to be at risk during these times, as all are active at night.
- Weed control and pest control protocols to be developed.

Findings

Bower Ecology make the following findings, summarised below:

- No threatened flora species were recorded on the subject land and therefore impacts to threatened flora species are not anticipated.There is one PCT (3288) present within the proposed project footprint, which is not listed as threatened under the BC Act or the EPBC Act.
- A total of five (5) threatened fauna species were recorded on-site during surveys in 2023, comprising:
  - Spotted-tailed Quoll (*Dasyurus maculatus*),listed as Vulnerable under the BC Act (**not** an SAII entity) and Endangered under the EPBC Act.
  - Eastern False Pipistrelle (*Falsistrellus tasmaniensis*).
  - Large Bent-winged Bat (*Miniopterus orianae oceanensis*).
  - Greater Broad-nosed Bat (*Scoteanax rueppellii*).
  - Masked Owl (*Tyto novaehollandiae*). No Sooty Owls or evidence of their presence was observed during the surveys, with no tree hollows showing signs of occupation. Foraging habitat for Masked Owl has been assessed as being present on the subject land. No Masked Owl breeding habitat was incidentally detected during surveys.
- The target species *Chalinolobus dwyeri* and *Vespadelus troughtoni* were not recorded during Anabat surveys.
- No individual Red Goshawks (Critically Endangered BC Act, Vulnerable EPBC Act) were recorded during site visits or surveys. Two stick nests were found adjacent to the subject land, neither of which appear large enough to be that of a Red Goshawk and no evidence of occupation could be seen during survey in April 2023. No stick nests were observed within the subject land; all observed nests were within 100m of the project site.
- Bower Ecology conclude that the remaining threatened species known to occur in the general area none are likely to occur within, or rely upon habitat within, the project site.
- An EPBC Act referral is not considered required.
- The BC Act's Biodiversity Offset Scheme is not triggered having regard for the remaining vegetation stands within the proposed quarry footprint. This is because less than1 ha of remaining native vegetation is proposed to be cleared. As such, the development application does not need to be supported by a Biodiversity Development Assessment Report.
- The Project Site is not considered to be "core Koala habitat", as defined. As such, a Koala Plan of Management will not be required.
- 10 large nest boxes will be installed to the west of the project footprint. Nest box condition will be monitored, and each will be maintained.
- No significant direct impact to fauna is expected during vegetation clearing; however, the clearing itself does provide a residual risk to fauna due to direct mortality during clearing works. This risk can be minimised having regard for the safeguards, management controls and mitigation measures proposed. As the proposed quarry footprint is relatively small compared with the surrounding contiguous vegetation, the direct impacts of the proposed clearing on threatened fauna species are likely to be minimal. This is particularly the case if each of the five observed threatened fauna species are considered (Spotted-tail Quoll, Eastern False Pipistrelle, Greater Broad-nosed Bat, Large Bent-winged Bat, and Masked Owl) – all of which are highly mobile and occupy larger home ranges.
- The area to be impacted does not appear on the Biodiversity Values Map.
- Importantly, approximately 64% of the project site is proposed to be retained under native vegetation, the disturbance associated with quarrying limited to 36% of the total site area.

7.3.6 Heritage

Known Heritage Values

No part of the project site is listed as a heritage item or known archaeological site.

The approved quarry site is not identified as an Aboriginal place of heritage significance. As such, the relevant operative provisions of clause 5.10 of the *Clarence Valley Local Environmental Plan 2011*, Heritage Conservation, do not apply.

Aboriginal Cultural Heritage

As a part of the EIS assessment a survey of the Project Site, including the proposed quarry area, was undertaken on 28 June 2022 by Niche Environment and Heritage (Niche) and representatives of the Dorrigo Plateau Local Aboriginal Council (DPLALC) in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010). Refer also to **Appendix I**.

The Niche report refers to the proposed quarry development as the "proposed activity" and the Project Site as the "Subject Area".

In a letter dated 29 August 2022 to Outline Planning Consultants Niche advised as follows:

> "*Based on this Aboriginal Objects Due Diligence Assessment (DD), it is unlikely that Aboriginal objects have survived within the Subject Area, largely due to ground disturbances associated with de-vegetation and agricultural use in the area. The location of the Subject Area is not within an archaeologically sensitive landscape, and the high level of past disturbance means that the potential for in situ archaeological deposits is considered low.*
>
> *The Subject Area is associated with two (2) sensitive Aboriginal landforms, these being within 200 metres (m) from water and 200 m from ridge lines. Despite this it was determined by the Dorrigo Plateau Local Aboriginal Land Council (DPLALC) representatives, and the Heritage Consultant present, that due to the high levels of disturbance and landscape within the Subject Area, no further investigation or impact assessment is required*."

In the same letter of advice Niche made the following recommendations:

> "*1. Should earthworks be undertaken outside the Subject Area assessed in this document, further impact assessment should be undertaken prior to work in those areas in consultation with the DPLALC*."
>
> "*2. In the event that previously unknown Aboriginal object(s) and/or sites are discovered during the proposed activity, work must stop, and an appropriately qualified archaeologist be contacted to access the nature, extent and significance of the identified sites*."
>
> "*3. All workers associated with any future work within the Subject Area should be inducted into the Subject Area, so they are made aware of their obligations under the National Parks and Wildlife Act 1974 and any conditions of any future AHIP prior and during and after construction activities*."
>
> "*4. In the unlikely event that human remains are discovered, all activities must stop, the affected area must be cordoned-off and NSW Police and the Heritage NSW (formerly the Department of Planning and Environment [DPE] which replaced the Office of Environment and Heritage [OEH]) Environment Line must be contacted on 13 15 55 or (02) 9995 5555*."

The above recommendations have been adopted in full for the purposes of this proposed quarry development.

7.3.7 Traffic and Transport

Traffic consultants Streetwise were engaged to undertake a traffic and transport assessment relating to the proposed quarry development. Refer also to **Appendix M**.

A summary of the the assessment, conclusions and recommendations of the Streetwise report are set out in the following.

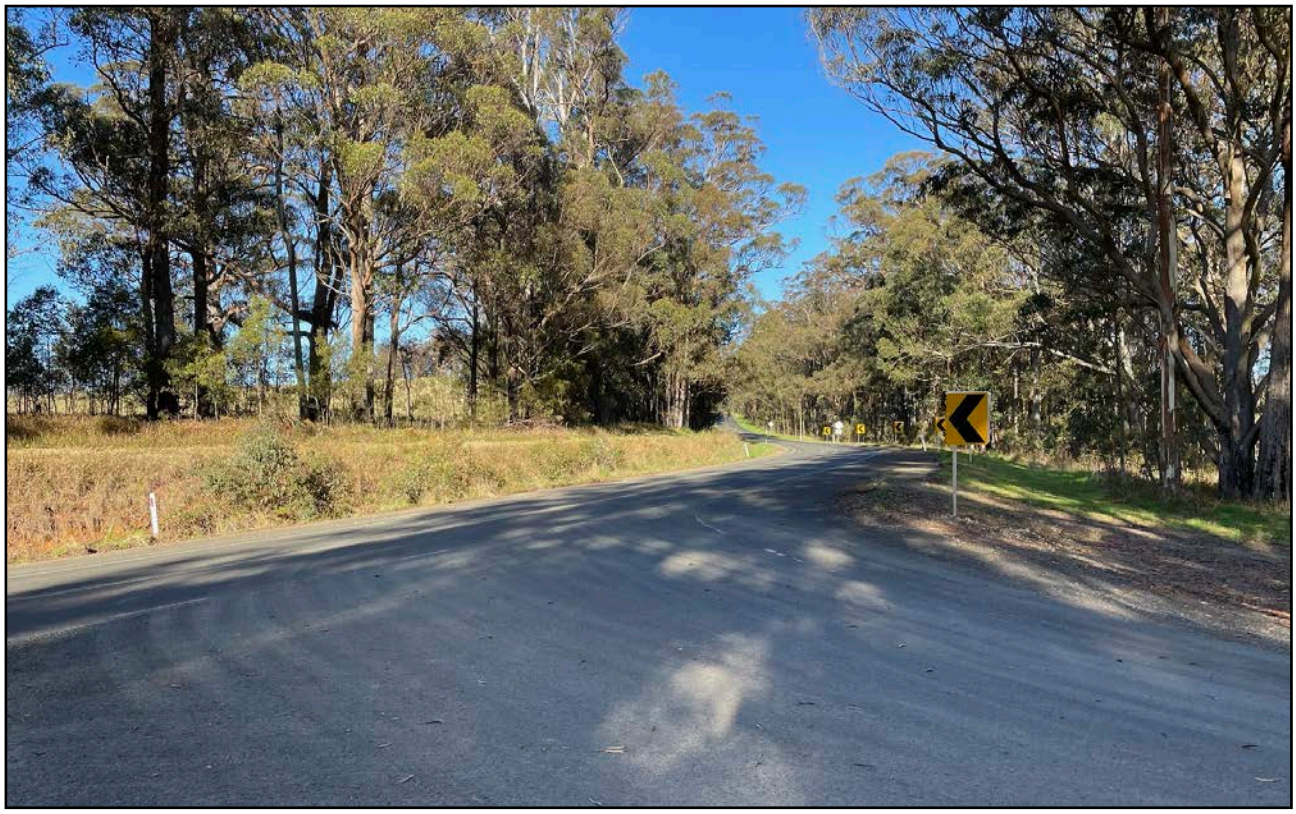
Road Network

The existing Faheys Pit quarry operation is located approximately 10.8km north-east of the intersection of Waterfall Way (MR76) and Armidale Road (MR74) at the street address of No.9720 Armidale Road, Tyringham. The main haul route (road) will be via the Armidale Road (MR74) south back to Waterfall Way (MR76 / B78). The quarry may also be required to service road upgrades and the like on Armidale Road to the north.

- **Armidale Road**: Provides connection between Armidale via Waterfall Way, in the south, and Grafton to the north-east. The road formation generally provides for a single travel lane in each direction with wider pavement provided at intersections. The travel lanes are generally 3.20 to 3.50m wide in each direction with 0.50 to 2.00m wide sealed and unsealed gravel shoulders. The posted speed limit in the vicinity of the Project Site is 100km/ hour. Armidale Road, north of the Waterfall Way intersection, is a gazetted B-double haulage route north to Grafton for B-double vehicles up to 19m long. Registered heavy vehicles complying with these limits are permitted to travel along Armidale Road. Refer Photographs 7.2 and 7.3.

PHOTOGRAPH 7.2: Intersection of quarry access route and Armidale Road, looking north

(Source: 19 August 2022 photograph)



PHOTOGRAPH 7.3: Intersection of quarry access route and Armidale Road, looking south

(Source: 19 August 2022 photograph)

PHOTOGRAPH 7.4: Sealed section of quarry access route from Armidale Road

(Source: 19 August 2022 photograph)

- **Internal quarry access route and intersection with Armidale Road:** Access to the quarry operation is via a Crown Road Reserve from Armidale Road (MR 74) directly to the quarry site. The access road is currently a gravel formation of varying width but generally being a minimum of 4.0m wide, with bitumen seal provided in that part intersecting with Armidale Road. The entrance to Faheys Pit is via a locked gate.Refer to accompanying Photograph 7.4.
- **Waterfall Way**: Provides connection to Dorrigo, Bellingen and Raleigh to the east and Armidale to the south and Grafton to the north-east via Armidale Road (Waterfall Way). The formation generally provides for a single travel lane in each direction with wider pavement provided at intersections. The travel lanes are generally 3.30 to 3.50m wide in each direction with 1.00 to 1.50m wide sealed and unsealed gravel shoulders. The posted speed limit near the intersection with Armidale Road is 80km/hour.Waterfall Way is a gazetted B-double haulage route for B-double vehicles up to 25m long. Registered heavy vehicles complying with these limits are permitted to travel along Waterfall Way.

Existing Traffic Volumes

Existing traffic volumes are summarised below:

- Armidale Road: calculated Annual Average Daily Traffic (AADT) of 470 vehicles per day.
- Ellis' Pit, operated by Clarence Valley Council: Average of 10 laden trips per day, and an average peak of one laden trip per hour.
- Existing sawmill: generates 6 laden (& 6 unladen) trips per week or an average of 1 laden (& 1 unladen) trip per day.

Forecast Traffic Volumes

For the purposes of future traffic volume assessment on Armidale Road an annual traffic growth rate of 2.50% has been applied to the Armidale Road volumes.

Therefore, by 2034 the predicted AADT for Armidale Road is assumed to be 610 trips in both directions.

For the purposes of quarry traffic distribution and the assessment of traffic impacts the following has been assumed:

- 90% of quarry truck traffic will travel to and from the south/west to/from Waterfall Way.
- 10% of quarry truck traffic will travel to and from the north and east along Armidale Road.
- A mix of truck and dog combinations (32 tonnes & 37.50 tonnes), with larger and smaller trucks used where road weight limits allow. It is estimated that the future expanded quarry may generate up to 60 laden quarry trucks per day.
- An average of between 83 to 93 laden trucks per week and between 15 to 18 laden trips per day at 150,000 tonnes per annum, or 330 laden trucks per week or during any peak week when there are 60 loaded trucks per day.
- Average of between 1.36 to 1.59 laden trips per hour at 150,000 tonnes per annum, or 6 laden trucks per hour during any peak week when there are 60 loaded trucks per day.
- It is noted that Armidale Road is an approved 19m B Double Truck Route there is a possibility the quarry operator may include the use of these types of vehicles into the future. A 19m B Double Truck has a capacity of between 55.5 to 62.5 tonnes (GML) depending on the axle configuration. The use of these vehicles can further reduce the number of laden and unladen truck movements for the quarry operation.

Future predicted traffic volumes for maximum and average quarry operations are illustrated in the accompanying Table 7.17.

Table 7.17: Average and maximum quarry truck traffic volumes

Item	@ Average Loaded Truck Volumes	@ Maximum Loaded Truck Volumes
Maximum annual output (tonnes)	*150,000 tonnes*	*150,000 tonnes*
Quarry truck load capacities	*Max. 32 tonnes or 37.5 tonnes*	*Max. 32 tonnes or 37.5 tonnes*
Maximum no. of loaded quarry trucks pa	*Between 4,000-4,688 truck pa (max.)*	*Between 4,000-4,688 truck pa (max.)*
Quarry working weeks per year	*48*	*48*
Maximum working hours per week	*61*	*61*
Number of loaded trucks per week	*83-97*	*83-97*
Number of loaded trucks per day	*14.97 (say 15)-17.5 (say 18)*	*60*
Number of loaded trucks per hour	*1.39-1.59 (say 2)*	*5.5 (say 6)*
Return trips per day (laden and unladen)	*29.93 (say 30)-35*	*120*
Number of days @ maximum output		*66-78 days*

(Source: Streetwise October 2022 *Proposed Expansion of Faheys Pit Traffic Impact Assessment*)

From the above table, the maximum output of 60 laden trips per day will greatly reduce the number of days the quarry will operate, and by implication the number of days per year that the quarry would have an impact on the local road network. The future use of 19m B Double trucks would reduce overall truck volumes on the local road system even further. Streetwise estimate total peak hour trip generation from the combined activities of the Project, the sawmill and Ellis' Pit to be between 3-7 loaded trucks per hour. Streetwise estimates predicted peak hour traffic volumes for hypothetical 2034 traffic conditions for both average and maximum operating conditions in accordance with accompanying **Figure 7.15**.

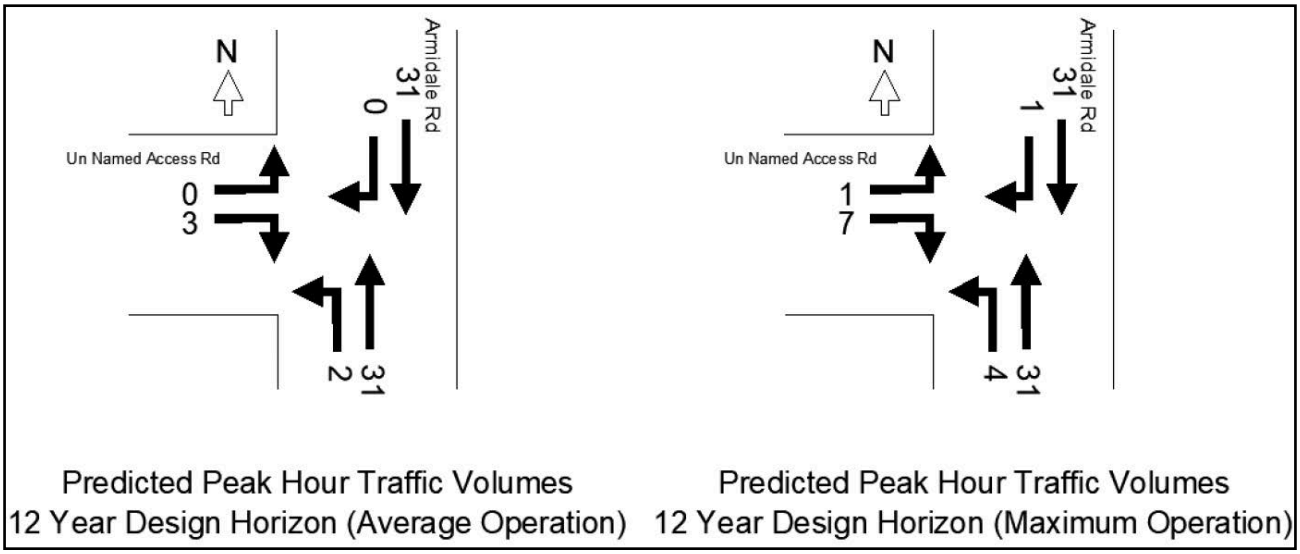


FIGURE 7.15: Predicted peak hour traffic volumes 2034

(Source: Streetwise 2022)

The Streetwise assessment finds that the existing intersection of the internal haul route- shared by Ellis' Pit and the adjoining sawmill-with Armidale Road conforms to a Type BAR intersection layout in accordance with the Austroads *Guide to Road Design* (2021). Streetwise find that the current Type BAR intersection will adequately accommodate future anticipated truck traffic volumes, summarised in the following:

"*The configuration of this intersection arrangement was completed as part of a previous Development Application approval (DA 40/95) where 2.0m wide sealed shoulders were to be provided for a distance of 50m each side of the quarry access road. This assessment has found the BAR configuration will adequately service the land uses into the future at least for the life of Fahey Pit*." (p.18)

Streetwise note, however, that the removal of vegetation within the road reserve is required in order to achieve a safe intersection sight distance. These works would be a normal part of any road maintenance program. Streetwise also recommend that W5-22 advanced warning signage be erected each side of the approach to the intersection to make drivers more aware of heavy vehicles in the area.

Streetwise also find that the future predicted traffic flows on Armidale Road arising from the proposed quarry development will have a very minimal increase in roadway capacity to the existing flows.

7.3.8 Land Resources

Impact on Agriculture

To put the matter in context, the land the subject of this proposed quarry development comprises land with a low land capability and low agricultural value. The following Table 7.17 summarises the potential impact of the proposed quarry development on agriculture and land resources generally.

Table 7.17: Impacts of the Project on Land Resources & Agriculture

Issue	Consideration of impacts
Zoning requirements	*The proposed quarry development is a permissible use on the land. The provisions of State Environmental Planning Policy (Resources and Energy) 2021 and Clarence Valley Local Environmental Plan 2011 permits the proposed quarry development subject to development consent- the latter a permissible use in the RU1 Primary Production zone. The proposal complies with the LEP and relevant zone objectives.*
Land use conflict potential	*Quarrying has already been established on this site for many decades. There is already a quarry operating on the site, approved by Council in 1996. The quarry footprint of the expanded quarry will occupy approximately 4.1ha, or 35.7% of the total area of Lot 31 DP 1203488 (36% rounded up). The proposed quarry is located in a sparsely populated rural area. Noise agreements have been signed with the nearest neighbours.*
Land capability and agricultural worth	*The hill containing the extractive resource comprises land with a very limited agricultural value. The proposed quarry expansion area and haul route do not comprise, nor are they proximate to or likely to have any impact on, Biophysical Strategic Agricultural Land (BSAL). The assessment reasonably identifies potential agricultural land use impacts as Low.*
Rehabilitation	*A satisfactory rehabilitation strategy has been devised, including requirements for planting, weed management, monitoring and remedial action.*
Bush fire risk	*The vegetated land surrounding the quarry has been identified as being bush fire prone. Various mitigation measures are proposed to address fire hazards within the proposed quarry development.*
Water	*No groundwater affected by the quarry. All stormwater to be contained within the proposed quarry pit and quarry infrastructure areas, with no resultant downstream impacts likely.*
Traffic and livestock	*No Travelling stock Routes affected by the proposed development. Low traffic speeds to be observed along the internal quarry haul route.*
Weed management	*Weed management measures have been proposed as a part of the management regime for the quarry development.*
Consultation	*Consultation with government agencies and local residents has formed a part of this EIS preparation process.*
Quarry management	*A range of quarry management management measures are proposed. A quarry management plan is recommended to be implemented, to ensure that the quarry is operated in the future in accordance with 'best practice' quarry management measures.*

Given the above, it is anticipated that the proposed quarry development will not adversely impact on surrounding land uses in any significant way and will thus satisfy the 'compatibility' test set down in *Project Venture Developments v Pittwater Council* [2005] NSWLEC 191.

Contamination Potential

Pursuant to s.4.6 of *State Environmental Planning Policy (Resilience and Hazards) 2021* a consent authority must consider contamination and remediation prior to the determination of a development application.

Ballpark Environmental was commissioned to undertake Stage 1 contamination investigation ('PSI'-refer **Appendix E** in relation to this proposal, the results satisfying the relevant precondition under *State Environmental Planning Policy (Resilience and Hazards) 2021 per* Preston CJ *Moorebank Recyclers Pty Ltd v Benedict Industries Pty Ltd* [2015] NSWLEC 40 and Dickson C in *Lippmann Partnership Pty Ltd v Canterbury – Bankstown Council* [2017] NSWLEC 1601 dated 9 February 2017 at paras [31-43]. The results are summarised in the following:

- No buildings or other structures were present within the site.Observations made during the site walkover found that previous poor waste disposal practices have resulted in the burial of inert waste, including tyres, empty 200l metal drums, scrap metal and concrete in the northern bund wall on the perimeter of the current quarry pit. Individual waste tyres were also observed on the cleared northern slope of the quarry site.
- No visible signs or indicators of contamination, such as oil staining or buried asbestos containing materials (ACM), were observed during the walkover by Ballpark Environmental.
- Development of the quarry will require the excavation and removal of the northern bund wall and any buried waste materials. It is recommended that these inert waste materials are collected and removed from this site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste.
- A review of prepared for this PSI found no areas of environmental concern have been identified on this site.
- An unexpected fines protocol should be included as part of the quarry Environment Management Plan or as a stand-alone document in the event that potentially contaminated material or buried unexpected finds are encountered during future quarry expansion earthworks on this site.

Ballpark Environmental conclude as follows:

> "*In consideration of the results from this PSI we conclude that this site on Lot 31 DP1203488, 9720 Armidale Road, Tyringham, has an acceptable low level of risk for site contamination and is suitable for its proposed ongoing industrial use as a quarry.*
>
> *The site is assessed to be suitable for its ongoing industrial use, in accordance with Chapter 4 of the Resilience and Hazards SEPP (2021).*"

In summary, based on the preliminary site investigation undertaken by Ballpark Environmental, the Project Site is not affected by contamination and does not require remediation prior to the development being carried out. Consequently, the requirements of *State Environmental Planning Policy (Resilience and Hazards) 2021* Ch 4, s.4.6(1) have been satisfied. The Project Site has been assessed by Ballpark Environmental to be suitable for the use intended, namely, as an extractive industry.

7.3.9 Waste

The contamination report by Ballpark Environmental identifies historical poor waste disposal practices at Faheys Pit, including on-site disposal of inert waste including tyres, empty metal drums, scrap metal and concrete. This waste material will be collected and removed from the Project Site site for recycling (e.g., scrap metal) or to an appropriate NSW EPA licensed waste facility which can accept this waste, prior to any ongoing expansion of the quarry. The quarry operator undertakes to take the corrective actions recommended by Ballpark Environmental. It is also noted that if the quarrying expansion is approved the environment protection license to be issued for extractive activities will include enforceable conditions prohibiting the disposal of any waste generated by the quarry operations on this site.

The quarry operator will be responsible for collecting recyclable material (waste oil, metal, glass, and plastic) for collection by Council or appropriate recycling contractor. Any non-recyclable domestic waste will be disposed of via the local council collection service. All employees and contractors working on site will be required to undertake an annual site induction which covers both safety and environmental requirements of the site.

7.3.10 Hazards

Overview

Overall, the environmental hazards and potential risks posed by the proposed quarry development on the Project Site will be manageable and acceptable. The proposed quarry development will be required to hold an environment protection licence (EPL), issued by the EPA, under the *Protection of the Environment Operations Act 1997* and the regulations made under that Act. The quarry operator will be under a legal obligation to not pollute waters in breach of section 120 of that Act, cause air pollution in breach of sections 124, 125 or 126 of that Act, or emit offensive odour in breach of section 129 of that Act. Moreover, the quarry operator must notify the EPA of pollution incidents causing or threatening material harm to the environment within the meaning of section 148 of that Act.

Risk assessment

The risks associated with the Project have been considered in this EIS having regard for the nature of the proposed quarry development, the mitigation strategies that form a part of the Project, and certainty in the likely impacts arising (*Weal v Bathurst City Council & Anor* [2000] NSWCA 88).

The mitigation measures proposed for the project are considered to be practical, feasible and reasonable from a cost, planning and design perspective. The mitigation strategies form a fundamental part of this Project. These measures have been proposed in response to the risks identified and significance.

It is important to note that the precautionary principle need not be applied to try to avoid all risks. A zero risk precautionary standard is inappropriate. Instead, precautionary measures should be taken to avert the anticipated threat of environmental damage, but they should be proportionate- per Preston J in the NSW Land & Environment Court case *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 33.

The SEARs requires the following risks to be considered as a part of the EIS assessment:

> "*Hazards – including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods*"

Risks are considered further in the following.

Bushfire hazard

The Project Site is mapped as comprising bushfire prone land as shown on **Figure 2.9** and **Figure 5.2**.

The Bees Nest fire, which ignited near Ebor, west of the Project Site, in August (and later October) 2019 served as an ominous warning of the catastrophic fire season the nation experienced in 2019 and 2020. It was the earliest mega-fire of the Black Summer, beginning in the winter of 2019. From 1 July 2019 to the end of the bushfire season on 31 March 2020 fires across NSW, burnt 6.2% of the state – the largest burnt area recorded in a single fire season in eastern Australia.The catastrophic Bees Nest fires destroyed large swathes of timbered country and properties stretching from Ebor to Tyringham and beyond.

Fanned by strong westerly winds, in September 2019 the Bees Nest fire reached Armidale Road and Tyringham Road in the vicinity of Tyringham and Dundarrabin, with another fire burning in the nearby Muldiva State Forest. It is understood that this bushfire travelled approximately 50km in one day, burning through more than 100,000 ha of vegetated lands right up to the edge of the existing active quarry at Faheys Pit and to the edge of the neighbouring sawmill.

In the face of ongoing and imminent risk of further bushfire threat, and with below average rainfall being experienced in autumn and winter of 2021, the burnt out timber within the Project Site, proximate to the quarry and the sawmill, was subsequently removed by the sawmill operator in late 2021. This clearing work was considered reasonably necessary to reduce the threat of further risk of personal injury or damage to property from bushfires. This cleared area, with a small amount of fringing vegetation, forms the expanded quarry footprint now proposed.

Despite the existence of cleared areas for the extraction of the quarry resource, quarries are still potentially vulnerable to major bushfires. In late 2019 Greensills Quarry at Nymboida had its two quarry excavators destroyed by the catastrophic fires that swept through the Nymboida area, despite the fact the equipment was positioned by the quarry operator in the centre of the quarry, furtherest removed from vegetation, ahead of the incoming fire. Refer to Photographs 7.5 and 7.6.


PHOTOGRAPH 7.5 & 7.6: Charred remains of quarry excavators following 2019 major bushfire event at Greensill's Quarry, Nymboida

(Source: Jarrod Greensill November 2019 photographs)

In response to the need to plan for future fire events the operators of Faheys Pit propose measures to ensure that both quarry plant equipment and workers, as well as the neighbouring sawmill and residence, are afforded a suitable, practical form of protection, now and in the future. In particular, the proposed quarry development provides for an ongoing buffer to future fires through the maintenance of cleared areas within the proposed quarry footprint throughout the duration of the project, with the quarry floor to be rehabilitated to a grassed pasture upon completion.

Almost all of the proposed quarry development footprint comprises cleared land, with some isolated stands of trees near the northern boundary- the latter to be cleared at project commencement. It is noteworthy that the Project Site will be quarried on a campaign basis only, when there is a demand for road works and allied infrastructure projects from Faheys Pit. Moreover, no buildings or permanent structures are proposed as a part of this development application.

Importantly, the Project does not constitute a 'special fire protection purpose' as defined under the provisions of the *Rural Fires Act 1997*, and therefore does not trigger the need to obtain a bush fire safety authority under s.100B of that Act. It is also relevant that that the Rural Fire Service's *Planning for bush fire protection: A guide for Council, Planners, Fire Authorities and Developers* (Planning for Bushfire Protection) dated November 2019 does not require Asset Protection Zones for extractive industries. Quarries are not identified in *Planning for Bush Fire Protection* as comprising 'hazardous industry' and, as such, no special Fire Safety Study is required in support of this project.

However, as as part of good quarry practice, various measures are to be proposed at Faheys Pit to effectively control or manage any bushfire threat- refer to EIS Sections 3.1, 4.2, 5.3.4 and the following for further details.

The Project Site is accessed from Armidale Road, with egress availability to the south or the north. The intersection of the internal quarry haul route with Armidale Road has good sight lines in both directions with bitumen seal provided at the intersection**,** providing good vehicle clearance and turning for fire fighting vehicles. A fire break is also provided to the south-west of the quarry.

With the implementation of the proposed mitigation measures and safeguards, as set out in the following sub-section, it is considered that any bush fire hazard arising from the Project can be satisfactorily managed in terms of the quarry operation itself as well as for the surrounding community.

Occupational health and safety

Responsible legislative compliance is fundamental to maintaining a safe workplace at any quarry. Under the provisions of the *Work Health and Safety (Mines & Petroleum Sites) Act 2013* quarry rock, stone or gravel is defined as a "mineral" and is thus covered by this Act and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*. All work health and safety practices at Faheys Pit and other quarries in New South Wales are regulated by the NSW Mines Regulator (currently called the NSW Natural Resources Access Regulator).

Impact assessment

Potential hazards and risks generated by the proposed quarry development are proposed to be mitigated and managed in a reasonable, practical and effective manner and will achieve an overall satisfactory outcome having regard for the following:

- **Fire, access controls:** The fire mitigation measures include the following:
  - The quarry footprint is cleared land. This cleared land provides for a suitable buffer from surrounding bushfire prone lands. The quarry footprint and access corridor proposed have sufficient access and turning areas for emergency services, providing for safe evacuation while at the same time providing access for emergency services vehicles.
  - Fire brigade vehicle access is capable of being provided to the site. The proposed quarry development will benefit from direct access to Armidale Road in the unlikely event of a fire emergency. There are other fire trails and access points proximate to the quarry, capable of being employed by ire fighting vehicles.
  - Site security measures to include fencing of site and securing of the site at the end of each day.
  - Water truck to be maintained on site during all quarrying campaigns undertaken in dry conditions, to reduce dust as well as provide a potential source of water for fire fighting purposes.
  - Retention of water run-off from the quarry in the sediment basins proposed, for use in fighting fires.
  - All quarry vehicles and plant, including those of contractors, will have a suitable type and number of fire extinguishers available for use in the event of a fire. AS2444 provides details on the various extinguishers available, their use and effectiveness for various types of fire. Any storage of fuels, oils or other products on the quarry site will be in accordance with the relevant Australian Standard. Signage will be located at all extinguisher locations on the quarry site to indicate the extinguisher type and suitability for the fuels, oils or other products, if stored on site. Fuel storage areas, if provided, are to be bunded.

- The quarry operator proposes the training of quarry employees and contractors in general fire awareness and response procedures. In the event that the Project Site is threatened by a bushfire, site personnel would be evacuated to the nearest safest place.
- Plant and equipment to be well maintained, to reduce the risk of sparks. The site is fenced, gates would be locked when not in use and appropriate signage alerting the public to the quarry.

- **Occupational health and safety:** The operators of the quarry are currently required to comply with the relevant occupational, health and safety provisions with regard to the carrying out of the quarrying works. These obligations will continue with the approval of the expanded quarry. The operator will be the person responsible for ensuring that the quarry operations are run in a proper and safe manner. The NSW Natural Resources Access Regulator has released health and safety guidelines for the operation of quarries in NSW, in the document entitled *Health and safety at quarries* ,dated November 2018. A work health and safety plan would be developed for Faheys Pit, addressing worker safety, hazard identification and risk management, similar in format to that used by Sheridans Hard Rock Quarry Pty Ltd at it's Hernani quarry. This plan would cover matters including site safety procedures, contact details for all emergency services in the area, fire fighting procedures, personal protective equipment requirements, incident management and first aid procedures. All site employees, contractors and visitors will be educated on emergency response procedures required to be followed as a part of any site induction. Environmental hazard reporting will be promoted and encouraged amongst the workforce. Identified hazards will be entered into the incident reporting database with agreed controls and timeframes for completion and signed off by a Site Supervisor. A site-specific Pollution Incident Response Management Plan (PIRMP) will be implemented at Faheys Pit, similar in format to that used by Sheridans Hard Rock Quarry Pty Ltd at it's Hernani quarry.
- **Unauthorised access:** The quarry operation is located on private land in a sparsely populated rural location where members of the public are unlikely to enter. The quarry site is protected by fencing and a locked gate on the southern boundary, effectively limiting unauthorised, out-of-hours public access to the quarry.
- **Hazardous materials storage and management:** No hazardous materials are to be stored on the site. All blasts are undertaken by licensed blast contractors, who will be responsible for safely transporting and using explosives on site during any blast event. No explosives are to be stored on site. The detonation of blasts will be restricted to between the hours of 9.00 am to 3.00 pm, Monday to Friday. No blasting will be undertaken outside of these hours.[NOTE: preparation for blasting, including drilling, is allowed outside of these time restrictions].
- **Natural hazards:** The project site is free from flooding, with appropriate surface water management measures proposed. The geotechnical assessment of the Project design by Douglas Partners (refer **Appendix C**) concludes that the risk of landslip impacting benches and property damage is Low. The design shows cut batter slopes of up to 12 m in total height and have been formed at slopes generally ranging from about 45° to 55°. It is anticipated that further quarry excavation will encounter very low strength siltstone for the upper 5m to 10m approximately underlain by high to very high strength meta-siltstone. Douglas Partners recommend that as excavation of the quarry progresses, additional investigation and assessment is undertaken to inform any alterations to the proposed layout design.

In view of the assessed Low hazard risk of the development and the implementation of mitigation measures proposed (refer Section 4), the risk of hazardous incidents will be adequately minimised.

The proposed quarry development is therefore not likely to pose any significant risk to neighbouring land uses or the environment generally.

7.3.11 Visual Impact

Visual Impact Principles

Typically, quarries can have a visible impact on the landscape, if located in an exposed position.

In this case, however, the quarry is visually shielded from all but the neighbouring sawmill by topography and by surrounding dense forested lands. No views of the quarry are possible from either Armidale Road or from surrounding neighbours further removed from the site. No further mitigation measures are required to shield the quarry from its neighbours.

The visual impact of the proposed quarry development is considered in the accompanying Table 7.18.

Table 7.18: Assessment Criteria- Visual Impact

Visual Impact	*Significance of visual and landscape impact*
Low	*The development would cause very minor changes to the existing view or landscape.* *Development would either not be visible or barely visible, with minor changes in the shape of the overall topographic panorama evident.* *Small area only affected, with no significant adverse impact on overall visual character. Impacts capable of being mitigated or offset by beneficial impacts.*
Moderate	*The development would cause minor changes to the existing view or landscape.* *Noticeable change to a significant proportion of the landscape, affecting some key characteristics and the experience of the landscape, and introduction of some uncharacteristic elements. Moderate impact on visual character. Impacts typically capable of mitigation in part or whole.*
High	*The changes to the landscape and/or views would result in extensive, noticeable change and introduction of many incongruous elements into the landscape. Development highly visible within a direct line of sight from nearby residences and nearby public viewing places, typically within 1km from operations.* *Visual impacts not capable of being mitigated, with impacts more than likely being more permanent in nature.*

The NSW Land and Environment Court has established planning principles relating to visual impact assessment. This includes planning principles relating to the assessment of view impacts, as per the judgements contained in *Tenacity Consulting v Warringah* [2004] NSWLEC 140; (2004) 134 LGERA 23 and *Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor [2013]* NSWLEC 1046. These two key Court cases are considered in the following.

The judgement in the Land and Environment Court case *Tenacity Consulting v Warringah* [2004] NSWLEC 140 sets out the planning principle for considering the acceptability of the impact of a proposed development on the views enjoyed from private property in the vicinity of the development. The focus of this Court decision relates to view sharing and the interruption of views caused by a development.

In this regard the proposed quarry development does not block views, nor is it visible from the surrounding neighbourhood, considered further in the following.

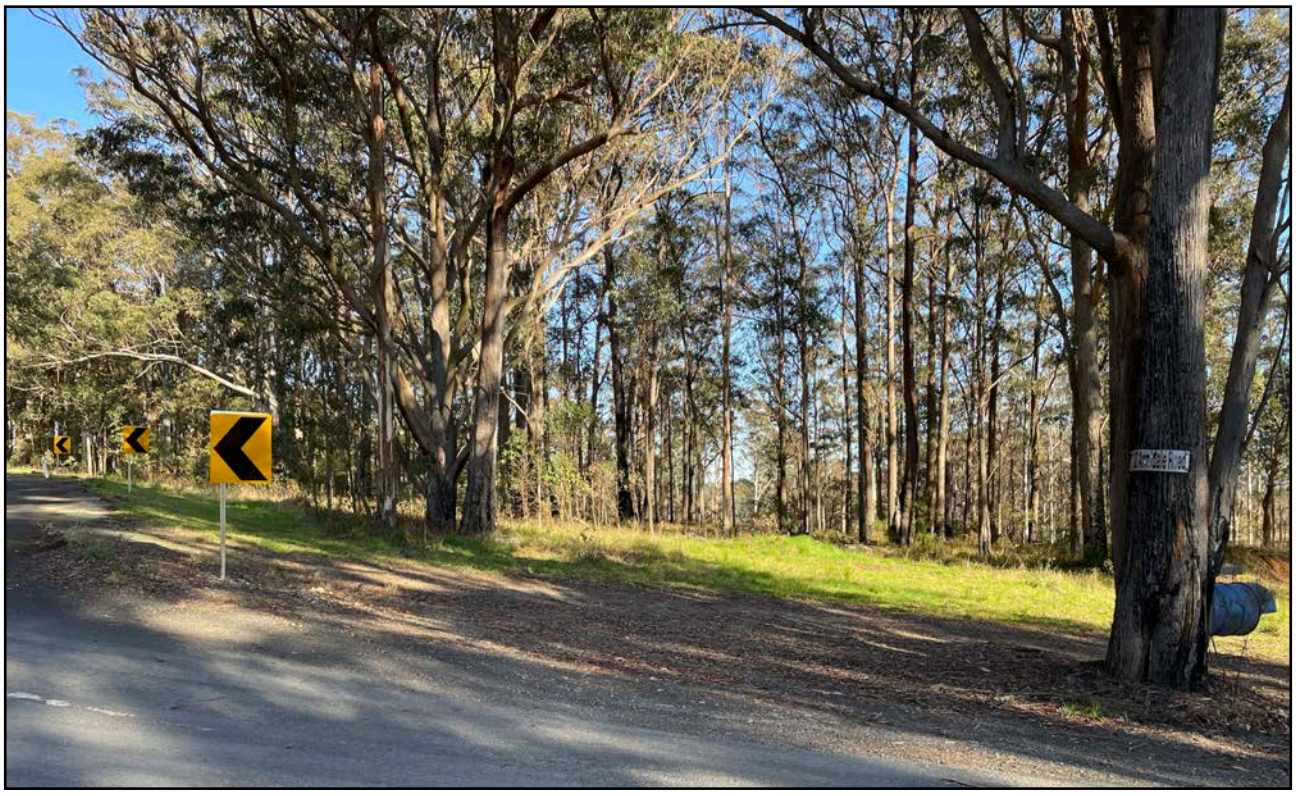
The visual impact assessment framework for this planning principle is broadly consistent with (but not identical to) the matters raised for consideration in *Tenacity*.

The steps that the Court has set down for determining the acceptability of the impact of a development on views are summarised in the following table.

Table 7.19: View Impact Assessment

Visual Assessment Steps/Considerations	Relevance to Proposed Quarry Development
Step 1: identify the nature and scope of the existing views, including: ➢ *Nature and extent of obstruction of view (by the development).* ➢ *Elements of the view, important elements within the view.* ➢ *Whether the change in view is temporary or permanent*	*The side of the hill proposed for the quarry expansion is shielded from view from all residences in the immediate locality by intervening trees and/or topography- with the exception of a residence at the adjoining sawmill.* *No views are being blocked by the proposed quarry development.*
Step 2: identify the locations from which the potentially interrupted view is enjoyed.	*Glimpses only possible from adjoining sawmill residence.*
Step 3: Identify extent of the obstruction at each relevant location.	*No obstructed views Impacts considered to be acceptable.*
Step 4:identify the intensity of public use of those locations where that enjoyment will be obscured, in whole or in part, by the proposed private development.	*No obscuring of views from Armidale Road or other public places- considered acceptable.*
Step 5: the importance of the view to be assessed.	*Not important.*

Based on the above, the proposed quarry development would only be visible in part from the residence at the adjoining sawmill, with no other views possible from any other location in the vicinity, including from Armidale Road- refer Photograph 7.7. In short, it is effectively shielded from public view. As such, it is concluded that the Project would have a negligible-low impact on the visual amenity of people living in or traveling through the landscape of the surrounding area. No further mitigation measures are required in order to reduce the visual impact of the Project.



PHOTOGRAPH 7.7: Views of the quarry from Armidale Road (left hand side of photo) are obscured by intervening topography and vegetation. View looking south.

(Source: 19 August 2022 photograph)

7.3.12 Social and Economic

> *"Australian quarries support our vital building and construction industries which generate over $200 billion in revenue each year and directly employ more than one million Australians. The building and construction industry demands more than 200 million tonnes of construction aggregates each year to meet the need for our homes, workplaces, public buildings and roads. As well as providing these essential materials, quarries stimulate local communities through investment and by providing jobs. In fact, the quarry industry creates over 10,000 jobs directly and supports another 80,000 indirectly, often in rural and regional locations*." (Cement Concrete & Aggregates Australia website April 2022)

One of the most visible economic impacts of any quarrying operation on a community is the employment that it generates. Another economic impact is the industries and projects that are reliant on the the supply of processed quarry material to service any quarry project. Employment is generated through the creation of jobs and economic within the quarry itself: direct employment. Sheridan's Hard Rock Quarry Pty Ltd, the quarry operator, employs a staff of 20 full-time employees, including 7 truck drivers employed to drive the company's trucks, the workforce largely drawn from the local Dorrigo Plateau community, with an annual wages bill of over $2.0 million.

At peak production the Project at Faheys Pit will generate up to 4 full-time jobs on-site, with flow-on jobs in industries reliant on the quarry, as well as truck drivers employed by other contractors, suppliers and other sub contractors periodically engaged by the quarry, for example, blasting contractors. In short, the Project would provide direct economic activity, including jobs, to the local area economy, and indirect economic activity to the local area via both wage and non-wage expenditure.

The Project Site is suitably located in a sparsely populated rural area, where surrounding residents are few in number. The Project Site adjoins another quarry, operated by Clarence Valley Council, and an operating sawmill. These existing land uses define the character of the surrounding locality. A range of mitigation measures are proposed to minimise adverse impacts to residents of nearby rural properties, in the main relating to the issues of noise, blasting, air quality and protection from bushfires.

Much of the quarry resource won from the quarry will be utilised in local and regional roads projects, and in particular as a road base for the progressive upgrading of Waterfall Way. Presently, there are few sources of road base material locally available to service the needs of this major roads project. The Project will have direct access to Armidale Road and surrounding major roads. This existing road network provides an excellent basis for the distribution of quarry products to regional roads projects.

In summary, the ongoing direct and indirect employment provided by this Project will contribute to underpinning the maintenance of employment and economic development, both locally and regionally. The majority of the quarry material to be transported off site will be used to service various roads infrastructure projects in the locality and the region.

The Project accords with various planning strategies and statements, and in particular:

- Enables the ongoing development of the regions natural, mineral and forestry resources. (*Clarence Valley Council Local Strategic Planning Statement 2020* Action item 19.1)
- Enables the ongoing productive use of lands with significant construction material resources in locations with established infrastructure and resource accessibility (*Clarence Valley Council Local Strategic Planning Statement 2020* Action item 19.2).
- Encouraging ecologically sustainable development (*Clarence Valley Council Local Strategic Planning Statement 2020* Priority item 16).
- Assisting in further strengthening the local economy (*Clarence Valley Council Local Strategic Planning Statement 2020* Priority item 11).

The predicted socio-economic impacts of the Project are therefore positive for the local region as well as for NSW generally.

7.3.13 Rehabilitation

There is no Biophysical Strategic Agricultural land (BSAL) in or near the Project Site, with a generally low land capability.

The relevant guidelines note that the primary aim of the closure and rehabilitation phase of a quarry is to minimise long-term erosion through effective revegetation. Revegetated areas are to be carefully managed for a number of years after the initial rehabilitation works, with intensive management over the first few months. This is to promote rapid vegetation growth and development, and address any problems arising with vegetation establishment. (source: *Managing Urban Stormwater: Soils and Construction, Volume 2E Mines and Quarries* (DECC, 2008).

When completed, the quarry will be a large excavation into the ground. It is both desirable and necessary that it be left in a healthy, rehabilitated and safe condition. The progressive rehabilitation measures, together with final works, will ensure that both regrowth and safety measures have been correctly carried out.

The final land surfaces will be reshaped to stable landforms. This will involve reworking the existing quarry face and extraction pit to achieve regularly shaped slopes which are structurally stable. The final slopes proposed for the quarry batters are in accordance with current 'best practice'- *Guidelines for Open Pit Slope Design* (2009) promoted by NSW Trade & Investment- Mine Safety and the geotechnical recommendations of Douglas Partners in **Appendix C**. The stability of the quarry and surround areas would continue to be monitored during the project, to ensure a safe work environment. Access to the site to be restricted, to prevent the unauthorised disposition of material.

In addition, the quarry operator will be responsible for the control or eradication of noxious weeds in and around the quarry site.

The Project entails the progressive rehabilitation of worked quarry benches with native vegetation, with the quarry floor to be rehabilitated as a grassed area. The quarry floor will be returned to grazing with the sediment basins converted into farm dams for livestock. The rehabilitation strategy proposed also has the following benefits:

- The grassed quarry floor will provide a form of managed fire break to the sawmill and sawmill residence to the east.
- The retained dams will provide a potential water source for fire fighting vehicles during future bushfire events.

■ 7.4 Section 4.15(1)(c): Suitability of the Site for Development

The suitability of the site for the development is a key consideration in the assessment of any application under s.4.15(1) of the EP&A Act per *Lippmann Partnership Pty Ltd v Canterbury – Bankstown Council* [2017] NSWLEC 1601 at [42]. In this regard, it is relevant to note that the Project Site contains an existing approved quarry, and is suitable for continued quarrying activities. Most-but not all- of the proposed quarry footprint comprises cleared land.

The suitability of the site for a Project is consistent with all relevant legislation, guidelines and policies applicable to the site and surrounding area including the zoning future use of the surrounding area. The use of the site is also consistent with the principles of ecologically sustainable development and with the objectives of the *Environmental Planning and Assessment Act 1979* - refer section 7.1.2 of this EIS for further details.

In particular, the Project Site a most suitable site for a proposed quarry for a number of reasons, including:

- The quarry has been operating for decades.
- It has an appropriate zoning (RU1) which permits quarrying operations *per BGP Properties Pty Limited v Lake Macquarie City Council* [2004] NSWLEC 399 (NSW Land and Environment Court Planning Principle relating to weight to be given to the zoning of a site for any proposed development).
- The land the subject of the proposed quarry development is mostly cleared and disturbed land, and because of this, has no significant environmental constraints to further quarrying development. The need for bushfire protection of the neighbouring land use (Sawmill residence) outweighs the need for any further major planting of trees on the Project Site, once the Project is completed.

- The Project site is reasonably removed from adjoining residential land uses. Measures are proposed to ensure that any increase in impact arising from the project, in particular relating to noise impacts, are sufficiently mitigated *per* *Stockland Developments v Wollongong Council and others* [2004] NSWLEC 470 (NSW Land and Environment Court Planning Principle relating to noise impacts).Relatively small environmental footprint of the proposed quarry development.
- Availability of a known economic quarry resource from the Project Site.
- Suitable, safe access to Armidale Road via an existing formed internal quarry haul route.

Based on the above, the project site is considered the most suitable location for the project.

▪ 7.5 Section 4.15(1)(d): Any submissions made

This application will be subject to notification for submissions. Any issues raised in those submissions will be duly considered prior to any final determination of the application.

▪ 7.6 Section 4.15(1)(e): The Public interest

By the operation of s 4.15(1)(e) of the EP&A Act the public interest is identified as one of the mandatory considerations to be taken into account in the evaluation of the Faheys Pit Project. What comprises the public interest is not expressly stated in s 4.15. In *Minister for Planning v Walker* [2008] 161 NSWCA 224 it was held at [41] that: "*However, this requirement, so stated, operates at a very high level of generality, and does not of itself require that regard be had to any particular aspect of the public interest.*."

The objects of the EP&A Act (at s 1.3) include:

> *"(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
>
> *(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
>
> *(c) promote the orderly and economic use and development of land,*
>
> *(d) to protect the environment…"*

In this case the evidence is that the proposed development will advance the objectives of the EP&A Act which form part of the public interest, as well as the public interest generally. The proposed quarry development is considered to be in the public interest as it has positive social and economic outcomes, and has satisfactory environmental impacts including:

- The proposal would contribute to the economy locally and through employment generation and the provision of materials for roads and other infrastructure projects in the region, including the major upgrading of Waterfall Way back to Armidale.
- The quarry has been operating to date without significant adverse impact on surrounding neighbours
- The Project's physical impacts on surrounding development are acceptable *per* *Project Venture Developments v Pittwater Council* [2005] NSWLEC 191 and *Davies v Penrith City Council* [2013] NSWLEC 1141 (NSW Land and Environment Court Planning Principles relating to compatibility with surrounding development and impacts on neighbouring properties, respectively). Almost 64% of the Project Site is to be retained as native vegetation.
- Acceptable visual impacts are predicted *per* *Tenacity Consulting v Warringah* [2004] NSWLEC 140 and *Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor* [2013] NSWLEC 1046 (NSW Land and Environment Court Planning Principles relating to view impacts on views).
- The development has regard for, and is compatible with, relevant principles of ecologically sustainable development per *BGP Properties Pty Limited v Lake Macquarie City Council* [2004] NSWLEC 399 and *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133 (NSW Land and Environment Court Planning Principles relating to ecologically sustainable development).

- The proposed quarry development maximises access to and enables the fuller utilisation and economic recovery of a valuable quarry resource.
- The proposed quarry development provides for the ongoing extraction of road base quarry products important for the continued growth and prosperity of NSW generally, and in particular in the ongoing upgrading of Waterfall Way over the next 20 years. In extending the life of the quarry social and economic benefits to the local economy will accrue in terms of ongoing operational expenditure on local goods and services, as well as generating local employment opportunities. Flow-on and multiplier effects can be expected, which will further enhance the local economy. A further positive effect will be that it will contribute towards the continued longer-term supply of road base quarry products important to both regional, NSW and interstate construction industries and infrastructure projects.
- Satisfactory environmental outcomes will ensue. It is proposed that the quarry will operate in accordance with a proposed plan of management, to be incorporated in the conditions of consent, per *Renaldo Plus 3 Pty Limited v Hurstville City Council* [2005] NSWLEC 315 and *Amazonia Hotels Pty Ltd v Council of the City of Sydney* [2014] NSWLEC 1247 (NSW Land and Environment Court Planning Principle relating to plans of management)
- On the basis of on-site investigations undertaken in conjunction with the local Aboriginal community, the proposed quarry development is unlikely to affect the heritage significance of any Aboriginal or non-Aboriginal heritage items found or likely to be found on the site.
- The proposed quarry pit does not intersect with groundwater and is not subject to flooding.
- The quarry haul route, including the intersection with Armidale Road, is to a standard and capacity that can accommodate traffic likely to be generated by the proposed quarry development.
- The project incorporates measures to control and manage to appropriate levels potential environmental and amenity impacts. In this regard it is proposed that the quarry operate in accordance with a quarry plan of management, the key components of which having been described in this EIS.

The impact assessment contained in this Environmental Impact Statement (EIS) demonstrates that the project complies with relevant planning and environmental legislation and meets many key environmental and quarry operational requirements.

8. Conclusions, Justification of Project

8.1 Introduction

The owners, Abbey Richards and Toby Sheridan, in conjunction with the quarry operator Sheridans Hard Rock Quarry Pty Ltd, seek development consent for the continuation and expansion of a small quarry at Tyringham on the Dorrigo Plateau known as 'Faheys Pit'. The quarry has operated as a quarry for decades.

Faheys Pit is currently used as a source of quarry rock by Sheridans Hard Rock Quarry Pty Ltd, who also operate a quarry at Hernani, located on the Dorrigo Plateau some 8km away. The quarry material won from Faheys Pit is used for a range of purposes, primarily as a road base or select fill.

This Environmental Impact Statement (EIS) has been prepared by Outline Planning Consultants Pty Ltd to accompany a Development Application (DA) by the owners and the quarry operator, who seek development consent to extract and to process up to 150,000 tonnes per annum of quarry material within an enlarged quarry footprint at Faheys Pit totalling 4.1ha enabling the winning of an additional 1.8 million tonnes (approx.) of quarry resource. It is also proposed to deepen the existing quarry ('the Project').

This EIS provides an assessment of the potential environmental impacts of the Project in accordance with the Secretary's Environmental Assessment Requirements (SEARs) for an EIS, issued on 30 August 2022 (EAR 1722).

In accordance with the issued SEARs various environmental investigations were undertaken during the preparation of the EIS to assess the potential environmental impacts associated with the quarry project. These included specialist assessment on issues involving potential environmental impacts relating to noise and vibration from quarrying, ecological impacts, aboriginal heritage, soils and water, contamination, traffic and transport, rehabilitation, hazards, social and economic impacts, waste, land resources, visual impacts, water and relevant environmental planning instruments.

The proposed quarry development seeks to to laterally extend the extraction area to the north of the Project Site. The nature and extent of the hard rock resource has determined the location of the quarry extension as well as the quarrying methods to win the quarry resource. In this context, the proposed quarry and associated works are sited within areas identified as being the best available location for the proposal.

The EIS has documented the potential environmental impacts associated with the quarry proposal, considering both potential positive and negative impacts of the proposal, and includes mitigation measures to protect the environment where required, and in particular:

- Details of quarry management measures generally.
- Likely impacts on site ecology, heritage and amenity generally.
- Impacts in terms of noise, blasting and vibration.
- Water management.
- End-use of the Project Site at the completion of quarrying.

The mitigation measures proposed are practical, feasible and reasonable from a cost and engineering perspective. The Project will assist in meeting the demand for quarry products in the region in the future. The quarry is well positioned to service various roads and associated projects in the region.

The following 'integrated development' approvals will be required as a result of the project:

- As more than 30,000 tonnes per year of quarry resource is proposed to be extracted in any one year an approval is required from the NSW Environmental Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997*.
- As extraction is proposed within 40 metres of a watercourse, a Controlled Activity Approval (CAA) is also required from the Natural Resources Access Regulator under the *Water Management Act 2000*.

8.2 Justification of Project

The Project is justified for a number of reasons, including but not limited to the following:

- The Project seeks the continuation of quarrying from an existing quarry with a known resource. The quarry has been in operation for more than 60 years and is compatible with surrounding land uses and can co-exist with these uses. In particular, it is noteworthy that Faheys Pit adjoins an already operating quarry (Ellis Pit), operated by Clarence Valley Council, and an operating sawmill.
- The proposed extraction area extension consists almost entirely of cleared land, limiting the potential ecological impacts of further disturbance. Almost 64% of the Project Site is to be retained as native vegetation.
- With the exception of the adjoining sawmill residence, the Project will not be visible from any other vantage points in the locality.
- The Project will support the planned future growth of the region, maintain local employment and supply of quarry materials close to markets and existing and future roads projects- the latter according with Direction 9 of the *North Coast Regional Plan 2036*, namely, to strengthen regionally significant transport corridors and corridor strategies, including the NSW Government's 2017 *Waterfall Way Draft Corridor Strategy*.
- The Project will extend the life of the quarry operations at Faheys Pit, without detriment to the environment. Little additional clearing of vegetation is proposed. The project has been designed to ensure that noise and air quality impacts on surrounding properties are satisfactorily minimised. The project site is to be appropriately rehabilitated once quarrying is completed.
- The quarry is a permissible use in the RU1 zone under the *Clarence Valley Local Environmental Plan 2011*. A quarry development is consistent with the zoning of the Project Site.
- The Project would involve the continued operation and lateral extension of Faheys Pit and would maintain the supply of road construction materials to the region. It would be a significant contributor to the local and regional economy and community. Road making materials are becoming increasingly scarcer as the region's existing hard rock resources are progressively depleted.
- In allowing for the maximisation of the recovery of a valuable extractive resource from Faheys Pit Direction 13 and Action 13.2 of the *North Coast Regional Plan 2036* , namely: *"Plan for the ongoing productive use of lands with regionally significant construction material resources in locations with established infrastructure and resource accessibility."(p.41)* will also be satisfied.
- The Project will provide continuing employment for quarry workers and contractors dependent on the quarry.
- The Project would not result in disturbance to any identified Aboriginal heritage site.
- The quarry is strategically positioned in terms of ability to service local growth areas as well as future infrastructure projects in the region. Suitable ,safe and direct access to Armidale Road is provided from the site without impacting adversely on the local road network. While the Project would increase the number of heavy quarry truck traffic using Armidale Road, there is unlikely to be any detrimental impact on road safety given the existing low traffic volumes using this arterial road and reasonably high standard of the road. Moreover, a Driver Code of Conduct, similar to that successfully employed at Sheridans Hard Rock Quarry at Hernani, which stipulates safe driving practices at all times, will be implemented.
- The project would generate flow-on economic benefits to the region of direct expenditure generated by wages, contractors fees and the sale of quarry products.

From the above, there are demonstrable benefits associated with the project, and with appropriate conditions of approval, these benefits can be achieved without significant adverse social or environmental impacts.

■ 8.3 Summary: Environmental Issues

The mitigation measures proposed will result in satisfactory environmental impacts- refer to Section 4 for a summary of the mitigation measures proposed. The accompanying Table 8.1 summarises impacts by key issue identified in the SEARs.

Table 8.1: Compliance of quarry development by environmental issue (summary)

Issue	*Compliance of Proposed Quarry Development*
Soil and water resources	▸ *All stormwater to be contained within the proposed quarry pit and quarry infrastructure areas, with no resultant downstream impacts likely- an important objective given the quarry lies within a drinking water catchment.* ▸ *No groundwater affected by the quarry. The quarry will not intersect with groundwater, the floor of the quarry being more than 50m above known groundwater.* ▸ *The quarry is suitably buffered from neighbouring 1st order streams to the north.* ▸ *The Project Site does not represent any significance in terms of value to agriculture.*
Noise, vibration, blasting	▸ *The quarry adjoins an operating local council quarry (Ellis' Pit) and an operating sawmill- sources of noise and dust in their own right.* ▸ *The quarry will operate only during daytime periods.* ▸ *Blasting can be undertaken to achieve EPA vibration and overpressure requirements.* ▸ *Noise agreements are in place with nearest residences.*
Air quality	*A raft of dust abatement measures are to be implemented on site to ensure acceptable air quality outcomes.*
Contamination	*The contamination assessment by Ballpark Environmental finds that the Project Site presents an acceptable low level of risk for site contamination and is suitable for its proposed ongoing use as a quarry.*
Heritage	*Based on site investigations by consultants and the local Aboriginal land council, the Project Site has not been identified as containing any significance in terms of Aboriginal or European heritage values. No Aboriginal items or relics of heritage significance occur within the proposed quarry area*
Traffic	*It is proposed that a maximum of up to 60 loaded trucks per day would transport quarry products from the quarry back to Armidale Road via an existing internal access route. The traffic impact assessment by Streetwise has determined that the proposed volumes of heavy truck traffic volume attributable to Faheys Pit would not significantly impact on existing road safety and performance.*
Ecology	▸ *The proposed extraction area extension consists almost entirely of cleared land, limiting the potential ecological impacts of further disturbance.* ▸ *No core Koala habitat or threatened vegetation communities have been identified.*
Bushfire	▸ *The proposed quarry does not seek to provide for any permanent occupation of the Project Site: the quarry used intermittently and on a campaign basis when the need arises for road base materials for various projects. Various various bushfire safeguards and controls are proposed.* ▸ *Bushfire buffer to be created in quarry floor at project completion, proving much improved protection of adjoining sawmill residence from bushfire threat.*
Visual impacts	*The proposed quarry will not be visible to the surrounding neighbourhood. This is with the exception of the adjoining sawmill residence.*
Social and economic	*The proposed quarry development has positive social and economic outcomes, and has satisfactory environmental impacts. The proposal would contribute to the economy locally and through employment generation and the provision of materials for roads and other infrastructure projects in the region.*

The compliance of the project with the principles of ecologically sustainable development have been previously addressed in Section 7.1.2 of this EIS.

8.4 Conclusions

The Project has been designed to address all relevant environmental issues raised by government and others. It accords with the principles of ecologically sustainable development.

The land subject of the proposed quarry development is mostly cleared and disturbed land, and because of this has limited environmental constraints to further development. Almost 64% of the Project Site is to be retained as native vegetation.

The Project seeks the continuation of quarrying from an existing quarry with a known quarry resource. The quarry has been in operation for more than 60 years and, subject to the implementation of the mitigation measures proposed, is compatible with surrounding land uses and can co-exist with these uses.

The continuation of quarrying from the Project Site will contribute towards satisfying the demand for quarry products required for roads and allied projects in the region, and in the particular the upgrading of Waterfall Way, a major roads project planned to be undertaken over the next 20 years.

The proposed quarry development is anticipated to result in satisfactory environmental impacts in accordance with the jurisdictional requirements of s.4.15(1) of the *Environmental Planning and Assessment Act 1979*.

Overall, this EIS concludes that the proposed quarry development is in the public interest and is not predicted to cause significant environmental impacts or pose significant environmental risks.

On the basis of the assessment in this EIS the site is suitable for the proposed quarry development, and on balance, the benefits of the proposal outweigh the potential costs. The consequences of not proceeding with the Project also weigh heavily in favour of proceeding with the Project.

Consequently, the proposed quarry development is considered to be in the public interest, and should be approved, subject to appropriate conditions of consent.

9. Select References

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10. Glossary of Terms

Term	Meaning
AADT	*Annual Average Daily Traffic.*
ABS	*Australian Bureau of Statistics.*
Aboriginal object, place	*Has the same meaning as the definition of the term in section 5 of the National Parks and Wildlife Act 1974.*
Acoustic	*Relating to hearing, noise and sound.*
Aggregate	*Rock crushed to the required size for use in concrete, masonry products, road sealing, pavement materials and other uses.*
AHD	*Australian Height Datum. The standard reference level used to express the relative elevation of various features. A height given in metres, AHD is essentially the height above sea level.*
Air Blast Overpressure	*Air vibration or air blasts are the pressure or shock waves that radiate in air from an exploding charge. When a pressure wave passes a given point, the pressure of the air rises rapidly before returning to atmospheric pressure after a period of oscillations. The maximum pressure is the 'Air Blast Overpressure' measured in dB.*
Ambient noise	*This is the total encompassing sound in a given situation at a given time where no particular sound is dominant. It is composed of sound from all sources near and far, normally experienced in the area. Ambient noise is measured as dB ('A' weighted) over a set period of time.*
Amenity	*The quality of a local environment.*
AS	*Australian Standard.*
ASS	*Acid sulfate soils.*
Attenuation	*Reduction in sound level between a noise source and another location.*
A-Weighted Sound Level dB(A)	*A level of sound pressure in which the sound pressure levels of the various frequency bands have been weighted to accord roughly with human aural system frequency sensitivity.*
Basalt	*Fine grained, dark volcanic igneous rock.*
Batter	*The face of the slope eg. walls, banks, cuttings, etc.*
BCA	*Building Code of Australia.*
Bench (in a quarry)	*A ledge constructed in a batter or natural slope within a quarry. A step in the face of a quarry.*
Blasting	The operation of breaking rock in a quarry by means of explosives.
Bund	*An earthen mound wall which may be used for noise attenuation or visual screens or for redirecting stormwater/runoff around a part of a site. Bunds may also be used to contain spillage of liquid materials.*
Blue Book	*Means Managing Urban Stormwater: Soils & Construction (4th edition, Landcom, 2004), commonly referred to as the "Blue Book".*

Biodiversity	*Biological variety at genetic, species and ecosystem scales. The maintenance of biodiversity, at all levels, is acknowledged internationally as a high conservation priority.*
BoM	*Bureau of Meteorology (Commonwealth).*
Building Code of Australia	*Means means the document, published by or on behalf of the Australian Building Codes Board, that is prescribed for purposes of this definition by the regulations, together with—* *(a) such amendments made by the Board, and* *(b) such variations approved by the Board in relation to New South Wales,* *as are prescribed by the regulations*
CC	*Construction certificate.A Construction Certificate (CC) is a certificate that is issued by an accredited private certifier or a consent authority under the provisions of Environmental Planning and Assessment Act 1979. The Certificate allows for building work to commence on a project.*
Catchment	*Drainage area of a river, creek. Can also refer to a visual catchment, which is the area within view of a particular viewing location, or road catchment, which is the area reliant on a particular road in order to gain access to another centre or locality.*
CIV	*Capital investment value as defined by the Environmental Planning & Assessment Regulation 2000 and the Planning and Infrastructure Planning Circular PS 10-008. Includes all costs necessary to establish and operate the project, with some exclusions.*
Consent	*Means development consent issued under the Environmental Planning and Assessment Act 1979.*
Contributions Plan	*Section 7.11 of the Environmental Planning and Assessment Act 1979 allows councils to levy contributions towards the cost of providing local infrastructure. Contributions plans set out the local infrastructure required to meet the demand from new development, and the contributions a council can levy on developers to fund the necessary land and works.*
Construction	*All physical works to enable operation, including but not limited to the demolition and removal of buildings, the carrying out of works for the purposes of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent, but excluding the following:* *•building and road dilapidation surveys;* *•investigative drilling, investigative excavation or Archaeological Salvage;* *•establishing temporary site offices (in locations identified by the conditions of this consent);* *•installation of environmental impact mitigation measures, fencing, enabling works; and minor adjustments to services or utilities.*
Contamination	*The action or state of makings or being made impure by polluting or poisoning, or the state of containing unwanted or dangerous substances.*
Contour Drain	*Drainage channel constructed approximately along the contour, and which is designed to slow down and direct the flow of water across a disturbed area to a sediment trap for sediment removal.*
Council	*Clarence Valley Council.*
Crushing	*The mechanical process of reducing quarry rock size usually by pressure or impact.*
DA	*Development Application.A Development Application (DA) is required for various types of development projects under the provisions of NSW Environmental Planning and Assessment Act 1979. It means an application for consent under Part 4 to carry out development but does not include an application for a complying development certificate.Sometimes also referred to as Development Approval.*

Daytime	*Means between the hours of 7.00am to 6.00pm.*
dB (A)	*To approximate the human response to sound, noise level meters have weighting networks which correspond approximately with subjective loudness. The 'A- Weighting' is used to simulate human hearing.*
DBYD	*Dial Before You Dig.*
DCP	*Development Control Plan. A development control plan provides detailed planning and design guidelines to support the planning controls in an environmental planning instrument.*
Department, DP&E	*NSW Department of Planning and Environment.*
Designated development	*Means development that is declared to be designated development by an environmental planning instrument or the regulations. All applications for designated development in NSW need to be accompanied by an EIS.*
Development	*The development described in the development application. For the purposes of the NSW Environmental Planning and Assessment Act 1979, "development" is any of the following: "(a) the use of land,(b) the subdivision of land, (c) the erection of a building, (d) the carrying out of a work,(e) the demolition of a building or work,(f) any other act, matter or thing that may be controlled by an environmental planning instrument." (2) However, development does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act). (3) For the purposes of this Act, the carrying out of development is the doing of the acts, matters or things referred to in subsection (1). (sub clauses 1.5(1)(2) and (3) of the NSW Environmental Planning and Assessment Act 1979).*
Development Consent	*Means consent under the provisions of NSW Environmental Planning and Assessment Act 1979 to carry out development and includes, unless expressly excluded, a complying development certificate.*
Deposited Plan (DP)	*Deposited Plans (DP) define legal boundaries of land and often record subdivisions, easements and the like.*
Designated Development	*Section 4.10 of the Environmental Planning and Assessment Act 1979 states that "Designated development is development that is declared to be designated development by an environmental planning instrument or the regulations." Schedule 3 of the Environmental Planning and Assessment Regulation 2021 defines the type of development which is classified as designated development.*
Drainage Line	*A natural depression with no stream bed channel, which may only carry surface water during rainfall events.*
Dust or particulate matter	*Dust or particulate matter are terms used to define solid or liquid particles that may be suspended in the atmosphere. The potential affect of particulate matter on the environment, human health and amenity depends on the size of the particles, the concentration of particulate matter in the atmosphere and the rate of deposition.*
Earthworks	*Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services, to prepare the site for construction.*
EEC	*Endangered Ecological Community.*

Ecologically Sustainable Development (ESD)	*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Ecologically sustainable development can be achieved through the implementation of the following principles and programs including: the precautionary principle; inter-generational equity; conservation of biological diversity and ecological integrity; improved valuation, and pricing and incentive mechanisms.*
EIS	*Environmental Impact Statement submitted with the application for consent for the development.*
Emission	*The release of material into the environment (eg dust).*
Evening period	*Means the period from 6.00pm to 10.00pm.*
Environment	*Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.*
Environmental Planning Instrument (EPI)	*An environmental planning instrument is the collective name for local environmental plans (LEPs) and state environmental planning policies (SEPPs) but does not include development control plans (DCPs). The provisions of EPIs are legally binding on both government and developers.*
Environment Protection License (EPL)	*Has the same meaning as the definition of the term in the Dictionary to the NSW Protection of the Environment Operations Act, namely:* *"a licence authorising the carrying out of scheduled development work or scheduled activities or controlling the pollution of water arising from non-scheduled activities, being a licence issued under Chapter 3 and in force."*
EP&A Act	*NSW Environmental Planning and Assessment Act 1979.*
EP&A Regulation ("regulations")	*NSW Environmental Planning and Assessment Regulation 2021.*
EPA	*NSW Environment Protection Authority constituted by the Protection of the Environment Administration Act 1991.*
EPL	*Environment Protection Licence.*
Erosion	*The process of wearing away of the land surface (whether natural or artificial) by the action of water, wind.*
ESCP	*Erosion and sediment control plan.*
Excavator	*Item of earth moving equipment either tracked or wheeled fitted with a bucket on an articulated boom and used for digging material from a quarry pit face in front of, or below the machine.*
Extraction	*A term synonymous with quarrying. Under the Environmental Planning and Assessment Act, 1979, quarrying is defined as "extractive industries".*
Feasible	*Means what is possible and practical in the circumstances.*
Flora and fauna	*Plants and animals.*
ha	*hectare.*
Habitat	*The place where an organism normally lives; habitats can be described by their floristic and physical characteristics.*
Haul Road	*Road used for haulage of material from/to the worked quarry face to/from markets beyond.*

Heritage	*Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement.*
Heritage item	*A place, building, work, relic, archaeological site, tree, moveable object or precinct of heritage significance, that is listed under one or more of the following registers: the Heritage Act 1977 (NSW), a state agency heritage and conservation register under section 170 of the Heritage Act 1977 (NSW), a Local Environmental Plan under the EP&A Act, the World, National or Commonwealth Heritage lists under the Environment Protection and Biodiversity Conservation Act 1999 (Cth), and an "Aboriginal object" or "Aboriginal place" as defined in section 5 of the National Parks and Wildlife Act 1974 (NSW). An item as defined under the Heritage Act 1977, and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined.*
Integrated development	*Development (not being State significant development or complying development) that, in order for it to be carried out, requires development consent and one or more approvals from the government agencies listed in s.4.46 of the NSW Environmental Planning and Assessment Act 1979.*
Incident	*An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance with an issued consent.*
km	*Kilometre.*
Land	*Has the same meaning as the definition of the term in section 1.4 of the NSW Environmental Planning and Assessment Act 1979.*
Land Use Table	*A table in an environmental planning instrument (EPI) listing the objectives of any land use zone, along with uses permitted and prohibited under any zoning.*
Landscaped area	*Means a part of a site used for growing plants, grasses and trees, but does not include any building, structure or hard paved area.*
L_{Aeq}(time)	*Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.*
L_{A90}(time)	*The A-weighted sound pressure level that is exceeded for 90 per cent of the time over which a given sound is measured. This is considered to represent the background noise e.g. LA90 (15 min).*
Lithosol	*An azonal soils having no clearly expressed soil morphology and consisting of a freshly and imperfectly weathered mass of rock fragments; largely confined to steep hillsides or areas where rock tends to outcrop close to the surface.*
Local Environmental Plan (LEP)	*Local Environmental Plans are planning documents prepared by a Council which detail the zoning of land and the type of development which is permitted with consent in a particular zone. Controls on development are also provided.*
Management Plan	*A plan which demonstrates how the management objectives for an environmental matter will be achieved. Also referred to as Environmental Management Plan (EMP).*
Minister	*NSW Minister for Planning (or delegate).*
Mitigation	*Activities associated with reducing the impacts of the development prior to or during those impacts occurring.*
ML	*Megalitre: 1,000,000 litres.*
m/s	*Metres per second*
MIC	*Maximum instantaneous charge for blasting, measured in kg per drill hole.*

Modification	*A change to a project that is implemented by modifying an existing development consent. An application must be made under s.4.55 of the EP&A Act before the modification can be approved.*
Monitoring	*The regular measurement of components of the environment to ensure that environmental guidelines standards are being met.*
Night	*Means the period between 10.00pm and 7.00am.*
NSW planning portal	*Means the website with the URL of www.planningportal.nsw.gov.au, or any other website, used by the Planning Secretary to provide public access to documents or other information in the NSW planning database.*
OEH	*(former) NSW Office of Environment & Heritage*
Overburden	*Subsoil and decomposed rock overlying the main quarry rock body- a low value quarry material.*
Peak Particle Velocity	*A measure of ground vibration caused by quarry blasting reported in millimetres/second (mm/sec)*
Plan of Management/ Environmental Management Plan	*A document that details the management measures (including controls, monitoring and other safeguards) to be implemented during a the life of a development eg. for a quarry, landfill or resource recovery facility.*
(Quarry) Processing Plant & Facilities	*In the case of a quarry extraction operation, the combination of crushers, screens, conveyors and the like used to reduce the size of the rock and separate it into various sized products. Used in association with other quarry plant that includes aggregate pre-coating facility, fuel storage, sheds, offices, haul roads, weigh bridge and sediment basins, collectively forming a part of a quarry infrastructure area.*
Planning Secretary/ Secretary	*Planning Secretary under the EP&A Act, or nominee.*
POEO Act	*Protection of the Environment Operations Act 1997.*
Project	*The development the subject of an application for consent or approval on a site ("project site").*
Proponent	*The person or entity seeking consent or approval for a project, including any associated entities that have been engaged to assist with project delivery.*
Reasonable	*Means applying judgement in arriving at a decision, taking into account: mitigation, benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.*
RL	*Reduced Level means height above the Australian Height Datum, being the datum surface approximating mean sea level that was adopted by the National Mapping Council of Australia in May 1971.*
Rehabilitation	*The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting. Typically involves the preparation of a final landform after a project is completed and its stabilisation with grasses, trees and/or shrubs.*
River	*River has the meaning given under the Water Management Act 2002. In summary, this is "any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved".*
RMS	*NSW Roads & Maritime Services.*

Road	*Means a public road or a private road within the meaning of the Roads Act 1993, and includes a classified road.*
Sensitive receivers	*Means a location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area.*
Scenic quality/visual	*The values of visible components of landscape which contribute to its scenic characteristics.*
Sediment pond/ basin	*Collects waterborne sediment from disturbed areas within a development site and stores that water while suspended sediments fall out of solution (settle).*
SEE	*Statement of Environmental Effects, required for a development application (DA) lodged pursuant to the provisions of the (NSW) EP&A Act 1979.*
SEARS	*The Secretary's Environmental Assessment Requirements set out clear expectations on the level of assessment required for each relevant matter which must be addressed by the proponent in the EIS.*
Screening	*A process which separates quarry product into various sizes, usually involving a mechanical vibration of the rock over a series of decks fitted with steel mesh, steel plate and/or polyurethane and/or rubber mats with fixed sized apertures.*
Sealing aggregate	*Crushed rock usually of uniform size bonded by bitumen on the surface of the road to form a wear surface.*
Secretary/Planning Secretary	*The Secretary of the NSW Department of Planning Industry and Environment.*
Shot rock	*Rock won from blasting at a quarry*
Siltstone	*Siltstone is a clastic (ie. rocks composed of broken pieces of older rocks) sedimentary rock that is mostly composed of silt-sized particles. It forms where water, wind, or ice deposit silt, and the silt is then compacted and cemented into a rock.*
State Significant Development (SSD)	*Development projects which have State significance due to their size, economic value or potential impacts assessed and approved under the EP&A Act.*
State Significant Project	*A State significant development or State significant infrastructure project as defined under the EP&A Act. Defined in State Environmental Planning Policy (State and Regional Development) 2011 requiring the consent of the Minister for Planning or delegate.*
Soil Landscape	*An area of land that has recognisable and describable topography and soils that are capable of being represented on maps and of being described by concise statements. The Soil Conservation Service of NSW has published a Soil Landscapes Series, describing the soils of NSW.*
Stakeholder	*Persons, groups, government and semi-government agencies, and non-government organisations with a legitimate interest in the process of assessment, its inputs and outcomes, as described in the Director General's Requirements.*
State Environmental Planning Policy (SEPP)	*A planning instrument made by the State. These Plans deal with planning issues of State significance.*
Scheduled Activity	*Has the same meaning as the definition of the term in the Dictionary to the POEO Act, namely: "means an activity listed in Schedule 1 [of the PIEO Act]." An Envioronment Protection License (EPL) is required for the operation of any schedule premises.*

The Site, or Project Site	*Refers to the land upon which the proposed development is to take place.*
Subdivision (of land)	*Means the division of land into two or more parts that, after the division, would be obviously adapted for separate occupation. Subdivision of land includes the procuring of the registration in the office of the NSW Registrar-General of a plan of subdivision.*
SWL	*Standing water level is the distance from the ground surface to the water surface for a well or bore.*
Tertiary	*Period of geological time, prior to the Quaternary, 65 million years ago- usually associated with volcanic activity.*
TfNSW	*Transport for New South Wales.*
Threatened species	*Species of flora and fauna that are listed as endangered species or vulnerable species.*
Use of land	*Includes a change of use of building use.*
Visual Analysis	*Landscape analysis based on visual qualities only, excluding consideration of heritage, cultural or social values*
Visual Catchment	*Land within view-sheds. View-sheds are edges or limits to views from a single place or combination of viewpoints.*
vpd, vph	*Abbreviations of vehicles per day (vpd), vehicles per hour (vph).*
WAL	*Water Access Licence, issued under Section 95 of the (NSW) Water Management Act 2000.*
Water Balance	*Means an assessment to determine the adequacy of water stored at a quarry site in meeting future water needs for that development in 'dry', 'average' and 'wet' years.*
Waterfront Land	*Means the bed of any river, lake or estuary and land within 40 metres of a river bank, lake shore or estuary mean high-water mark. Any proposed development fronting waterfront land, as defined, is a 'controlled activity' for the purposes of the Water Management Act 2000 and 'integrated development', requiring approval from the responsible agency listed in s.4.46 of the NSW Environmental Planning and Assessment Act 1979.*
Water Sensitive Urban Design (WSUD)	*Water-sensitive urban design (WSUD) is a and planning and engineering design approach which integrates the urban water cycle, including stormwater, groundwater and wastewater management and water supply, into urban design to minimise environmental degradation and improve aesthetic and recreational appeal.*
Weathered Rock	*Rock affected to any degree by the processes of chemical or physical weathering.*
Wind rose	*Means a graphics tool that summarises winds at any location, showing strength, direction and frequency.*
Zoning, Zoning Map	*A planning tool used to apply planning policy and provisions of an environmental planning instrument to specific areas of land within a local or sate government area.*

APPENDICES

Environmental Impact Statement

APPENDIX A

Secretary's Environmental Assessment Requirements (SEARS)

APPENDIX B

Existing approved quarry, Council report on Ellis' Pit

APPENDIX C

Geotechnical Assessment by Douglas Partners

APPENDIX D

Property Report

APPENDIX E

Contamination Report by Ballpark Environmental

APPENDIX F

Quarry Design

APPENDIX G

Water balance report by Martens & Associates
+ stormwater basin calculations

Sediment Basin Volumes Calculations- Faheys Pit

QUARRY EXTRACTION AREA: Area 4.1ha (includes existing quarry pit)

■ Quarry Site Sedimentation Basin

Volume of Sediment Basin (V) = Volume of settling zone (V1) + Settling storage volume (V2)

Settling zone= 10 x Cv x A x R where:
A is the area (4.1ha) [NOTE: Total disturbed area within quarry footprint]
Cv is the volumetric runoff coefficient = 0.69 (Appendix F of Blue Book)
R is the 5 day rainfall (90th percentile)= 84.8mm (Dorrigo rainfall)
[NOTE: No R value details available for Tyringham (average annual rainfall 1,141mm), so reliance placed on nearest BoM station at Dorrigo (BoM Station 059140 average annual rainfall 1,915mm) was adopted: a conservative 'worst case']
10 is the unit correction constant

V1 = 10 x 0.69 x 4.13 x 84.8
= 2,416m^3 (2.416 ML)

V2 = 50% of settling zone capacity (V1) = 1,208m^3
Total volume required = 2,416m^3 + 1,208m^3
= 3,624m^3
@ 5m depth= 720m^2 sediment basin footprint required (rounded up)
The proposed Stage 1 main sediment basin at the quarry will have an area of 1,177m^2, a depth of 5 metres and a holding volume of up to 5.86ML). The existing sediment basin has an area of 1,210m^2 and a depth of 5m, with a holding volume of 6.05ML. In the Final Stage only the upper sediment basin will be relied on for storage (6.05ML).

■ Peak Storm Storage

To allow for the design peak storm event (6 hour, 10 year ARI) the following calculation was used:
Size of storage required = 10 x I x A x Tc x Y where :
A is the area (4.1ha)
Tc is time of concentration = 0.222 hours
I is rainfall intensity duration of 6 hours, 10 Year ARI = 27.1mm/hour (Bureau of Meteorology data for Dorrigo)
Y is yield = 0.86 (runoff coefficient as per Appendix F of Blue Book)
storage required = 10 x 27.1 x 4.13 x 0.222 x 0.86
= 214m^3

TOTAL storage volume required = 3,624m^3 + 214m^3 = 3,838m^3 (3.838ML)

In Stage 1 the proposed main sediment basin at the quarry will have an area of 1,177m^2, a depth of 5 metres and a holding volume of up to 5.86ML). The existing quarry sediment basin has an area of 1,210m^2 and a depth of 5m, with a holding volume of 6.05ML. In the Final Stage only the upper sediment basin will be relied on for storage (6.05ML).

APPENDIX H

Ecological assessment by Bower Ecology

APPENDIX I

Aboriginal heritage by Niche

APPENDIX J

Consultation documents

FAHEYS PIT NEWSLETTER
July 2022

Overview

The Sheridan family have a long history of association with the Dorrigo Plateau, having farmed land for decades and, since the last 10 years, operated a quarry at Hernani, operated by Sheridans Hard Rock Quarry Pty Ltd, which has 20 full-time employees. Faheys Pit was recently purchased by the Sheridan family.

A quarry was originally approved at Faheys Pit in 1995, in conjunction with the neighbouring pit operated by Council (Ellis' Pit). The Sheridan family intend to lodge a development application with Clarence Valley Council seeking consent for the continuing operation of Faheys Pit, expanding it in order to to meet customer and market demands, including planned road upgrades works planned for Armidale Road.

Faheys Pit Quarry Continuation Project

The Sheridan family seek to enable the continuation of quarrying at Faheys Pit (Project Site) with the following changes:

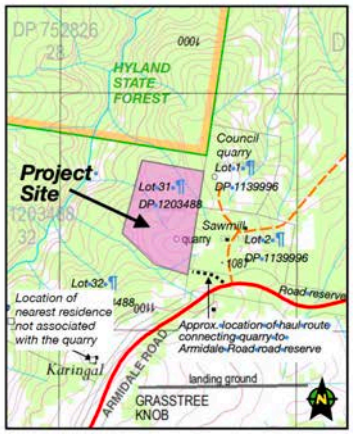
- **Extraction rate:** Increase the fixed annual tonnage limit to 150,000 tonnes per annum.
- **Product transport:** Allow up to a maximum of 60 loaded trucks per day using the existing access to Armidale Road.
- **Quarry footprint:** Allow expansion of quarry footprint, generally over currently cleared areas on site.
- **Hours of operation:** Limited to 7.00am to 6.00pm Monday to Friday (ie. 11 hours operation per day) and 7.00am to 1.00pm on Saturdays (ie. 6 hours operation). Hours of blasting are to be restricted to 9.00am to 3.00pm Monday to Friday.
- **Quarry life:** Extend the approval for quarry operations for up to 20 years, to 2042.

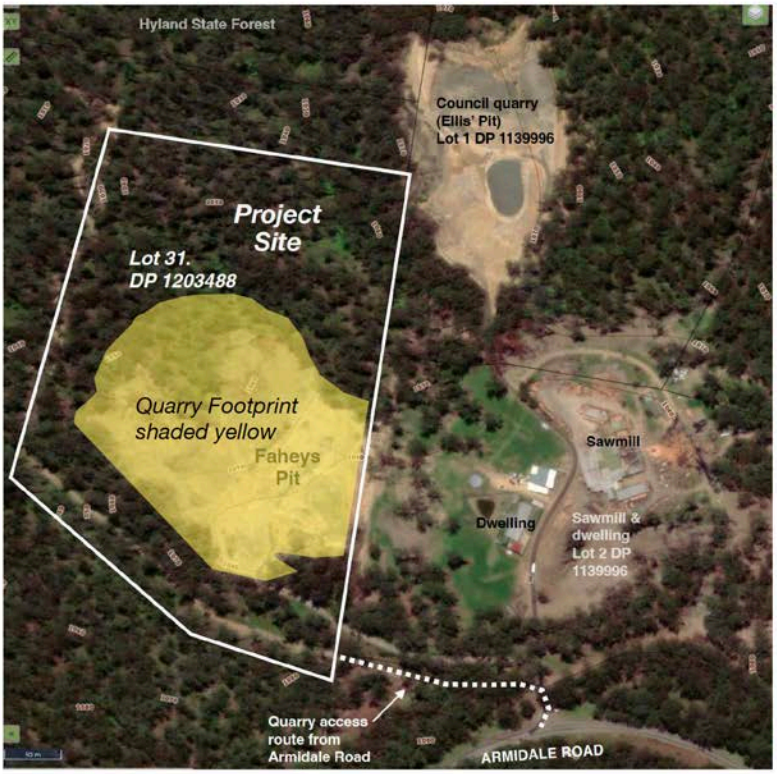
EIS Assessment Process Now Underway

The Sheridan family has engaged town planning consultants Outline Planning Consultants Pty Limited (OPC) to prepare an Environmental Impact Statement (EIS) in support of the Project, including detailed technical reports assessing the potential environmental, social, cultural and economic impacts (and benefits) of the Project.

These investigations are well underway, with the following completed assessments:

- **Contamination:** No contamination potential, save for need to remove discarded material encountered on the site from earlier quarry workings.
- **Aboriginal sites:** No sites found, with a low probability of finding any sites.
- **Noise:** Noise monitoring now completed.
- **Roads and traffic:** Initial site investigations carried out.





Preliminary Design of Quarry Seek EIS Specifications

↓

Prepare EIS ← We are here

↓

Lodge EIS, Public Exhibition

↓

Assessment of EIS

↓

Determination of DA

HOW TO CONTACT US

For further information on the Project:

The Sheridan family welcomes enquiries from interested neighbours and landowners.

Contact Graham Sheridan on:
02 6657 6088 (Hernani quarry office)
or by email shrquarry@bigpond.com

APPENDIX K

Noise assessment by Vipac

APPENDIX L

Air quality impact assessment by Vipac

APPENDIX M

Roads and traffic assessment by Streetwise