



Planning,
Industry &
Environment

DOC19/672901

Wallerawang Quarry – Modification 3 (DA344-11-2001-Mod-3)

Resource & Economic Assessment

Division of Resources & Geoscience

August 2019



Published by NSW Department of Planning, Industry and Environment

dpi.e.nsw.gov.au

Title: Wallerawang Quarry – Modification 3 (DA344-11-2001-Mod-3)

Subtitle: Resource & Economic Assessment

File reference: DOC19/672901

More information

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Contents

Executive summary	2
Introduction	3
Project overview	4
Size and quality of the resource	8
Resource recovery.....	9
Economic benefits of the resource	10
Royalty calculation	11
Approvals	12

Executive summary

Determination

The Division of Resources and Geoscience (Division) assessed the Wallerawang Quarry Modification 3 Project (the Project or Proposal). The Division determined the Project will:

- ensure continued operations at Wallerawang Quarry until 2050. At present, operations at the quarry are to cease in July 2020.
- efficiently extract an additional 12 to 15 million tonnes (Mt) of resources.
- ensure an appropriate return to the NSW Government including;
 - \$7.7 million royalties (current dollars).
- ensure continued employment for 15 employees, including 10 operational staff.

The project

Walker Quarries Pty Ltd (Walker Quarries or the Proponent) through DA344-11-2001-Mod-3 seeks an increase in the quartzite resource to be extracted at the Wallerawang Quarry, together with an increase to the period of approved operations at the quarry that will:

- expand the mine's extraction area including clearing approximately 14 hectares of vegetation.
- incorporate additional resources to quartzite, specifically hornfels, sandstone and cobble conglomerate.
- expand the mine's overburden and product stockpiles.
- modify water diversion, capture and storage infrastructure.
- extend the mine's life from July 2020 to July 2050.

No change is proposed to the maximum production rate of 500,000 tonnes per annum (Tpa) or product transportation. No significant change is proposed to processing operations.

Introduction

State significant development is regulated under the *Environmental Planning and Assessment Act 1979*, which requires a proponent to apply to the Department of Planning and Environment for development consent, supported in this case by a Statement of Environmental Effects (SEE).

This Resource & Economic Assessment conducted for Wallerawang Quarry by the Division assessed:

- the social and economic benefits to NSW including royalties, capital investment, revenues and jobs.
- the resource/reserve estimates stated in the Proponent's SEE.
- if the Proposal is an efficient development of the resource and that resource recovery is optimised and waste minimised.
- if the Proposal will provide an appropriate return to NSW.

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and efficient development of mineral resources in NSW. Of particular relevance to this Resource & Economic Assessment are:

Section 3A Objects:

- to recognise and foster the significant social and economic benefits to NSW that result from the efficient development of mineral resources.
- to ensure an appropriate return to the State from mineral resources.

The relevant section of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 is Part 3, Clause 15: Resource Recovery requires that resource recovery is efficient, optimised and minimises waste.

Project overview

Wallerawang Quarry (“the Quarry” or “Hoskins Quarry”) produces a range of quarry products. An extension to 2050 is sought at the current extraction rate of 500,000 Tpa until 2050. This will account for an additional 12 to 15 Mt of material to be extracted, including quartz pebbles, hornfels sandstone and other rock not classified as “quartzite”.

Since commencement of quarrying in 2014, two modifications to the project’s development consent have been approved. The Quarry is approved to extract, process and produce up to 500,000 tonnes of quartzite and other hard rock aggregates including pebbles and sand annually from an open cut extraction area of approximately 7 hectares.

The site is subject to one Mining Lease (ML1633) and two Mining Lease Applications (MLA 558 & MLA570) for “Quartzite” (a Prescribed Mineral) to increase the depth restriction and the extension areas to the mine site respectively (**Error! Reference source not found.**).

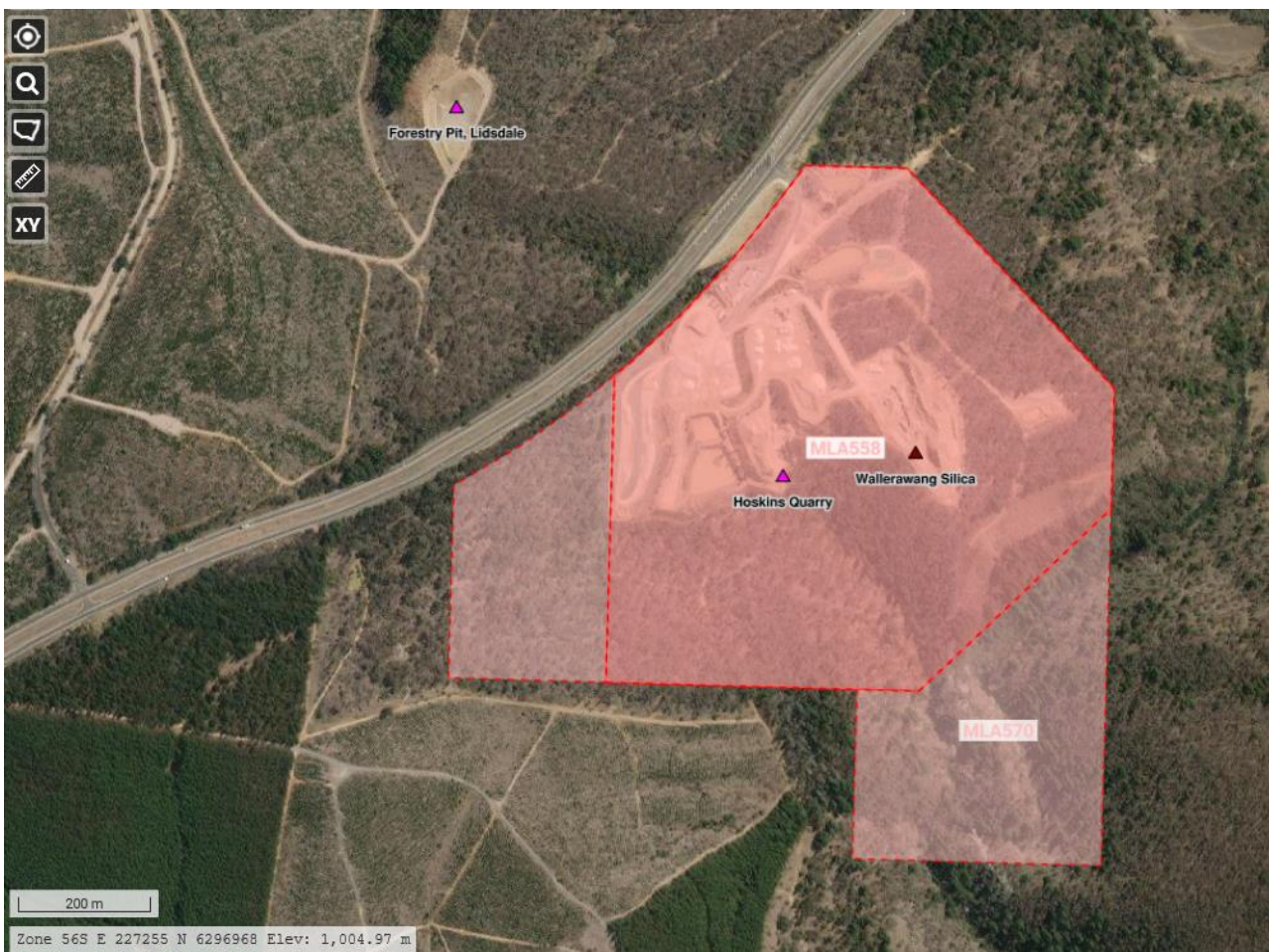


Figure 1. Site layout and mining authorities

Project Detail – SEE review

The current Proposal is seeking an increase in the total tonnage of quartzite to be extracted with an increase to the period of approved operations. No significant change to processing operations, production rate or product transportation are proposed.

The key proposed modifications include:

- an extension to the period of consent for 30 years from July 2020 to July 2050.
- an extension to the extraction surface area (surface disturbance footprint from 8.9 to 13.3 ha and the depth of extraction from 930 m to 860 m AHD — Figure 1 and Figure 2).
- an extension to the stockpile areas (Figure 3).
- a small extension to the north to allow for extraction of cobble conglomerate.
- production of a wider range of quarry products.
- modification to the approved water management system as a result of the modified stockpile area construction.

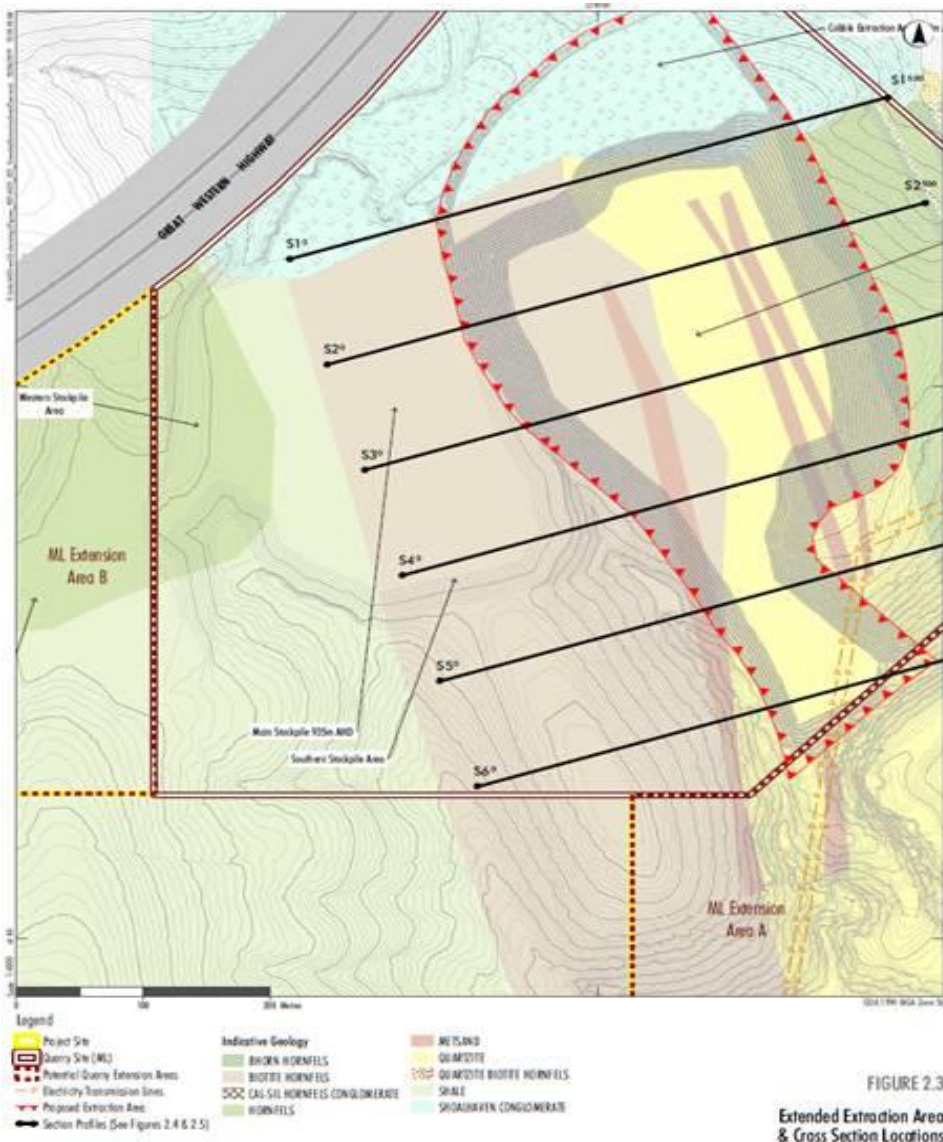
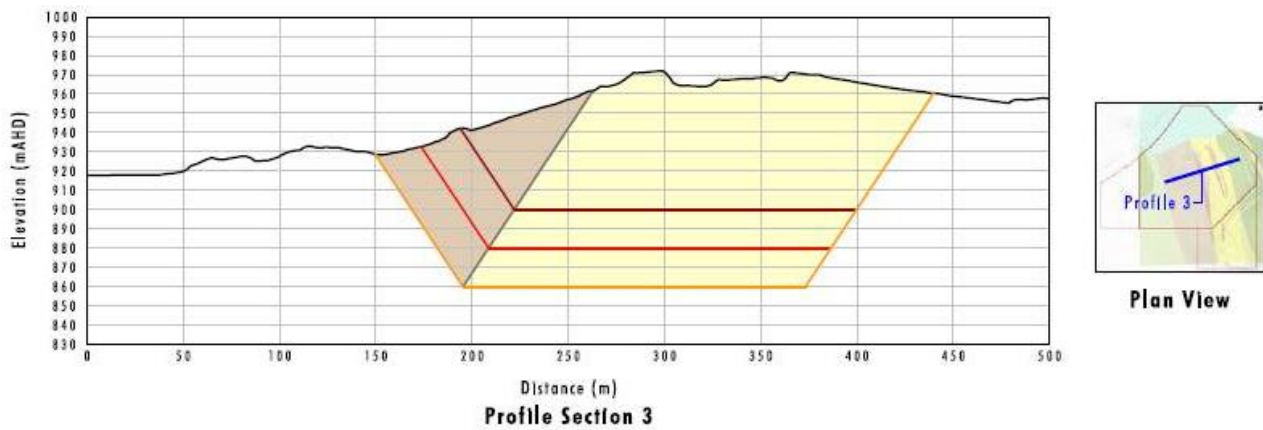
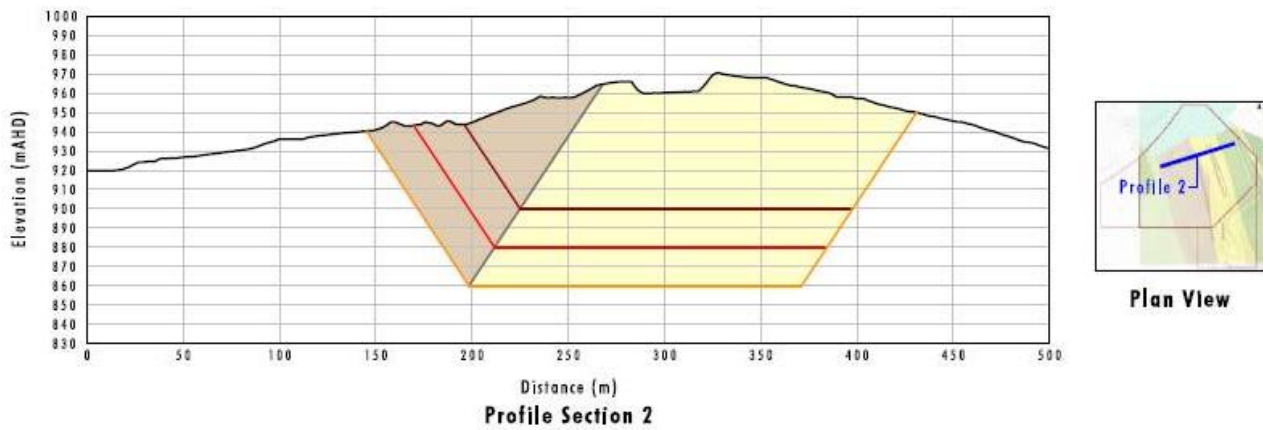
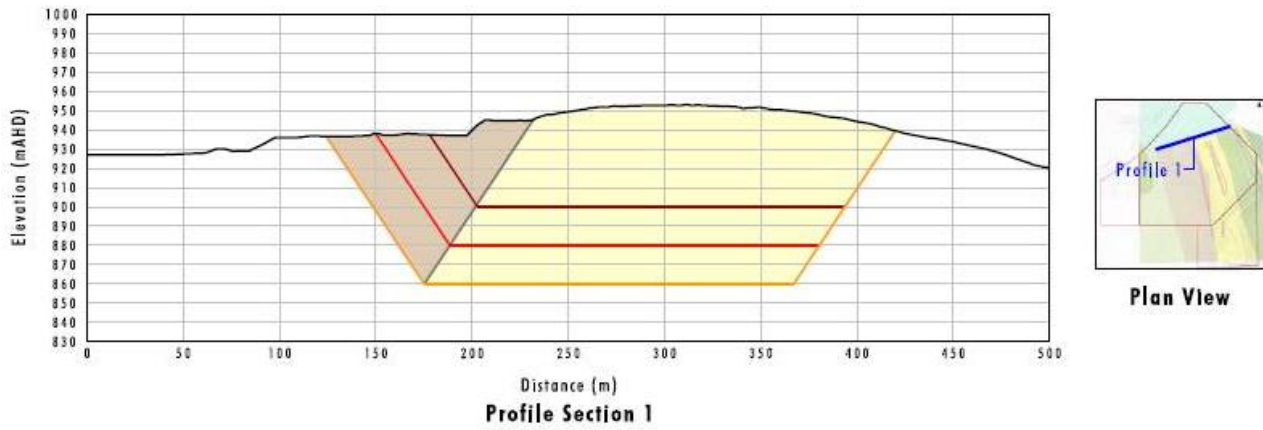


FIGURE 2.3
Extended Extraction Area & Cross Section Locations

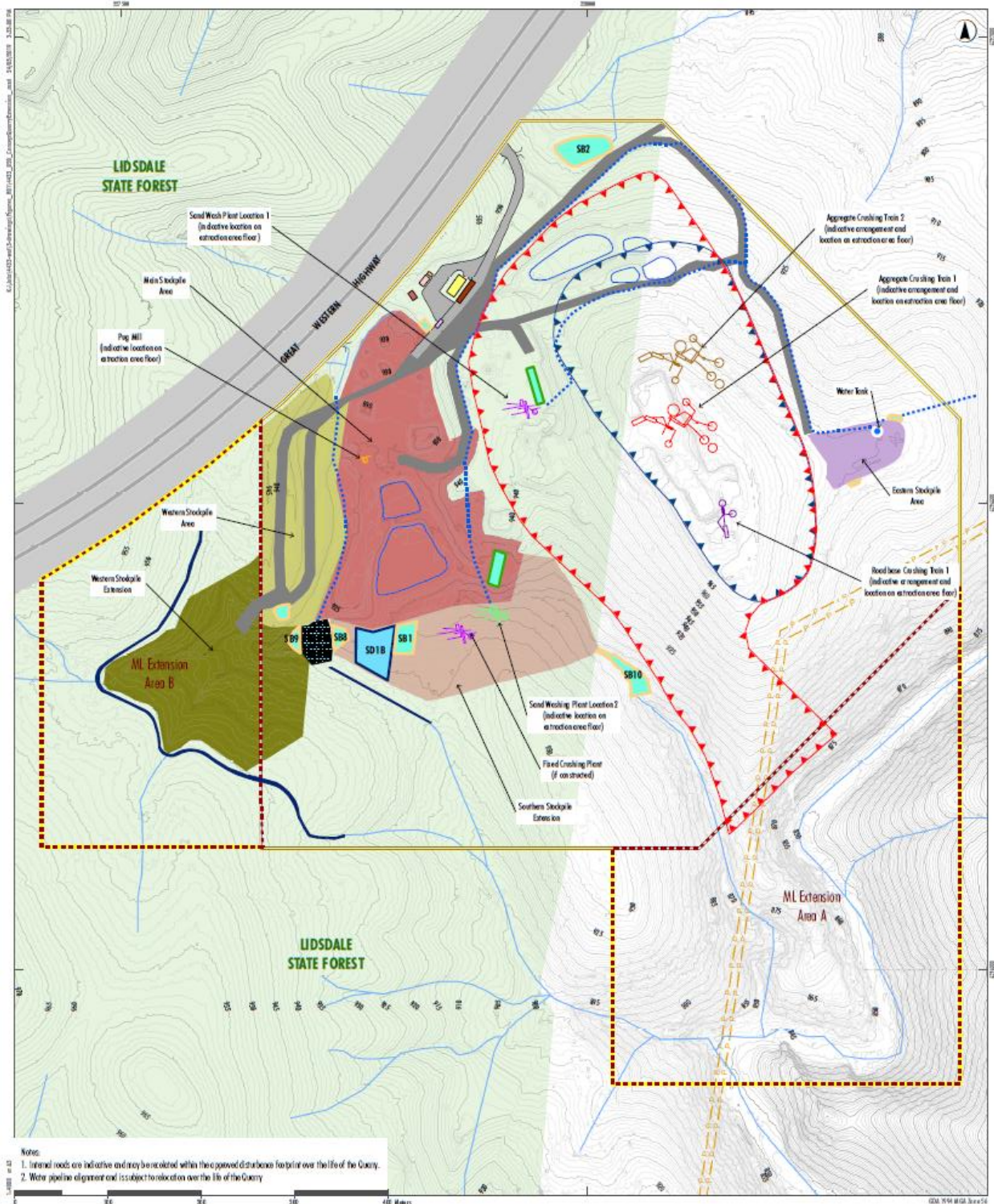
Figure 1. Proposed extended extraction area



- Legend**
- Area of Quartzite
 - Area of Overburden
 - Existing Surface
 - Extraction Profile 1 (860m RL)
 - Extraction Profile 2 (880m RL)
 - Extraction Profile 3 (900m RL)

FIGURE 2.4
Profile Sections 1 - 3

Figure 2. Profile sections



Notes:
 1. Internal roads are indicative and may be relocated within the paved disturbance footprint over the life of the Quarry.
 2. Water pipeline alignment and is subject to relocation over the life of the Quarry.

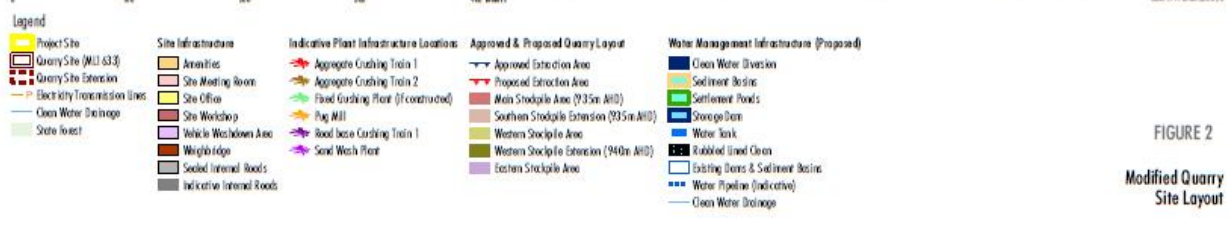


FIGURE 2
 Modified Quarry Site Layout

Figure 3. Modified quarry site layout

Size and quality of the resource

The Resource

The geology of the area comprises hornfelsed metasedimentary rocks (including quartzite) and granite overlain in part by quartzose conglomerates of the Shoalhaven Group.

An updated JORC estimate of 12,402,630 tonnes (Indicated and Inferred resource) was calculated based on recent drilling of the two main quartzite units. The quartzite resource extends to depths at least 70 m below, and to the south of, the currently approved extraction area. The resource is generally of high-quality quartzite, interspersed by bands of siltstone and to a lesser extent by cobble conglomerate. Additional resources of hornfels, sandstone and cobble conglomerate have been identified, with the aim to produce a wider variety of quarry products.

Based on the information as outlined in SEE by the Proponent, the Division makes the following recommendations on the resource:

- *Resources of quartzite have been satisfactorily quantified to JORC standard.*
- *The proposed extension of 30 years to the quarry life is based on additional 12 to 15 Mt extractable resource confirmed by recent drilling and assessment. There is no change to current approved extraction rate of 500,000 tpa and no change to the extraction methods in the modification proposal.*
- *The Division has not identified any resource sterilisation issue with this modification proposal.*

Resource recovery

Resource recovery of “quartzite” as proposed is ~82 percent, the remainder consisting of overburden and some interbeds of siltstone and cobble conglomerate. Minor sales of siltstone and cobble conglomerate are anticipated.

Table 1. Projected production/sales

Period	Extraction (t)	Production / Sales (t)
2017/2018		147,600
2018/2019		173,900
2019/2020	337,000	277,000
2020/2021	370,000	305,000
2021/2022	407,000	335,000
2022/2023	449,000	370,000

Economic benefits of the resource





If the Project is approved, the Proponent's intention is to continue to supply construction materials and other products to the local, regional and Sydney markets. The Project would involve capital investment of A\$1.1 million in equipment and extending the extraction area, according to the proponent's estimates, and provide ongoing employment for 15 workers, including 10 operational staff.

Royalty calculation

Quartzite is listed in Schedule 1 of the Mining Regulation 2016 as being subject to royalty. A quantum royalty rate of A\$0.70 per tonne on the quartzite recovered by the Project is therefore payable. The additional minerals that the project aims to recover—that is, hornfels, sandstone and cobble conglomerate—are not subject to royalty.

Based on an extractable quartzite resource of around 12 Mt over the lifetime of the Project, as contained in the project proposal, the Division estimates that the State would receive a total of A\$7.7 million in royalty payments in current dollars. Over the proposed 30-year life of the Project, this would equate to a total of A\$2.9 million in terms of net present value (NPV; using a 7% discount rate). The average equivalent annual royalty payment would be in the region of A\$100,000 (based on NPV terms).

Approvals

Approved by	Signature	Date
Assessing Officer: Dr David Forster Senior Geologist		9/8/2019
Assessing Officer: Ann Louise Hagger Senior Resource Economist	Approved in CM9	20/08/2019
Approving Officer: Dr Mark Armstrong Manager Mineral Resource Assessment		9/8/2019
Approving Officer: Dr Minh Ho Manager Resource Economics		20/08/2019
Endorsing Officer: Scott Anson Manager Assessment Coordination Resource Operations		23/08/2019