

AUSTEN QUARRY

# ENVIRONMENTAL MANAGEMENT STRATEGY AND PLAN

Prepared for:  
Hy-Tec Industries Pty Ltd

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## Abbreviations

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AHIMS	Aboriginal Heritage Management Information System
ANFO	Ammonium Nitrate / Fuel Oil
AS	Australian Standard
BCA	Building Codes of Australia
CED	Cation Exchange Capacity
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DC	Development Consent
DLWC	Department of Land and Water Conservation
DoP&E	Department of Planning and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMS	Environmental Management Strategies
EMSP	Environmental Management Strategy Plan
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Act 1999
EPL	Environment Protection Licence
EVs	Environmental Values
Ha	Hectare
HSE	Health Safety Environment
HPC	Hartley Pastoral Corporation Pty Ltd
hr	Hour
km	Kilometre(s)
L	Litres
m	Metre(s)
AHD	Australian Height Datum
Mg/L	Milligrams Per Litre
MIC	Maximum Instantaneous Charge
mm	Millimetre(s)
MSDS	Material Safety Data Sheets
NOHSC	National Occupation Health and Safety Council
NOW	New South Wales Office of Water
NPW Act	National Parks Wildlife Act 1974
NSW	New South Wales
OEH	Office of Environment and Heritage
PEPs	Protection of the Environment Polices
PIRMP	Pollution Incident Response Management Plan
POEO Act	Protection of the Environment Operations Act
QLD	Queensland
SB	Sediment Basin
SCA	Sydney Catchment Authority
SSEC	Stormwater Sediment Erosion Control
SWMDA	Surface Water Management and Discharge Assessment
t	Tonnes
TSS	Total Suspended Solids
VIC	Victoria
VMP	Vegetation Management Plan

# 1.0 Introduction

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## 1.1 Background

Groundwork Plus has been engaged by Hy-Tec Industries Pty Ltd (Hy-Tec) to prepare an Environmental Management Strategy and Plan (EMSP) for the Stage 2 extension of the Austen Quarry, located on Jenolan Caves Road, Hartley.

The Austen Quarry is carried out under the following existing approvals:

- Current - Development Consent DA 103/94
- When activated - Development Consent (DC) SSD-6084 issued by the Department of Planning and Environment (DoP&E) for the quarry extension granted on 15 July 2015, and valid until 30 June 2050.
- Environment Protection Licence 12323 (EPL) issued by the New South Wales (NSW) Environment Protection Authority (EPA). This EPL is renewed annually with the renewal date being 1 July of each year.

The EPL has been attached as Appendix A – Environmental Protection Licence.

As part of the assessment process for the Stage 2 Extension of the Austen Quarry (“the Stage 2 Extension”), a Specialist Consultant Studies Compendium has been developed to accompany the EIS for the Site. These various studies have been utilised to develop management strategies for the Site. Copies of the studies relevant to this EMSP have been included in the appendices of this document.

## 1.2 Project Details

### 1.2.1 Site Description

<u>Applicant:</u>	Hy Tec Industries Pty Ltd
<u>Application Number:</u>	SSD 6084
<u>Development:</u>	Austen Quarry Extension
<u>Location:</u>	The Site is located on Jenolan Caves Road, Hartley, New South Wales, approximately 3.5 km south-southwest of the village of Hartley and 10 km south of Lithgow. Refer to Figure 1 – Site Location Plan) for Site location details
<u>Access:</u>	Existing direct access from Jenolan Caves Road
<u>Real Property Description:</u>	<ul style="list-style-type: none"><li>• Lot 1 on DP1005511</li><li>• Lot 2 on DP1005511 (“Stage 2 Extension”)</li><li>• Lot 31 on DP1009967 (Site access road)</li><li>• Lot 4 on DP876394 (Site access road)</li></ul>
<u>Tenure:</u>	Leasehold. Property owned by the Hartley Pastoral Corporation Pty Ltd (HPC)
<u>Local Authority:</u>	Lithgow City Council
<u>Zoning:</u>	Extractive Industry and Rural
<u>Existing Land Use</u>	Extractive Industry
<u>Adjacent Land Use:</u>	Rural purposes and agriculture (refer to Figure 3 – Site and Surrounds)
<u>Security:</u>	The Site is fenced with a lockable gate at the access point

### 1.2.2 Project Overview

The current operation incorporates the following domain areas:

- The Stage 1 extraction area and associated overburden emplacement.
- A primary crushing station within the extraction area.
- A secondary processing area and associated product stockpiling areas.
- A product stockpile area referred to as "Yorkeys Creek Stockpile Area".
- Associated infrastructure including administration offices, amenities and weighbridges ("Administration Area").
- Structures associated with water supply, surface water and wastewater management and sediment and erosion control.
- Sealed quarry access road from Jenolan Caves Road to provide access to and from the Quarry for personnel and product transportation.

The layout of the quarry operations is shown on Figure 2 – Quarry Layout Plan.

The operations use typical quarrying methodologies that involve clearing, topsoil and overburden stripping, drill and blast extraction, processing and stockpiling by mechanical means e.g. face loader, excavator, off highway truck, crushing and screening plant with the final products sold for use in the construction industry, refer to Diagram 1 – Conceptual On-site Extraction Operations.

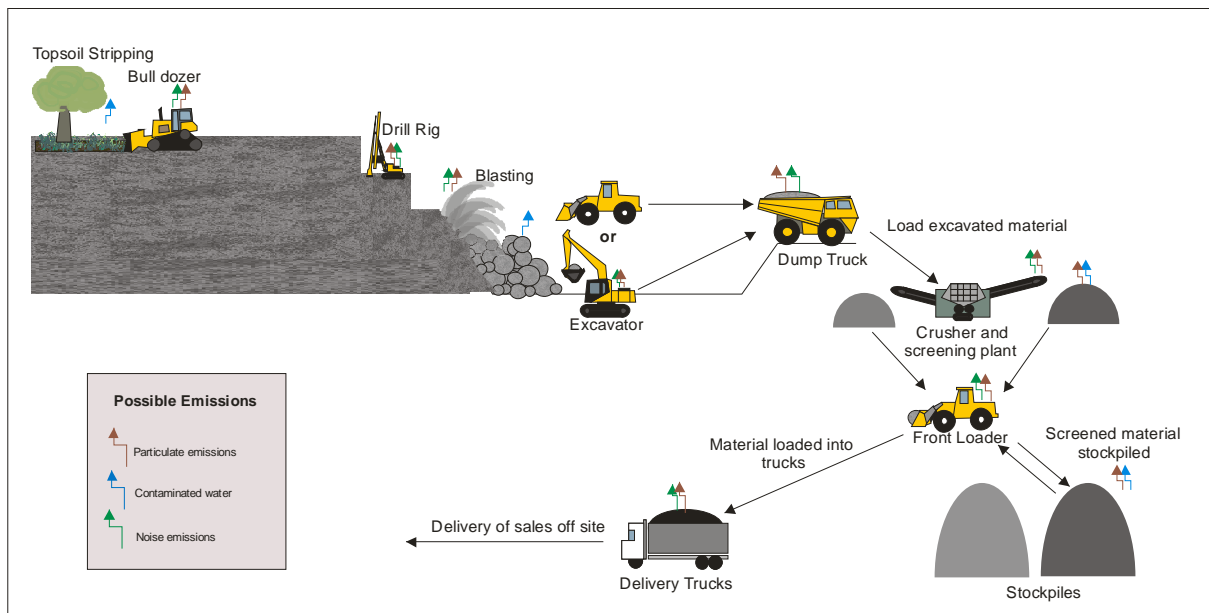


Diagram 1 – Conceptual On-site Extraction Operations

The resource on-site consists of rhyolite, which is suitable as a source rock for concrete aggregates, road pavements, drainage media, rip rap and a wide range of other hard rock quarry products. Quarrying of the rhyolite on the hillside quarry deposit will continue to entail open-face extraction by terracing using standard quarrying methodologies that involve:

- Clearing of areas to be quarried, and stripped of topsoil for reuse in rehabilitation
- Stripping of overburden for relocation to an overburden emplacement or re-use as fill in on-site development/rehabilitation
- Drilling and blasting of overburden and rhyolite
- Loading of the blasted material into haul trucks for transport to onsite processing facilities (including belt conveyor transportation system, crushing and screening)
- Stockpiling of final products awaiting sale.

## 1.3 Quarry Development

### 1.3.1 Stage 1

The Stage 1 extraction area is approved to a depth of 700 m AHD and covers approximately 12.1 ha. Benches have been developed at between 10 m and 15 m vertical intervals with the extraction faces being 70° or steeper. Extraction of the resource is undertaken using conventional drilling and blasting methods. Surface vegetation is first cleared by bulldozer and stockpiled for placement over sections of the quarry to be rehabilitated. Any available soil resources are then stripped and stockpiled for spreading over rehabilitated slopes of the overburden emplacement, or other areas of the quarry to be rehabilitated. Any rippable rock below the soil and above the primary resource is ripped, loaded to haul trucks and placed within the rock emplacement. Non-rippable overburden and rhyolite is blasted using ammonium nitrate / fuel oil (ANFO) to fragment the material so that it can be loaded and hauled to either the overburden emplacement or the primary crusher located on the 750 m AHD level within the extraction area for crushing and delivery (by conveyor) to the remaining crushing and screening operations. Current blast sizes vary according to the location within the extraction area; however, blasts generally vary from 10,000 t through to 100,000 t, with an average of approximately 60,000 t.

The overburden emplacement has been developed to the immediate south of the extraction area, partially in-filling the head of a gully between the 730 m AHD and 780 m AHD elevations. Covering an area of approximately 6.8 ha, the outer slopes of the overburden emplacement have been progressively rehabilitated through direct seeding and tubestock planting.

### 1.3.2 Stage 2

Stage 2 (approved 15 July 2015 by Development Consent SSD-6084, valid until 30 June 2050) comprises an extension of the extraction area and overburden emplacement covering approximately 25.7 ha within Lot 1 and 2 on DP1005511 and Lot 31 on DP1009967 ("Stage 2 Extension"). All existing and proposed extraction, processing, stockpiling and transportation operations are located in the area leased by Hy-Tec from HPC. The Stage 2 Extension involves increasing the size of the Stage 1 extraction area by 15.8 ha and overburden emplacement by 9.9 ha, and depth to 685 mAHD. The increase of the extraction area would be undertaken progressively via several stages. A list of these proposed stages of extraction area development and associated year of commencement has been presented in Table 1 – Proposed Staging and Year of Commencement of Extraction Area Development.

*Table 1 – Proposed Staging and Year of Commencement of Extraction Area Development*

Stage of Extraction Area Development	Predicted Year of Commencement
A	1
B	2
C	5
D	10
E	20
F	30
G	35

The proposed Quarry Development is shown in Figure 4.1 – Conceptual Quarry Development V4 – End Stage 1 to Figure 4.8 – Conceptual Quarry Development V4 – Stage G.

The existing Lithgow City Council Development Consent allows extraction to a depth of 700 mAHD. The Stage 2 Extension will increase the maximum depth of the extraction area to approximately 685 m AHD. The extension will allow access to additional rhyolite which is estimated to be approximately 45 million tonnes, which will extend the life of the quarry by approximately 35 years.

Rhyolite extracted from the quarry will continue to be processed in the existing primary and secondary processing areas. Operation of the processing areas, stockpiling areas and administration areas of the quarry, which are approved under the Development Consent, are not expected to change as the quarry transitions into Stage 2.

The area encompassing the existing quarry and proposed extension is approximately 103 ha.

## IDENTIFICATION OF APPROVED EXTRACTION LIMITS

18. By 30 September 2015, unless otherwise agreed with the Secretary, the Applicant shall:

- (a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the development area; and
- (b) submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary.

19. While quarrying operations are being carried out, the Applicant shall ensure that these boundaries are clearly marked at all times in a manner that allows operating staff to clearly identify the approved limits of extraction.

## 1.4 Existing Infrastructure and Services

Key infrastructure within the quarry includes the following:

- A hardstand area located to the immediate west of the processing operations on which the following has been constructed:
  - an administration centre incorporating demountable offices, amenities block and weighbridge.
  - an enclosed workshop constructed over a concrete floor.
  - an enclosed fuel storage building, constructed over a concrete bunded floor. Separate bunds are maintained within the structure for fuel, oils and lubricants.
  - parking facilities for employees and visitors.
  - a meteorological station.
- A network of unsealed roads, tracks and erosion and sediment control structures.
- A sealed Quarry Access Road from the Jenolan Caves Road to the quarry weighbridge. This includes a centre-line the length of the road between the intersection with Jenolan Caves Road and a substantial culvert crossing of Yorkeys Creek to the immediate west of the weighbridge.
- Electrical power for all quarry operations is supplied by diesel powered generators. One (1) large generator (1,000 kVA) provides power to the primary crushing station, two large generators (1,000 kVA) provide power to the secondary and tertiary crushing and screening operations and a fourth smaller generator provides power to the offices, workshops and amenities.

## 1.5 Mobile Equipment

The Site currently operates the following mobile equipment within the extraction area and on the overburden emplacement:

- One (1) 85t excavator
- Two (2) 40t rigid haul trucks and One (1) 60t rigid haul truck
- One (1) drill rig (Contractor)
- One (1) bulldozer (Contractor).

Two (2) front-end loaders are also operated at the quarry with their use shared between the extraction area, processing area and various stockpiles. Depending on production rates, the above mobile equipment is supplemented by the hire of a second excavator and up to two additional haul trucks.

## 1.6 Hours of Operation

The approved hours of operation for Stage 2 consent SSD-6084 are presented in Table 2 – Hours of Operation.

*Table 2 – Hours of Operation*

Activity	Monday to Friday	Saturday	Sundays/Public Holidays
Extraction Operations Processing Operations Overburden Management Stockpile Management	6:00 AM to 10:00 PM	6:00 AM to 3:00 PM	No Activity
Blasting	10:00 AM to 3:00 PM	No Activity	No Activity

Activity	Monday to Friday	Saturday	Sundays/Public Holidays
Loading and Dispatch	5:00 AM to 10:00 PM	5:00 AM to 3:00 PM	No Activity
Maintenance	Anytime	Anytime	Anytime

The following activities may be carried out on Site outside the hours specified in Table 2 – Hours of Operation:

- Delivery or despatch of materials as requested by police or other authorities
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

In such circumstances the operator shall notify the Secretary of the Department of Planning and Environment (or delegate) (via 1300 305 695 or [information@planning.nsw.gov.au](mailto:information@planning.nsw.gov.au)) and affected residents prior to undertaking the activities, or as soon as practical thereafter.

## 1.7 Site Personnel

A total of 16 people are currently directly employed at the Austen Quarry.

## 1.8 Description of Existing Environment

### Regional Climate:

The Site lies within the subtropical Central Tablelands region of New South Wales. The driest month is July. Annual mean rainfall is approximately 957.5 mm. Mean daily maximum temperatures range from 9.3°C during July to 23.9°C during January. The mean daily minimum temperature ranges from 2.5°C during July to 13.2°C in January. A summary of the regional climatic statistics are shown in Table 3 – Regional Climatic Statistics below:

Table 3 – Regional Climatic Statistics

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Rainfall (mm)													
Mean	107	106	88	67	61	82	64	73	65	78	83	81	958
Temperature (°C)													
Mean min.	13.2	13.1	11.2	8.6	6.0	3.7	2.5	3.0	5.4	7.4	9.7	11.3	7.9
Mean max.	23.9	22.6	20.3	17.0	13.5	10.1	9.3	11.3	14.6	17.4	19.9	22.1	16.8

Source: Rainfall data from the Bureau of Meteorology's Lowther Park Station no. 063049; Temperature data sourced from the Bureau of Meteorology's Mount Boyce AWS Station no.063292.

### Erosion Risk:

Table 4 – Monthly Erosion Risk for the Region Based on Average Monthly Rainfall Depth

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
H	H	M	M	M	M	M	M	M	M	M	M

Notes: E = Extreme (> 225mm), H = High (100 to 225mm), M = Medium (45 to 100 mm), L = Low (30 to 45 mm), VL = Very Low (0 to 30mm)

### Topography and Drainage:

The Site is characterised by a series of ridges with a general southwest to northeast orientation, typically reaching an elevation of approximately 800 mAHD. The surrounding gullies generally flatten out at an elevation of approximately 700 mAHD, but continue to drain into the Coxs River, which has an average elevation of approximately 660 mAHD adjacent to the Site.

Elevated areas along the Jenolan Caves Road to the west of the Quarry Site reach elevations in excess of 900 mAHD. Slopes on and surrounding the Site typically range between 20 and 30 degrees.

The Coxs River is the primary surface water drainage adjacent to the Quarry Site. Yorkeys Creek is the only other substantial drainage close to the Quarry Site. The Coxs River drains a catchment of approximately 2,630 km<sup>2</sup> on the western side of the Blue Mountains. It is bound to the west by the Great Dividing Range, to the north by the upper Colo River Catchment, and to the south by the Wollondilly River catchment.

The elevated areas adjacent to the quarry typically drain into surrounding gullies which typically discharge into the Coxs River within 1km of the ridge tops. Gullies are typically too steep near the upper slopes to contain permanent water.

Geology:

Based on information published in the *Sydney, 1:250,000 Geological Series Sheet S1 56-5* (1966) the Site is situated on volcanics of the Lower to Middle Devonian to Lower Carboniferous Period. These include rhyolite and rhyo-dacites, adamellite, granite and granodiorite, gabbro and diorite and quartzite, sandstone, siltstone and claystone. The extraction area of the Quarry targets an extrusion of rhyolite. The rhyolite is typically surrounded by granite. To the east of the Site sedimentary sandstones, shales and coal measures overly the volcanics and express themselves as the sandstone cliffs and escarpments of the Blue Mountains.

Groundwater  
Hydrology:

The Stage 2 Extension is classified as an aquifer interference activity, and is therefore subject to the provisions of the NSW Department of Primary Industries (DPI) Aquifer Interference Policy (2012).

An assessment of available data indicated that groundwater is present beneath the Site at a depth of approximately 730 mAHD, the elevation of the Stage 1 extraction area floor. The Stage 2 extension will result in the lateral extension of the extraction area to the east and to a maximum depth of RL 685 mAHD, some 45 m below the water table. Subsequently, groundwater would have to be removed from the extraction area as it extends below the water table, resulting in a lowering of the water table at the Site and the adjacent fractured rock. Hy-Tec has sought and been granted WAL 37423 for 20ML of water from the Coxs River Fractured Rock water source. Approximately 45 m of drawdown would occur however, drawdown is not expected to propagate a significant distance due to the low permeability nature of the fractured rock and the presence of aquifer boundaries in all directions from the extraction area. Drawdown from the Stage 2 Extension may result in the drying up of groundwater springs or seepages from the lower slopes of the surrounding valleys. These impacts would be restricted to slopes surrounding the extraction area only.

The preliminary groundwater assessment completed during the Environmental Impact Statement (EIS) process found that the Stage 2 Extension presents little opportunity for contaminants to enter the groundwater. With the exception of fuel, hydraulic fluids, automotive chemicals and explosives, no chemicals will be used on the Site as part of the Stage 2 Extension. Risks posed by the presence of these chemicals within the extraction area can be adequately addressed through implementation of environmental management procedures contained in this EMSP. Processing of extracted rhyolite is restricted to crushing and screening only.

Groundwater dependant ecosystems and culturally significant groundwater receptors have not been identified within the study area. The EIS concluded that potential aquifer drawdown and water quality impacts associated with the Stage 2 Extension would be minimal, as defined by the NSW Aquifer Interference Policy (NSW DPI, 2012).

The EIS has found that the Stage 2 Extension would intercept the water table; however, in accordance with section 89J of the EP and A Act, no water management or water supply work licence is required under the *Water Management Act 2000*.

Acid Sulphate  
Soil (ASS):

The Site is not located at or near an area where acid sulphate soils/rocks have previously been identified or within a prospective land zone containing acid sulphate soils/rocks.

Soil and Land  
Use Suitability:

Soil mapping undertaken by the Department of Land and Water Conservation (DLWC) and the Sydney Catchment Authority (SCA) indicates that the existing processing area is located on the

Marrangaroo Soil Landscape and both the existing and proposed extraction areas are located on the Mount Walker Soil Landscape. The soil landscape mapping describes the Mount Walker Soil Landscape occurring on steep to very steep hills with narrow, rounded crests on the Lambie Group Metasediments. It comprises of yellow earths, lithosols, leached loams, red and yellow podzolic soils and soloths. The soil landscape mapping describes the Marrangaroo Soil Landscape occurring on rolling hills and narrow flat to rounded convex crests on carboniferous granite. It comprises of yellow podzolic soils, earthy sands, siliceous sands, lithosols, minimal prairie soils, alluvial soils and yellow solodic soils.

The EIS showed the soils conform to the expectation of the soil landscape mapping. Very gravelly, quartz rich, shallow, soils (lithosols) were encountered over the proposed extraction area. The topsoil is thin (50 – 100 mm) and poorly formed. It consists of sandy loam with a small (10%) portion of coarse fragments derived from the parent rock. The subsoil consists of fine sandy loam to fine sandy clay loam with variable gravel content (10 to 60 percent) of the parent material (angular quartzite and schists). Occasionally there are thicker pockets of finer soil but, equally, there are localised areas where bedrock is exposed. Bedrock depth is consistently less than 1.0 m.

Further analysis undertaken in accordance with methods listed in *Managing Urban Stormwater: Soils and Construction, 2004* (NSW Government) indicated that the soils at Site were found to be Type C – Coarse and Type D – Significantly Dispersible. The soils encountered in TP1 and TP2 were analysed for Salinity, Cation Exchange Capacity (CEC), Base Saturation, pH and Organic Matter during the course of the soil investigation (SEEC Pty Ltd, October 2013). The results of these analyses are summarised below:

- Soils in the test pits have been found to be non-saline.
- The soils have been found to have very low CEC, ranging between 2.5 and 5.6 (cmol(+)/kg).
- The results of the base saturation analysis indicated that despite their relative infertility, nutrient status is moderate in all samples and that some leaching of nutrients has occurred.
- The results of pH testing indicated that the soils encountered in TP1 and TP2 are moderately to very strongly acidic (ranging from 4.6 to 5.6).
- Topsoil across the Site is believed to have very high organic matter content.

Contaminated  
Land Status:

A search of the NSW Contaminated Land Public Record was undertaken for the Lithgow City Council region. The Site is not listed on the public record.

Fauna and  
Flora:

The most recent annual monitoring report of fauna and fauna habitats in the vicinity of the quarry the *Ecological Monitoring Report Austen Quarry, Hartley*, dated January 2014 (Onsite Environmental Management Pty Ltd) reported that the Site contains two (2) distinct vegetation communities, which are the following:

- Riverine forest along the Cox's River (generally restricted to the north of the Site)
- Dry Sclerophyll Open Woodland on the ridges around the quarry.

As at November 2012, approximately 60 % of the lease area has been quarried. The flora survey identified a number of species listed on the Threatened Species Wildlife Atlas on the New South Wales National Parks and Wildlife Service website and the EPBC Protected Matters Search Tool within a 10 km radius of the Site. Refer to Appendix B – Ecological Monitoring Report: Austen Quarry, Hartley.

The Cardno Ecology Lab Pty Ltd (Cardno Ecology Lab) has undertaken monitoring of aquatic macroinvertebrates in compliance with Condition 18(c) of DA103/94 since 2005. In 2011, a summary report titled *Monitoring of Aquatic Macroinvertebrates Spring 2005-2011* was prepared for data collected over the period 2005 – 2011. The Cardno Ecology Lab report concludes, as at 2011, it was not possible to attribute variations in aquatic macroinvertebrate fauna observed to the extractive industry operations at the Site, other than possibly the edge fauna impairment observed in 2009 and differences in the structure of edge assemblages in 2007 and 2009 (Cardno Ecology Lab). Cardno Ecology Lab detected no adverse effects on riffle fauna during the surveys and concluded that it is unlikely that activities at the quarry were responsible for the impairment of the edge fauna.



Waterways:

The receiving environment for the on-site Sediment Basins referred to as SB1, SB3b, SD2 (i.e. water release points, EPL Points 9, 1 and 10) consists of a well vegetated, upland, freshwater segment of the lower Coxs River, while the initial receiving environment from the on-site SB2b and SD6 (water release points EPL Points 8 and 11 respectively) is Yorkeys Creek. Yorkeys Creek is a tributary of the Coxs River that consists of a shallow, ephemeral, erosional, freshwater stream before entering the Coxs River. The upper catchment of Yorkeys Creek is relatively undisturbed with only a small portion historically cleared for grazing.

The Coxs River is a directional, integrated, converging, tributary stream that rises in Gardiners Gap, within Ben Bullen State Forest, east of Cullen Bullen, and flows through the Megalong Valley and parts of the Greater Blue Mountains Area World Heritage Site including the Blue Mountains and Kanangra-Boyd national parks, heading generally south and then east, joined by fifteen tributaries including the Little, Jenolan, Kedumba, Kowmung and Wollondilly rivers, before reaching its confluence with the Warragamba River to form Lake Burragorang (behind Warragamba Dam), the largest of Sydney's water supply reservoirs.

The majority of the river reaches and mid-catchment are highly degraded as the land has been extensively cleared for industry, agriculture and grazing, and some creeks are highly modified by urban developments. Wide spread grazing, forestry and coal mining occurs in the upper catchment (CSIRO Land and Water May 2000).

The flow regime of the lower Coxs River is strongly influenced by land clearing in the upper and central parts of the catchment, regional climatic variations and the construction and operation of river impoundments (CSIRO Land and Water May 2000). The river is impounded at Lake Wallace, where it forms a cooling source for Wallerawang Power Station, Lake Lyell for a water supply for the city of Lithgow and water cooling for Wallerawang Power Station and downstream of the Site release points at Lake Burragorang, a major water supply source for greater metropolitan Sydney, referred to as the "Warragamba water supply network".

The Warragamba catchment covers approximately 9,051 km<sup>2</sup>, with Lake Burragorang itself covering 75 square kilometres. Land in the catchment is predominantly natural bushland and unfertilised grazing land with approximately 25 % of the catchment declared Special Area, comprising mainly unspoilt bushland where public access is restricted to protect water quality.

The segment of the Coxs River between the Site and Lake Burragorang has high public access and utilised for recreational fishing, non-motor boating and significantly irrigation water supply. The Environmental Values (EVs) identified for the receiving aquatic environment has been provided in Table 5 – EVs for Receiving Environment.

*Table 5 – EVs for Receiving Environment*

Type	EVs
Aquatic Ecosystems	Ecosystem protection (aquatic plants, fish and other flora and fauna habitat) for a moderately disturbed level of protection
Human Uses	Agricultural uses (e.g. Long-term irrigation and Livestock water) Drinking water for Human Consumption Recreation

Flooding:

The secondary processing area has been constructed on 'waterfront land', as defined by the *Water Management Act 2000*, incorporating an elevated hardstand and bund within 40 m of the Coxs River channel. While not defined, this is likely to affect flows within this stretch of the river when the water level is elevated. It is noted that these works have been constructed in accordance with DA103/94 and following the issue of a Permit (No. PAR9012617) under the now repealed Rivers and Foreshores Improvement Act 1948. The Applicant has made application to the NSW Office of Water for a Controlled Activity Approval for these works to replace PAR9012617.

It is also noted that Yorkeys Creek is also subject to flooding. However, following a flood event in February 2005, considered a 1 in 150 year ARI event (Parsons Brinkerhoff, 2005), it is confirmed

that the secondary processing area is not affected (and therefore not constrained) by local flooding. The Yorkeys Creek crossing has been designed and constructed to account for the flood recorded in February 2005.

Bushfires: The Site is situated in an area mapped as Bushfire Zone in accordance with the Lithgow City Council Geographical Information System.

Environmentally Sensitive Receptors: The locations of the nearest sensitive receptors are shown on Figure 3 – Site and Surrounds the following is a brief summary of key receptors:

- A number of dwellings are located within the Site boundary.
- The nearest residence (external to the Site boundary) is approximately 100 m from the southern Site boundary.
- There are a number of rural dwellings within a 5 km radius of the existing quarry extraction area.
- The Coxs River and Yorkeys Creek.

Cultural Heritage: The *Indigenous Heritage Assessment* undertaken by Niche Environment and Heritage in April 2014 identified that an archaeological survey of the existing quarry footprint was undertaken by Mills and Wilkinson Consulting Archaeologists in 1993, with the findings of this assessment summarised in the report titled *Archaeological Survey of Site for Proposed Rhyolite Quarry, Hartley*. The Mills and Wilkinson Consulting Archaeologists survey found two (2) Aboriginal sites and four (4) isolated Aboriginal artefacts at the Site between an internal road and the 700 m contour level. In addition, an Aboriginal artefact scatter was identified at an elevation of 690 m above Yorkeys Creek and a basalt anvil and additional isolated Aboriginal artefacts were found on the access road which leads to the extraction area. The *Rehabilitation and Environmental Management Plan* (2001) prepared by International Environmental Consultants Pty Ltd states that:

*'Aboriginal artefacts found in the vicinity of the access haul road and the quarry and plant area have been collected in accordance with the Consent to Destroy obtained from the National Parks and Wildlife Service. These artefacts were collected to protect them from further damage from vehicles and stock'*

The *Indigenous Heritage Assessment* undertaken by Niche Environment and Heritage in April 2014 as part of the Stage 2 Extension identified that, although ground surface visibility on the Stage 2 Overburden Emplacement Area was low (i.e. approximately 5 %) for the field assessment, there were no Aboriginal heritage constraints for the proposed works identified, with the assessment concluding the activity is unlikely to impact on Aboriginal heritage at this location. A search of the local, state and national heritage registers undertaken by Niche Environment and Heritage (2014) confirmed that there are no Aboriginal cultural heritage items located within, or in close proximity to, the Stage 2 Extension area. The assessment identifies that some Aboriginal heritage sites from the previous Cultural Heritage Survey may remain unreported.

A *Historical Heritage Assessment* was also undertaken by Niche Environment and Heritage (April 2014) as part of the Stage 2 Extension, which identified that the Site is located within the historical estate referred to as Liddleton, which was granted to Mr John Maxwell in May 1832. The Liddleton estate was utilised as a wildlife refuge in July 1978 prior to being sold to HPC and later being developed for the current extractive industry operations. A search of the local, state and national heritage registers undertaken by Niche Environment and Heritage (2014) confirmed that there are no heritage items listed within the assessment area. The field survey undertaken by Niche Environment and Heritage (2014) confirmed that there are no historical heritage items or areas of archaeological potential within the assessment area, indicating the location is not significant for any historical heritage values and the Stage 2 Extension will not impact upon any significant heritage items or their associated values. Niche Environment and Heritage (2014) concluded that no further assessments of historical heritage will be required prior to commencement of the proposed Stage 2 Extension.

A copy of both assessments can be found in Appendix C – Indigenous and Cultural Heritage Assessments.

Visual Amenity: The Site is visible from a number of local viewpoints including; Jenolan Caves Road, the Great Western Highway, Hassan's Walls Lookout to the north of the Site and Mount York Lookout situated to the north east of the Site. Hy-Tec has implemented, and continues to design and install new strategies, to protect the visual amenity of the surrounding area. Initiatives to reduce potential visual impacts have included; planting perimeter vegetation screens, installation of a vegetated visual amenity bund adjacent to the western edge of the extraction area (in accordance with DA103/94) and progressive rehabilitation works.

Air Quality: An *Air Quality Assessment* has been conducted for the Stage 2 Extension by Benbow Environmental (2014). Benbow Environmental conclude that, while no background air quality was undertaken, the extractive industry operations at the Site are the primary source of dust and particulate emissions in the immediate locality with the exception of minor dust and particulate emissions generated by local vehicle traffic and residential activities. Refer to Appendix D – Air Quality Assessment for the detailed findings of this assessment.

Noise: Excluding the existing extractive operations, existing noise levels are considered to be representative of a very rural residential area and is likely to be attributed to normal features of the region, including bird calls, wind in trees/grass, insects and cows, and vehicles passing along Jenolan Caves Road and the Great Western Highway.

A *Noise and Vibration Impact Assessment* has been conducted by Benbow Environmental (2014) for this development to determine the environmental noise levels on the boundaries of the Site. Refer to Appendix E – Noise and Vibration Impact Assessment for the detailed findings of this assessment.

## 2.0 Statement of Commitment

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### 2.1 Environmental Policy

Hy-Tec is committed to being an environmentally responsible company. Legal compliance is regarded as a minimum standard; actions beyond statutory regulations that conserve or protect the environment and support business goals are encouraged. A copy of Adelaide Brighton's (of which Hy-Tec is a subsidiary company) Safety, Health and Environment Policy is attached as Appendix F – Adelaide Brighton Safety, Health and Environment Policy.

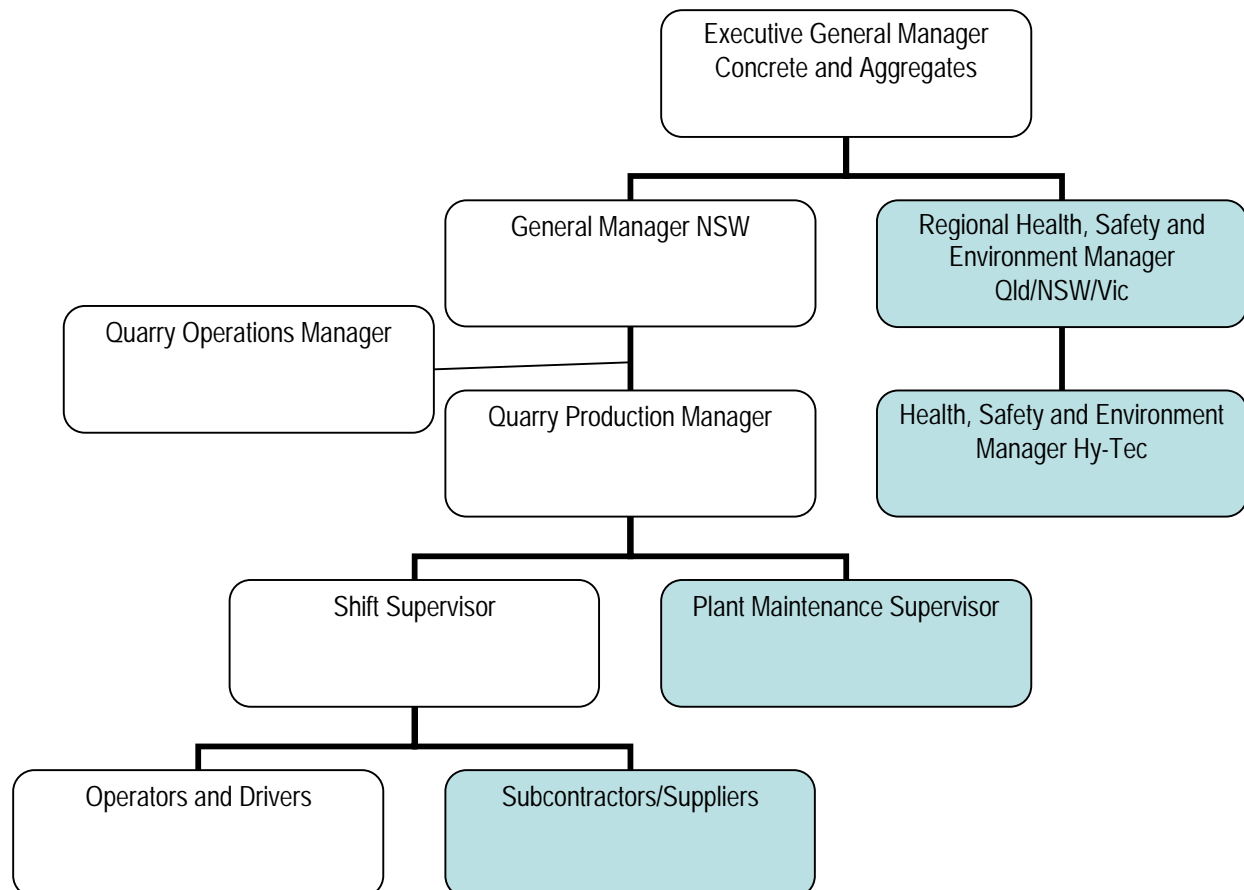
All reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the quarry shall be implemented.

Hy-Tec shall ensure that all the plant and equipment used at the Site is:

- Maintained in a proper and efficient condition.
- Operated in a proper and efficient manner.

### 2.2 Organisational Structure

An overview of the proposed management hierarchy for the Site is as follows:



## 2.3 Responsible Personnel

### *Executive General Manager*

- Establishing and endorsing the Company Environmental Policy
- Providing adequate resources in meeting environmental objectives and targets
- Assign delegated authority for Environmental Management
- Ensure Company is complying with all applicable legal obligations and industry reporting expectations
- Review and approve new environmental initiatives
- Review environmental performance in line with Company Environmental 'Objectives and Targets'
- Participate in Management Review Meetings as required to address any issues concerning environmental management deficiencies.

### *HSE Manager*

- Upholding the Hy-Tec HSE Policy and environmental processes and procedures
- Implementing the EMSP and relevant Project Environmental Management Plan's
- Implementing Environmental Contingency Plans
- Establishing environmental objectives and targets
- Monitoring and measuring Company environmental performance
- Promoting environmental awareness across the business
- Provide leadership and environmental stewardship across all aspects of the business
- Assess all Environmental Incidents to determine significance in reporting to the Regulator
- Conduct investigation of all Environmental Incidents and establish root cause
- Ensure Corrective / Preventive Actions are assigned and all actions are verified to satisfactory close-out.

### *Quarry Manager*

- Implementation of all operations at the Site.
- The establishment, implementation and maintenance and of this EMSP in accordance with the requirements of the approval conditions and POEO Act, including Site specific monitoring requirements.
- Ensuring adequate and suitable resources are provided for all Site personnel to implement this EMSP and ensure all Site personnel are aware of their environmental responsibilities, reporting and communication requirements.
- Complaints and incident handling.
- Ongoing liaison with the EPA as required.
- Review and notification of any identified monitoring result exceedance in accordance with the EPL and EMSP.

As the most senior manager on the site the Quarry Manager must by necessity be charged with responsibility for the implementation of the majority of the EMSP. It is noted for clarity however that the Quarry Manager shall be adequately resourced and authorised to commission additional resources to assist him/her with these tasks, including but not limited to environmental specialist consulting organisations and internal Hy Tec environmental resources. The accountability to ensure the implementation of this EMSP ultimately however lies with the Quarry Manager.

### *Employees (including Sub-contractors)*

- Complying with acceptable safe environmental practices and ensuring all environmental responsibilities are adhered to.
- Identifying and reporting any existing or potential adverse environmental impacts and / or complaints received to the Quarry Manager.

## 3.0 Format and Scope of the Environmental Management Strategy and Plan

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The DC SSD6084 Condition 1(a) requires that the Applicant prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:

(a) be submitted to the Secretary for approval within 6 months of the date of this consent.

This EMSP is submitted in fulfilment of that requirement.

The EMSP consists of a number of self-contained sections to provide ready reference and filing, and easy access to information for managing the Site and activities. It comprises environmental impact identification and assessment, Environmental Management Strategies, reference files, monitoring requirements and record keeping, incident protocols, complaint settling protocols and record sheets. This EMSP also aims to provide guidance to Site management for achieving compliance with the conditions of the EPL and DC.

Environmental management is a dynamic process and needs to respond to new technologies and scientific advances. The EMSP has been designed to be modified in response to monitoring results, changing circumstances (technological, economic or social), changing legislation (statutory requirements), operational experiences, design trials and community expectation.

The relevant and most up-to-date Department Approved Management Plan shall supersede any inconsistency between this EMSP and Appended Management Plans.

### 3.1.1 Objectives of the Environmental Management Strategy and Plan

The EMSP attempts to concisely describe the commitments made for environmental management by:

- Identifying aspects of the Site that require environmental management.
- Establishing practical and achievable measures for the containment of environmental impacts to acceptable levels.
- Identifying authority and responsibility for implementing management measures during construction, operation and decommission stages of a quarry.
- Nominating acceptable performance criteria for the measuring of impact levels and any sources from which the criteria may have been derived, including legislative requirements and government policies.
- Describing courses of action (and responsibilities) for responding to incidents of non-compliance and emergency events which may be detected or arise.
- Establishing procedures for monitoring and reporting.

The objectives of the EMSP will be implemented through the Environmental Management Strategies (EMS) contained within this EMSP which seek to identify potential environmental issues and provide practical and achievable measures for managing these issues.

### 3.1.2 Purpose of the Environmental Management Strategies

This EMSP has been prepared to assist in the management and protection of surrounding environmental values and describes how the operator proposes to manage potential environmental impacts associated with carrying out the extractive industry and ancillary activities. This EMSP is a management document which links the potential environmental impacts with the minimum commitments and measures to safeguard the environment. It provides the framework for environmental management at the Site to be utilised as a practical guide at the operational level to prevent or minimise environmental impacts.

The EMSs contained within this document set out the following:

- Environmental policy which provided the framework for the preparation of the EMSP.
- Organisational and management structure.

- Environmental objectives / goals providing the basis for environmental management measures.

### 3.1.3 Structure of the Environmental Management Strategies

The EMSs have been developed for environmental elements that have been identified to pose a potential risk to the surrounding environment in relation to the Site and activities. These environmental elements include:

- Water Management
- Stormwater, Erosion And Sediment Control
- Hydrocarbons and Chemicals
- Air Quality (Dust) Management
- Noise Management
- Blasting Management
- Fauna and Flora Management
- Weed Management
- Rehabilitation and Land Use
- Bushfire Management
- Waste Management
- Cultural Heritage
- Community Consultation.

The structure of the EMS provides a series of procedures for ease of implementation. The elements of the EMS are based on a standard format (that may be adapted for a particular environmental issue or activity) as follows:

- Purpose
- Operational policy
- Performance targets
- Implementation strategy / mitigation measures
- Monitoring
- Auditing and review
- Reporting and responsibility
- Identification of incident or failure to comply
- Corrective actions.

## 3.2 Implementation

Implementation of the EMSP will require:

- Commitment by the owners, managers and employees of the Site.
- Access to technical expertise, where necessary, for tasks which may include environmental monitoring, modelling or assessment.

Management shall ensure that sufficient funding and resources are provided to implement the EMSP at the Site. Management must be attentive in implementing the commitments required for environmental management to ensure the timely and effective execution of any required measures.

Management commits to all conditional requirements included in the:

- Development Consent
- Environmental Protection Licence
- Approval under the EPBC Act
- Water Access Licence and
- Any other approvals.

All personnel shall be informed of the environmental management objectives and the specifics of each management strategy including; protection of buffer areas, impact minimisation measures, operational practices, maintenance measures, reporting requirements, and individual responsibilities. All personnel working at the Site must be made aware of the reporting arrangements for complaints, emergencies and incidents involving environmental harm and / or nuisance,

and the penalties applicable if EPL conditions are breached. Each employee shall be responsible for implementing the environmental commitments within the scope of their duty statement or job description.

Various timeframes and / or trigger mechanisms are provided in the EMSP to guide environmental management including regular reviews of performance to help the continual improvement of the environmental management system where required. This provides a feedback loop for actioning amendments to practices, initiating studies and amending plans. The currency of the EMSP should be checked regularly to ensure up-to-date versions are readily accessible for all personnel carrying out the activity.

### 3.3 Staff Training and Induction

The Quarry Manager is responsible for ensuring that training programs are provided to inform and develop Site personnel. Personnel receiving training must be assessed on their level of competency prior to completion of the training. Training should continue until the employee reaches an acceptable level of competency.

All employees and sub-contractors will be inducted on the environmental management procedures and practices to be carried out at the quarry and be made aware of:

- Duty to Notify 'Relevant Authorities', whereby a person in the performance of their duties becomes aware of a pollution incident where material harm is, or has been, caused or may be caused to the environment by their activity or by someone else's activity, or the activity in general, that person must, as soon as practicable, report the nature and circumstances of the event to the Quarry Manager, who in turn must ensure that the EPA is notified accordingly.
- Compliance with Development Consent, Environmental Protection Licence and Other Statutory Requirements, whereby a person in the performance of their duties for the conduct of the use shall do so in a manner which ensures that the provisions of any relevant EPL, or any other statutory permission or approval are complied with.

A training package detailing the importance of observing all environmental safeguards and outlining the potential environmental impacts will be implemented for all personnel working on-site. This may be done at the following stages:

- At the commencement of employment as part of the employee's Site induction and safety procedures briefing.
- At least every 24 months thereafter.
- At any stage, should there be a change in operational procedures.

A record of all employee training / inductions will be maintained on-site.

### 3.4 Environmental Performance Monitoring

The measures nominated in this EMSP will require regular surveillance and review to ensure that performance aligns with design criteria and also reflects the dynamic nature and changing needs of the operation. Monitoring will consist primarily of visual inspection of the management system, but will focus particularly on the stormwater, erosion and sediment control measures implemented prior to, and as soon as practicable following, the wet season and / or significant rain events. Other key aspects of the operation that have potential to impact on the environment shall also be regularly monitored and measured. The indicative locations of potential emission releases and established monitoring locations are shown on Figure 5 – Discharge, Emission and Monitoring Location Plan.

Performance monitoring measures may include, but shall not necessarily be limited to:

- Recording of information to track performance
- Inspecting and monitoring of operational controls
- Assessing the level of conformance with objectives and targets.

Table 6 – Performance Monitoring Schedule provides a summary of environmental indicators to be measured and the frequency of this monitoring.



Table 6 – Performance Monitoring Schedule

Item	Aim	Responsible Person*	Schedule
Complaints	Resolution and prevention	Quarry Manager	As received
Stormwater, Sediment and Erosion Control	Confirm integrity and operation of water conveyance structures and containment of surface waters from disturbed areas of the Site	Quarry Manager	Visual surveillance prior to, and following, wet season and / or major rainfall events (> 25 mm within 24 hours)
Surface Water Quality	Confirm on-site containment of surface water from on-site disturbed areas	Quarry Manager	Visual surveillance prior to, and following, wet season and / or major rainfall events (> 25 mm within 24 hours)
	Confirm effective operation of sediment basins / water treatment systems	Quarry Manager	Prior to any release event
	Confirm receiving waters are not impacted by operations	Quarry Manager	Following receipt of release water quality monitoring results (during release event only)  Following complaint, or on request from the EPA
Dust	Confirm adequacy of control measures	Quarry Manager	Ongoing visual surveillance  Following complaint, or on request from the EPA
Noise	Confirm adequacy of control measures	Quarry Manager	Ongoing subjective surveillance  Following complaint, or on request from the EPA
Blasting	Confirm the adequacy of control and compliance with approvals and licences	Quarry Manager / Consultant	Upon receipt of blast monitoring data  Following complaint, or on request from the EPA
Rehabilitation	Assess progress and compliance with relevant plans and rehabilitation outcomes	Quarry Manager / Consultant	Annually
	Monitor performance (post rehabilitation)	Quarry Manager / Consultant	One (1) month after planting / seeding Three (3) months after planting / seeding Six (6) months after planting / seeding 12 months after planting / seeding
Weeds	Prevent the spread of weeds	Quarry Manager	Visual inspection of machinery entering the Site.  Quarterly Inspection of the Site
Waste Management	Maintenance of adequate records for the trackable wastes disposed off-site	Quarry Manager	As required
	Waste stored in appropriate containers and waste receptacles are labelled correctly		Weekly

Item	Aim	Responsible Person*	Schedule
Fauna and Flora	Ensure ongoing fauna and flora monitoring is undertaken at the Site on an annual basis	Consultant	Annually
Hydrocarbons and Chemicals	Confirm area around refuelling locations and chemical stores are free of spills	Quarry Manager	Monthly visual surveillance
Update Material Safety Data Sheet Register	Uphold Site safety at all times	Quarry Manager	Event based and / or Annually
Spill Response Kits	Confirm sufficient equipment is supplied and properly maintained	Quarry Manager	Quarterly or following use of a spill kit
Maintenance	Confirm maintenance and contract maintenance records are being maintained	Quarry Manager	Quarterly
Site Signage	Confirm signage is maintained and legible	Quarry Manager	Six (6) monthly
Site Entrance	Confirm access is properly maintained and suitable for use	Quarry Manager	Periodic surveillance
Visual Amenity	Ensure visual exposure is controlled and minimised to the extent feasible	Quarry Manager	Periodic surveillance
Cultural Heritage	Spotting for cultural materials	All Personnel	Visual observations during any initial ground disturbance work on-site
Demarcation of Extraction Limits	Confirm compliance with approvals and licences	Quarry Manager	Quarterly and prior to each stage of extraction
Development Works	Limit disturbance to design limits	Quarry Manager	Prior to the works for each stage

\* Quarry Manager may nominate a suitable delegate where appropriate.

### 3.5 Annual Review of Environmental Performance and Improvement

By the end of September each year, or other timing as may be agreed by the NSW DoP&E, the Quarry Manager, or suitable delegate shall review the environmental performance of the quarry to the satisfaction of the DoP&E. This review must:

- (a) Describe the quarry (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year.
- (b) Include a comprehensive review of the monitoring results and complaints records of the quarry over the previous financial year, which includes a comparison of these results against the:
  - relevant statutory requirements, limits or performance measures/criteria
  - requirements of any plan or program required under this consent
  - monitoring results of previous years
  - relevant predictions in the EIS.
- (c) Identify any non-compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance.
- (d) Identify any trends in the monitoring data over the life of the development.
- (e) Identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies.
- (f) Describe what measures will be implemented over the current financial year to improve the environmental performance of the development.

#### Continuous Improvement/Adaptive Management

Hy-Tec must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in the Development Consent (DC) or EPL. Any exceedance of these criteria and/or performance

measures constitutes a breach of these consent and may be subject to penalty or offence provisions under the *EP&A Act* or *EP&A Regulation*.

Where any exceedance of these criteria and/or performance measures has occurred, Hy-Tec must, at the earliest opportunity:

- (a) Take all reasonable and feasible steps to ensure that the exceedance ceases and does not reoccur
- (b) Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DoP&E describing those options and any preferred remediation measures or other course of action
- (c) Implement remediation measures as directed by the DoP&E, to the satisfaction of the DoP&E.

### 3.6 Revision of EMSP

This EMSP will be reviewed within 3 months of the submission to the DoP&E of an:

- (a) Annual review under Section 3.5
- (b) Incident report under Section 3.7
- (c) Audit report under Section 3.8
- (d) Any modifications to this consent.

The Applicant shall review the strategies, plans and programs required under this consent, to the satisfaction of the DoP&E. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the DoP&E.

### 3.7 Independent Environmental Audit

Within a year of the date of this consent, and every 3 years thereafter, unless the DoP&E directs otherwise, Hy-Tec shall commission and pay the full cost of an Independent Environmental Audit of the quarry. This audit must:

- (a) Be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the DoP&E
- (b) Include consultation with the relevant agencies
- (c) Assess the environmental performance of the development and whether it is complying with the relevant requirements in the DC and any relevant EPL or necessary water licences for the quarry (including any assessment, strategy, plan or program required under these approvals)
- (d) Review the adequacy of strategies, plans or programs required under the abovementioned approvals
- (e) Recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, strategy, plan or program required under the abovementioned approvals.

Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the DoP&E.

Within 6 weeks of completion of this audit, or as otherwise agreed by the DoP&E, Hy-Tec shall submit a copy of the audit report to the DoP&E, together with its response to any recommendations contained in the audit report.

### 3.8 Complaints and Incidents Procedure

The objective of the incidents and complaints procedure is to ensure there is a response to all complaints and incidents, and that these complaints and incidents are investigated and appropriate actions taken. The Quarry Manager will be responsible for ensuring that all employees are familiar with the procedure for incidents and complaints recording.

For the purpose of this procedure, an incident / non compliance is defined as follows:

Incident – A pollution incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.\

Non-compliance – Where an action has resulted in the operation to be not in compliance with the conditions of the EPL and / or the DC, or other relevant legislative requirements.

All incidents and complaints reported shall be recorded in a complaint / incident register, which will be readily available on the Site. The complaint / incident records shall be checked by the Quarry Manager after receipt of a complaint or following an incident to ensure appropriate corrective actions have been taken and that the issues have been, or are being, resolved.

The objective of the incidents and complaints procedure is to ensure there is a response to all complaints and incidents, and that these complaints and incidents are investigated and appropriate actions taken. The Quarry Manager will be responsible for ensuring that all employees are familiar with the procedure for incidents and complaints recording.

All incidents and complaints reported shall be recorded in a complaint / incident register (log book) and internal electronic recording, which will be readily available on the Site. The incident / complaint records shall be checked by the Quarry Manager after receipt of a complaint or following an incident to ensure appropriate corrective actions have been taken and that the issues have been, or are being, resolved.

### 3.8.1 *Pollution Complaints*

The Quarry Manager, or authorised delegate, will liaise with the complainant to discuss the nature of the pollution complaint, identify the possible cause(s) and detail any required action(s) to prevent or minimise potential for recurrence of the complaint. All employees are to show respect and understanding to complainants. When a pollution complaint is received, appropriate action is to be undertaken within two (2) working days to determine the source of the pollution complaint. All pollution complaints received shall be reported to the Quarry Manager as soon as possible and recorded appropriately.

The following details shall be recorded at the receipt of a complaint:

- (a) The date and time of the complaint
- (b) The method by which the complaint was made
- (c) Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect
- (d) The nature of the complaint
- (e) The action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
- (f) If no action was taken by the licensee, the reasons why no action was taken.

All complaints will be investigated. The investigation may include determination of the following:

- What activities (and / or equipment) were being carried out or operated at the time of the complaint
- Whether at the time of the complaint, normal day-to-day activities were being conducted
- Whether equipment or activities on-site were the potential source of complaint (or whether other activities in the locality may have contributed to the complaint)
- What actions may be carried out to resolve the complaint and / or minimise the likelihood of further complaints.

If monitoring is undertaken to investigate a complaint, the Quarry Manager may make the results of the monitoring available for viewing by the complainant on request.

### 3.8.2 *Emergencies and Incidents*

In the event of an emergency or incident, corrective action is to be implemented and an assessment conducted to determine what, if any, preventative action(s) can be instigated to prevent a similar incident from recurring in the future. Any employee involved in an incident which results in environmental implications, or any employee who becomes aware of a situation that may develop into an incident or emergency, shall notify the Quarry Manager as soon as practicable.

After becoming aware of any emergency or incident causing or threatening material harm to the environment, an authorised company employee who becomes aware of an event shall notify the EPA via the Environment Line telephone number 131 555 immediately upon becoming aware. The Quarry Manager or delegate shall notify the EPA in writing

within seven (7) days from the date the event occurred. Information to be notified with the Initial Notification should be as follows:

- (a) The cause, time and duration of the event
- (b) The type, volume and concentration of every pollutant discharged as a result of the event
- (c) The name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event
- (d) The name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort
- (e) Action taken by the licensee in relation to the event, including any follow-up contact with any complainants
- (f) Details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event
- (g) Any other relevant matters.

An example of a standard form for an Initial Notification is attached as Appendix G – Initial Notification Form.

During operating hours, a complaints telephone line must be maintained in accordance with the EPL Condition M5.1 for the purpose of receiving any complaints from the public in relation to the activities conducted at the Site or by vehicle or mobile plant associated with the activity.

Following notification, Hy-Tec will implement all reasonable and practical measures to address the incident. All appropriate actions will be undertaken as soon as practical, to either determine the source of the complaint, and/or minimise further impact in the case of an incident. Corrective action is to be implemented and an assessment conducted to determine what, if any, preventative action can be implemented to prevent a similar incident from occurring again. All incidents and complaints reported shall be filed in a complaint/incident register available on the Site.

This investigation into the cause of the complaint / incident, any monitoring undertaken (if required) and an assessment of environmental harm that may have been caused will be undertaken with the results from this investigation provided to the regulatory authority for their assessment.

### 3.8.3 *Monitoring Records*

A summary of the results of any relevant environmental monitoring performed (not previously supplied) in relation to the emergency or incident shall be supplied to the EPA within six (6) weeks of the incident.

All monitoring required in accordance with a condition of the EPL, and / or monitoring results required following a complaint, incident or emergency, shall include the following records:

- The date(s) on which the sample was taken
- The time(s) at which the sample was collected
- The point at which the sample was taken
- The name of the person who collected the sample.

An example of a standard form for a Further Notification is attached as Appendix H – Further Notification Form.

## 3.9 Communication

Effective communication must take place regarding environmental matters at the Site between operational staff, management and external stakeholders. Internal communication mechanisms relating to environmental matters and potential impacts, objectives and targets, training and awareness, complaints, emergencies and incidents, feedback, and suggestions for improvement may include, but shall not be limited to:

- Self assessments and audits
- Action requests, memos, noticeboards, etc.
- Environmental incident reporting
- Environmental compliance reporting
- Inductions and environmental awareness training

- Tool-box talks or verbal advice
- Weekly construction meetings
- Management reviews
- Site meetings.

External communication mechanisms for environmental communications relevant to Site activities may include:

- Formal and informal correspondence with Government authorities
- Media releases
- Formal correspondence with interest groups
- Community complaints and enquiries.

As soon as practicable after obtaining monitoring results showing:

- (a) An exceedance of any relevant criteria in Schedule 3 of the DC, Hy-Tec shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria.
- (b) An exceedance of any relevant air quality criteria in Schedule 3 of the DC, Hy-Tec shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately-owned).

#### Dispute Resolution

If an owner of privately-owned land considers the quarry to be exceeding the relevant criteria in Schedule 3 of the DC, then he/she may ask the DoP&E in writing for an independent review of the impacts of the quarry on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, Hy-Tec shall:

- (a) Commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:
  - consult with the landowner to determine his/her concerns
  - conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3
  - if the development is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria
- (b) Give the Secretary and landowner a copy of the independent review.

Should the dispute not able to be resolved between Hy-Tec and the landowner, the DoP&E will be requested to undertake a further assessment / investigation of the matter with the results of their findings provided to both Hy-Tec and the landowner for consideration. Disputes that remain unresolved may only be resolved through either an additional third-party review of the assessments undertaken to-date or through a court process.

In accordance with the EPL, the Site must operate a 24 hour telephone line for the purpose of enabling the EPA to directly contact one or more representatives of the Site who are able to:

- (a) Respond at all times to incidents relating to the premises
- (b) Contact the licensee's senior employees or agents authorised at all times to:
  - i) speak on behalf of the licensee
  - ii) provide any information or document required under this licence.

In the event the delegated Site representative is changed, the EPA must be notified in writing of the change and new contact details within 14 days of the change occurring.

The Applicant shall provide regular reporting on the environmental performance of the quarry on its website, in accordance with the reporting arrangements under the conditions of the DC.

By 15 January 2016 Hy-Tec shall:

- (a) Make the following information publicly available on its website:
- the documents listed in condition 2 of Schedule 2 of the DC
  - current statutory approvals for the development
  - all approved strategies, plans and programs required under the conditions of this consent
  - a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs
  - a complaints register, updated monthly
  - the annual reviews of the development
  - any independent environmental audit, and the Applicant's response to the recommendations in any audit
  - any other matter required by the Secretary.
- (b) Keep this information up-to-date, to the satisfaction of the Secretary.

### 3.10 Records and Document Control

Copies of reference documents, for example the EPL issued by the EPA, other relevant approvals issued by Local Government, a copy of this EMSP, monitoring records, inventories and registers for the relevant items (e.g. water monitoring records, air quality monitoring records, blast monitoring records, noise monitoring records, and complaints and incidents) produced in relation to this EMSP or the applicable approvals are to be readily accessible at the Site in both hardcopy and electronic format and be made available to the EPA or any authorised person upon request.

All environmentally relevant documentation including policies, procedures, forms, records, and reports required under this EMSP should be made available at the licensed premises for a period of at least four (4) years.

In the event that amendments are made to the legislation or approvals relevant to the Site, this EMSP may be amended accordingly by the Quarry Manager or their delegate. Table 7 – Document Control and Responsibility shows the document control responsibilities for applicable environmental documents relevant to the Site.

*Table 7 – Document Control and Responsibility*

Document	Responsible Personnel
Environmental Management Strategy and Plan	Quarry Manager with support Specialist Consultants (as required)
Review of Environmental Monitoring Data and Reports	Quarry Manager with support Specialist Consultants (as required)
EPA Correspondence / Compliance Matters / Incident or Compliant Notifications (Original and Electronic Copy)	Quarry Manager with support Specialist Consultants (as required)
Work Agreements, Contracts, etc.	Quarry Manager
Electronic Copies of Environmental Monitoring Data / Incident or Compliant Notification	Quarry Manager
Internal Audit Documents and Internal Environmental Compliance Reports	Quarry Manager

### 3.11 Annual Return Reporting

At the end of each reporting period, an Annual Return must be prepared and lodged with the EPA no more than 60 days after the end of the reporting period and include the following:

- A Statement of Compliance (certified by a person who has been given written approval to certify under a licence issued under the *Pollution Control Act 1970*)
- A Monitoring and Complaints Summary (signed by the EPL holder or a person with written approval from the EPA to sign on behalf of the EPL holder).

As per DC SSD 6084 Schedule 2 Condition 17, the Applicant shall:

- (a) provide annual quarry production data to DRE using the standard form for that purpose; and
- (b) include a copy of this data in the Annual Review (see DC Condition 4 of Schedule 5).



## 4.0 Statutory Compliance Requirements

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### 4.1 State Legislation and Approvals

In New South Wales, the *Protection of the Environment Operations Act 1997* (POEO Act) is the principal legislation for protecting the environment and is administered by the Environmental Protection Authority (EPA). The POEO Act commenced on 1 July 1999. The objects of the POEO Act are to:

- a) *to constitute the Environment Protection Authority,*
- b) *to provide integrated administration for environment protection,*
- c) *to require the Authority to perform particular tasks in relation to the quality of the environment, environmental audit and reports on the state of the environment.*

Schedule 1 to the POEO Act lists activities which require a licence under this legislation. These activities are broadly deemed as activities with potentially significant environmental impacts. Pursuant to the POEO Act, the Site is operated under Environment Protection Licence 12323 (EPL) issued by the New South Wales (NSW) Environment Protection Authority (EPA), and a DC issued by Lithgow City Council. The EPL is renewed annually with the renewal date being 1 July and contains conditions which must be complied with by the operator. Refer to Appendix A – Environmental Protection Licence for a copy of the EPL and the DC.

The POEO Act provides for the preparation of Protection of the Environment Policies (PEPs) to enhance or protect the NSW Environment.

Other State legislation relevant to the Site operations may include:

- *Contaminated Land Management Act 1997*
- *Environmentally Hazardous Chemicals Act 1985*
- *National Environment Protection Council (New South Wales) Act 1995*
- *Ozone Protection Act 1989*
- *Protection of the Environment Administration Act 1991*
- *Protection of the Environment Operations Act 1997*
- *Waste Avoidance and Resource Recovery Act 2001.*

In addition, two (2) water licences have been issued to Hy-Tec under Section 87B of the *Water Management Act 2000* which provides access to water for harvesting and reuse on the Site.

- WAL 25616: allows for 20 units (1 unit = 1 ML) to be extracted from the Upper Nepean and Upstream Warragamba Water Source (Coxs River) of the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources annually.
- WAL 37423: allows the harvest of an additional 20 ML/year from the Coxs River Fractured Rock water source.

Hy-Tec has also recently lodged an application with the NSW Office of Water (NOW) for a Controlled Activity Approval under the *Water Management Act 2000* for the ongoing activities within 40 m of the Coxs River.

### 4.2 Local Government Legislation and Approvals

The Site is currently operating under DA 103/94 issued by Lithgow City Council pending activation of the DC (SSD 6084) issued by DoP&E on 15 July 2015.

DC SSD-6084 contains conditions, which the Site must comply with when the DC is activated. Refer to Appendix I – Development Consent SSD-6084 for a copy of DC SSD-6084.

#### 4.2.1 DC SSD 6084 Administrative Conditions

DC SSD contains several administrative conditions that require compliance by the operator, but which do not fall under functional headings in this EMSP. The operator commits to complying with all of these conditions, which are listed here for completeness.

#### SCHEDULE 2 - ADMINISTRATIVE CONDITIONS

##### TERMS OF CONSENT

2. The Applicant shall carry out the development generally in accordance with the:

- (a) EIS;
- (b) Statement of Commitments; and
- (c) conditions of this consent.

Note: The statement of commitments is reproduced in Appendix 3 of DC SSD6084.

3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

4. The Applicant shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:

- (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent;
- (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this consent; or
- (c) the implementation of any actions or measures contained in these documents.

##### LAPSING OF CONSENT

5. If the development has not been physically commenced within 5 years of the date of this consent, then this development consent shall lapse.

##### LIMITS ON CONSENT

##### Extractive Material Transport

8. The Applicant shall not:

- (a) transport more than 1.1 million tonnes of quarry products from the site during any financial year;
- (b) dispatch more than 250 laden trucks from the site on any one day; and
- (c) dispatch more than 150 laden trucks from the site per day, averaged over the total number of dispatch days in any calendar month.

##### SURRENDER OF EXISTING DEVELOPMENT CONSENTS

9. Within 12 months of the date of this consent, or as otherwise agreed by the Secretary, the Applicant shall surrender the development consent (DA 103/94) for the existing operations on the site in accordance with Section 104A of the EP&A Act.

Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrendering of consent should not be understood as implying that works legally constructed under a valid consent can no longer be legally maintained or used.

10. Prior to the surrender of development consent DA 103/94, the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of development consent DA 103/94.

##### STRUCTURAL ADEQUACY

11. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works; and
- Part 8 of the EP&A Regulation sets out the requirements for the certification of the development or project.

## DEMOLITION

12. The Applicant shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.

## PROTECTION OF PUBLIC INFRASTRUCTURE

13. The Applicant shall:

- (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
- (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Note: This condition does not apply to damage to roads caused as a result of general road usage.

## UPDATING AND STAGING OF STRATEGIES, PLANS OR PROGRAMS

15. To ensure that strategies, plans and programs required under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.

With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent.

Notes:

- While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.
- If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies, the relationship of this stage/s to any future stages, and the trigger for updating the strategy, plan or program.

16. Until they are replaced by an equivalent strategy, plan or program approved under this consent, the Applicant shall implement the existing strategies, plans or programs for the site that have been approved under DA 103/94.

## COMMUNITY ENHANCEMENT

20. Within 6 months of the date of this consent, unless otherwise agreed by the Secretary, the Applicant shall enter into a planning agreement with the Council in accordance with division

- Division 6 of Part 4 of the EP&A Act; and
- The terms specified in Appendix 7.

If there is any dispute between the Applicant and Council on the planning agreement, then either party may refer the matter to the Secretary for resolution.

## SCHEDULE 3

### GREENHOUSE GAS EMISSIONS

14. The Applicant shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.

## APPENDIX 7

### PLANNING AGREEMENT

1. The Applicant shall pay Council \$0.025 per tonne of quarry product extracted and transported from the Stage 2 Extraction Area on a quarterly basis. Each payment shall be:
  - (a) based on weighbridge records of the quantity of extraction material transported from the site in the relevant quarter;
  - (b) paid within 21 days of the end of the relevant quarter;
  - (c) adjusted in line with the Consumer Price Index calculated from the date of approval and applied annually from the first day of operation.

### 4.3 Approval Condition Compliance Matrix

Table 8 – Approval Condition Compliance Matrix demonstrates that conditions applied by the DoP&E upon the Site in DC SSD-6084 have been incorporated in this EMSP.

Table 8 – Approval Condition Compliance Matrix

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 1	Application Number: SSD-6084 Application: Hy-Tec Industries Pty Ltd Consent Authority: Minister for Planning Land: Lots 1 and 2 DP 1000511 Lot 31 DP 1009967 Lot 4 DP 876394 Development : Austen Quarry Extension	1.2.1
Schedule 2 Condition 1	OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.	2.1
Schedule 2 Condition 2	TERMS OF CONSENT The Applicant shall carry out the development generally in accordance with the: (a) EIS; (b) Statement of Commitments; and (c) Conditions of this consent. <i>Note: The statement of commitments is reproduced in Appendix 3.</i>	4.2.1
Schedule 2 Condition 3	If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.	4.2.1
Schedule 2 Condition 4	The Applicant shall comply with any reasonable requirements of the Secretary arising from the Department's assessment of: (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent; (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this consent; or (c) the implementation of any actions or measures contained in these documents.	4.2.1
Schedule 2 Condition 5	LAPSING OF CONSENT If the development has not been physically commenced within 5 years of the date of this consent, then this development consent shall lapse.	4.2.1
Schedule 2 Condition 6	LIMITS ON CONSENT Quarrying Operations The Applicant shall not extract extractive materials below a level of 685 m AHD.	1.3.2

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 2 Condition 7	<p>The Applicant may carry out quarrying operations on the site until 30 June 2050.</p> <p><i>Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Secretary. Consequently, this consent will continue to apply in all other respects other than the right to conduct quarrying operations until the rehabilitation of the site and those undertakings have been carried out to a satisfactory standard.</i></p>	1.1
Schedule 2 Condition 8	<p>Extractive Material Transport</p> <p>The Applicant shall not:</p> <p>(a) transport more than 1.1 million tonnes of quarry products from the site during any financial year;</p> <p>(b) dispatch more than 250 laden trucks from the site on any one day; and</p> <p>(c) dispatch more than 150 laden trucks from the site per day, averaged over the total number of dispatch days in any calendar month.</p>	4.2.1
Schedule 2 Condition 9	<p><b>SURRENDER OF EXISTING DEVELOPMENT CONSENTS</b></p> <p>Within 12 months of the date of this consent, or as otherwise agreed by the Secretary, the Applicant shall surrender the development consent (DA 103/94) for the existing operations on the site in accordance with Section 104A of the EP&amp;A Act.</p> <p><i>Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&amp;A Act. Surrendering of consent should not be understood as implying that works legally constructed under a valid consent can no longer be legally maintained or used.</i></p>	4.2.1
Schedule 2 Condition 10	<p>Prior to the surrender of development consent DA 103/94, the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of development consent DA 103/94.</p>	4.2.1
Schedule 2 Condition 11	<p><b>STRUCTURAL ADEQUACY</b></p> <p>The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• <i>Under Part 4A of the EP&amp;A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works; and</i></li> <li>• <i>Part 8 of the EP&amp;A Regulation sets out the requirements for the certification of the development or project.</i></li> </ul>	4.2.1
Schedule 2 Condition 12	<p><b>DEMOLITION</b></p> <p>The Applicant shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: <i>The Demolition of Structures, or its latest version.</i></p>	4.2.1

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 2 Condition 13	<p>PROTECTION OF PUBLIC INFRASTRUCTURE</p> <p>The Applicant shall:</p> <p>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and</p> <p>(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p> <p><i>Note: This condition does not apply to damage to roads caused as a result of general road usage.</i></p>	4.2.1
Schedule 2 Condition 14	<p>OPERATION OF PLANT AND EQUIPMENT</p> <p>The Applicant shall ensure that all the plant and equipment used at the site is:</p> <p>(a) maintained in a proper and efficient condition; and</p> <p>(b) operated in a proper and efficient manner.</p>	2.1
Schedule 2 Condition 15	<p>UPDATING AND STAGING OF STRATEGIES, PLANS OR PROGRAMS</p> <p>To ensure that strategies, plans and programs required under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.</p> <p>With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent.</p> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>• <i>While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.</i></li> <li>• <i>If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages, and the trigger for updating the strategy, plan or program.</i></li> </ul>	3.5, 4.2.1
Schedule 2 Condition 16	<p>Until they are replaced by an equivalent strategy, plan or program approved under this consent, the Applicant shall implement the existing strategies, plans or programs for the site that have been approved under DA 103/94</p>	3.5, 4.2.1
Schedule 2 Condition 17	<p>PRODUCTION DATA</p> <p>The Applicant shall:</p> <p>(a) provide annual quarry production data to DRE using the standard form for that purpose; and</p> <p>(b) include a copy of this data in the Annual Review (see condition 4 of Schedule 5).</p>	3.11

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section										
Schedule 2 Condition 18	<p>IDENTIFICATION OF APPROVED EXTRACTION LIMITS</p> <p>By 30 September 2015, unless otherwise agreed with the Secretary, the Applicant shall:</p> <p>(a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the development area; and</p> <p>(b) submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary.</p>	1.3.2, 6.9.4										
Schedule 2 Condition 19	<p>While quarrying operations are being carried out, the Applicant shall ensure that these boundaries are clearly marked at all times in a manner that allows operating staff to clearly identify the approved limits of extraction.</p>	1.3.2, 6.9.4										
Schedule 2 Condition 20	<p>COMMUNITY ENHANCEMENT</p> <p>Within 6 months of the date of this consent, unless otherwise agreed by the Secretary, the Applicant shall enter into a planning agreement with the Council in accordance with division</p> <ul style="list-style-type: none"> <li>• Division 6 of Part 4 of the EP&amp;A Act; and</li> <li>• the terms specified in Appendix 7.</li> </ul> <p>If there is any dispute between the Applicant and Council on the planning agreement, then either party may refer the matter to the Secretary for resolution.</p>	4.2.1										
Schedule 3 Condition 1	<p>NOISE</p> <p>Hours of Operation</p> <p>The Applicant shall comply with the operating hours set out in Table 1.</p> <p><i>Table 1: Operating Hours</i></p> <table border="1" data-bbox="465 887 1585 1262"> <thead> <tr> <th data-bbox="465 887 1025 922">Activity</th> <th data-bbox="1025 887 1585 922">Permissible Hours</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 922 1025 1062"> <ul style="list-style-type: none"> <li>• Extraction operations</li> <li>• Processing operations</li> <li>• Overburden management</li> <li>• Stockpile management</li> </ul> </td> <td data-bbox="1025 922 1585 1062">                     6am to 10pm Monday to Friday                      6am to 3pm Saturday                      At no time on Sundays or Public Holidays                 </td> </tr> <tr> <td data-bbox="465 1062 1025 1126"> <ul style="list-style-type: none"> <li>• Blasting</li> </ul> </td> <td data-bbox="1025 1062 1585 1126">10am to 3pm Monday to Friday (except public holidays)</td> </tr> <tr> <td data-bbox="465 1126 1025 1222"> <ul style="list-style-type: none"> <li>• Loading and dispatch</li> </ul> </td> <td data-bbox="1025 1126 1585 1222">                     5am to 10pm Monday to Friday                      5am to 3pm Saturday                      At no time on Sundays or Public Holidays                 </td> </tr> <tr> <td data-bbox="465 1222 1025 1262"> <ul style="list-style-type: none"> <li>• Maintenance</li> </ul> </td> <td data-bbox="1025 1222 1585 1262">Anytime</td> </tr> </tbody> </table>	Activity	Permissible Hours	<ul style="list-style-type: none"> <li>• Extraction operations</li> <li>• Processing operations</li> <li>• Overburden management</li> <li>• Stockpile management</li> </ul>	6am to 10pm Monday to Friday 6am to 3pm Saturday At no time on Sundays or Public Holidays	<ul style="list-style-type: none"> <li>• Blasting</li> </ul>	10am to 3pm Monday to Friday (except public holidays)	<ul style="list-style-type: none"> <li>• Loading and dispatch</li> </ul>	5am to 10pm Monday to Friday 5am to 3pm Saturday At no time on Sundays or Public Holidays	<ul style="list-style-type: none"> <li>• Maintenance</li> </ul>	Anytime	1.6 and Appendix M – Noise Management Plan
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Schedule 3 Condition 2	<p>The following activities may be carried out on the site outside the hours specified in condition 1:</p> <p>(a) delivery or dispatch of materials as requested by Police or other authorities; and</p> <p>(b) emergency work to avoid the loss of lives, property and/or to prevent environmental harm.</p> <p>In such circumstances, the Applicant shall notify the Secretary and affected residents prior to undertaking the activities, or as soon as is practical thereafter.</p>	1.6 and Appendix M – Noise Management Plan										



Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section								
Schedule 3 Condition 3	<p>Noise Impact Assessment Criteria The Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately—owned land <i>Table 2: Noise criteria dB(A)</i></p> <table border="1" data-bbox="465 427 1585 561"> <thead> <tr> <th data-bbox="465 427 745 496"><i>Receiver</i></th> <th data-bbox="745 427 1025 496"><i>Day dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i></th> <th data-bbox="1025 427 1305 496"><i>Evening dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i></th> <th data-bbox="1305 427 1585 496"><i>Morning Shoulder dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i></th> </tr> </thead> <tbody> <tr> <td data-bbox="465 496 745 561">All privately-owned residences</td> <td data-bbox="745 496 1025 561">35</td> <td data-bbox="1025 496 1305 561">35</td> <td data-bbox="1305 496 1585 561">35</td> </tr> </tbody> </table> <p>Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria. However, the noise criteria in Table 2 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</p>	<i>Receiver</i>	<i>Day dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>	<i>Evening dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>	<i>Morning Shoulder dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>	All privately-owned residences	35	35	35	6.6.3 & 6.6.5 and Appendix M – Noise Management Plan
<i>Receiver</i>	<i>Day dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>	<i>Evening dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>	<i>Morning Shoulder dB(A)<sub>L<sub>aeq</sub>(15min)</sub></i>							
All privately-owned residences	35	35	35							
Schedule 3 Condition 4	<p>Operating Conditions The Applicant shall:</p> <ul style="list-style-type: none"> <li>(a) implement best practice management to minimise the operational and road transportation noise of the development;</li> <li>(b) minimise the noise impacts of the development during meteorological conditions when the noise criteria in this consent do not apply (see Appendix 5);</li> <li>(c) carry out noise monitoring (at least every 6 months) to determine whether the development is complying with the relevant conditions of this consent; and</li> <li>(d) regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this consent, to the satisfaction of the Secretary.</li> </ul> <p><i>Note: Required frequency of noise monitoring may be reduced if approved by the Secretary.</i></p>	6.6.4 and Appendix M – Noise Management Plan								

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section								
Schedule 3 Condition 5	<p>Noise Management Plan The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with EPA; (b) be submitted to the Secretary at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary; (c) describe the measures that would be implemented to ensure:</p> <ul style="list-style-type: none"> <li>• compliance with the noise criteria in this consent;</li> <li>• best practice management is being employed; and</li> <li>• the noise impacts of the development are minimised during meteorological conditions under which the noise criteria in this consent do not apply (see Appendix 5);</li> </ul> <p>(d) describe the proposed noise management system; and (e) include a monitoring program to be implemented to measure noise from the development against the noise criteria in Table 2, and which evaluates and reports on the effectiveness of the noise management system on site.</p>	6.6.4 and Appendix M – Noise Management Plan								
Schedule 3 Condition 6	<p>BLASTING Blasting Impact Assessment Criteria The Applicant shall ensure that blasting on site does not cause any exceedance of the criteria in Table 3. <i>Table 3: Blasting Criteria</i></p> <table border="1" data-bbox="465 887 1585 1086"> <thead> <tr> <th data-bbox="465 887 745 954">Receiver</th> <th data-bbox="745 887 1025 954">Airblast overpressure (dB(Lin Peak))</th> <th data-bbox="1025 887 1305 954">Ground vibration (mm/s)</th> <th data-bbox="1305 887 1585 954">Allowable exceedance</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 954 745 1086">Any residence on privately-owned land</td> <td data-bbox="745 954 1025 1086">120 115</td> <td data-bbox="1025 954 1305 1086">10 5</td> <td data-bbox="1305 954 1585 1086">0% 5% of the total number of blasts over a period of 12 months</td> </tr> </tbody> </table> <p>However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed the limits in Table 3, and the Applicant has advised the Department in writing of the terms of this agreement.</p>	Receiver	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	Any residence on privately-owned land	120 115	10 5	0% 5% of the total number of blasts over a period of 12 months	6.7.3 and Appendix N – Blasting Management Plan
Receiver	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance							
Any residence on privately-owned land	120 115	10 5	0% 5% of the total number of blasts over a period of 12 months							
Schedule 3 Condition 7	<p>Blasting Frequency The Applicant may carry out a maximum of 1 blast per calendar week, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site. <i>Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.</i></p>	6.7.3 and Appendix N – Blasting Management Plan								

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 3 Condition 8	<p>Operating Conditions</p> <p>During blasting operations, the Applicant shall:</p> <p>(a) implement best practice management to:</p> <ul style="list-style-type: none"> <li>• protect the safety of people and livestock in the areas surrounding blasting operations;</li> <li>• protect public or private infrastructure/property in the surrounding area from damage from blasting operations and</li> <li>• minimise the dust and fume emissions of blasting;</li> </ul> <p>(b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and</p> <p>(c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.</p>	6.7.4 and Appendix N – Blasting Management Plan
Schedule 3 Condition 9	<p>Blast Management Plan</p> <p>The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;</p> <p>(b) describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of this consent;</p> <p>(c) include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this consent;</p> <p>(d) include community notification procedures for the blasting schedule; and</p> <p>(e) include a protocol for investigating and responding to complaints.</p>	6.7.4 and Appendix N – Blasting Management Plan

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section															
Schedule 3 Condition 10	<p><b>AIR QUALITY</b> Air Quality Impact Assessment Criteria The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 4 at any residence on privately—owned land. <i>Table 4: Air quality criteria</i></p> <table border="1" data-bbox="465 491 1585 759"> <thead> <tr> <th><i>Pollutant</i></th> <th><i>Averaging Period</i></th> <th><i>Criterion</i></th> </tr> </thead> <tbody> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>Annual</td> <td>a, d 30 µg/m<sup>3</sup></td> </tr> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>24 hour</td> <td>b 50 µg/m<sup>3</sup></td> </tr> <tr> <td>Total suspended particulates (TSP)</td> <td>Annual</td> <td>a, d 90 µg/m<sup>3</sup></td> </tr> <tr> <td><sup>c</sup> Deposited dust</td> <td>Annual</td> <td>b 2 g/m<sup>2</sup>/month      a, d 4 g/m<sup>2</sup>/month</td> </tr> </tbody> </table> <p><i>Notes to Table 4:</i>  a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).  b Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).  c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.  d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.  e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 11 and 12 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.</p>	<i>Pollutant</i>	<i>Averaging Period</i>	<i>Criterion</i>	Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	a, d 30 µg/m <sup>3</sup>	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	b 50 µg/m <sup>3</sup>	Total suspended particulates (TSP)	Annual	a, d 90 µg/m <sup>3</sup>	<sup>c</sup> Deposited dust	Annual	b 2 g/m <sup>2</sup> /month      a, d 4 g/m <sup>2</sup> /month	6.5.3 and Appendix L – Air Quality Management Plan
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Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 3 Condition 11	<p>Operating Conditions</p> <p>The Applicant shall:</p> <p>(a) implement best practice management to minimise the dust emissions of the development;</p> <p>(b) regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this consent;</p> <p>(c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d under Table 4);</p> <p>(d) monitor and report on compliance with the relevant air quality conditions in this consent; and</p> <p>(e) minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.</p>	6.5.4, 6.5.7 and Appendix L – Air Quality Management Plan
Schedule 3 Condition 12	<p>Air Quality Management Plan</p> <p>The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agree by the Secretary;</p> <p>(b) describe the measures that would be implemented to ensure:</p> <ul style="list-style-type: none"> <li>• compliance with the relevant conditions of this consent;</li> <li>• best practice management is being employed; and</li> <li>• the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;</li> </ul> <p>(c) describe the proposed air quality management system;</p> <p>(d) include an air quality monitoring program that:</p> <ul style="list-style-type: none"> <li>• is capable of evaluating the performance of the development;</li> <li>• includes a protocol for determining any exceedances of the relevant conditions of consent;</li> <li>• effectively supports the air quality management system; and</li> <li>• evaluates and reports on the adequacy of the air quality management system.</li> </ul>	6.5.4 and Appendix L – Air Quality Management Plan
Schedule 3 Condition 13	<p>Meteorological Monitoring</p> <p>For the life of the development, the Applicant shall ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.</p>	6.5.5 and Appendix L – Air Quality Management Plan
Schedule 3 Condition 14	<p>Greenhouse Gas Emissions</p> <p>The Applicant shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.</p>	4.2.1 and Appendix L – Air Quality Management Plan

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 3 Condition 15	<p><b>SOIL AND WATER</b>  <i>Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain the necessary water licences for the development, including in respect of the extraction and/or interception of groundwater.</i>  <b>Water Supply</b>                      The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations under the consent to match its available water supply, to the satisfaction of the Secretary.</p>	6.1.1, 6.1.2 and 6.1.4
Schedule 3 Condition 16	<p><b>Water Discharges</b>                      The Applicant shall comply with the discharge limits in any EPL, or with section 120 of the POEO Act.</p>	6.1.2 and 6.1.3
Schedule 3 Condition 17	<p><b>Surface Water Audit and Water Management Improvement Program</b>                      Within three months of the date of this consent, the Applicant shall commission independent surface water expert/s, approved by the Secretary, to undertake an audit of current and proposed surface water management practices and infrastructure on the site. The audit shall:                      (a) be undertaken in consultation with EPA and Water NSW;                      (b) fully describe and audit existing site water management practices and consider the EIS's proposed water management practices;                      (c) identify all reasonable and feasible measures to improve surface water management on the site, with particular reference to opportunities to divert clean water away from the site; and                      (d) recommend design parameters for proposed water management systems on the site.</p>	6.1.4
Schedule 3 Condition 18	<p>Unless otherwise agreed with the Secretary, the Applicant shall submit the Surface Water Audit report to the Secretary within six months of commissioning the audit. The report must be accompanied by a Water Management Improvement Program, based on the report's recommendations, to improve surface water management practices on the site, including a program of proposed timeframes for implementation.</p>	6.1.4
Schedule 3 Condition 19	<p>The Applicant must implement the Water Management Improvement Program to the satisfaction of the Secretary.</p>	6.1.4
Schedule 3 Condition 20	<p><b>Water Management Plan</b>                      The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Secretary. This plan must:                      (a) be prepared by suitably qualified person/s approved by the Secretary;                      (b) be prepared in consultation with the EPA, NOW and Water NSW;                      (c) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;                      (d) include a:                          (i) Site Water Balance that includes:                              ▪ details of:                              ▪ sources and security of water supply;</p>	6.1.1, 6.1.2, 6.1.4, Appendix J – Water Management Plan.

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
	<ul style="list-style-type: none"> <li>▪ water use and management on site;</li> <li>▪ any off—site water transfers; and</li> <li>▪ reporting procedures.</li> <li>• measures that would be implemented to minimise clean water use on site;</li> </ul> <p>(ii) Surface Water Management Plan, that includes:</p> <ul style="list-style-type: none"> <li>• detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the development;</li> <li>• detailed description of the surface water management system on site including the: <ul style="list-style-type: none"> <li>▪ clean water diversion system;</li> <li>▪ erosion and sediment controls;</li> <li>▪ dirty water management system; and</li> <li>▪ water storages; and</li> </ul> </li> <li>• a program to monitor and report on: <ul style="list-style-type: none"> <li>▪ any surface water discharges;</li> <li>▪ the effectiveness of the water management system; and</li> <li>▪ surface water flows and quality in local watercourses;</li> </ul> </li> </ul> <p>(iii) Groundwater Management Plan, that includes:</p> <ul style="list-style-type: none"> <li>• baseline data on groundwater levels, yield and quality in local aquifers and privately- owned groundwater bores that could be potentially affected by the development;</li> <li>• a program to monitor and report on groundwater inflows to the quarry pit and the impacts of the development on surrounding aquifers and privately—owned groundwater bores; and</li> <li>• an analysis of these monitoring results to predict long—term water levels within the quarry void; and</li> </ul> <p>(iv) Surface and Ground Water Contingency Strategy, that includes:</p> <ul style="list-style-type: none"> <li>• a protocol for the investigation, notification and mitigation of identified impacts on surface water flows and quality in water bodies and/or groundwater levels, yield and quality in local aquifers and privately—owned groundwater bores that could be potentially affected by the development; and</li> <li>• the procedures that would be followed if any unforeseen impacts are detected during the development.</li> </ul>	
Schedule 3 Condition 21	<p><b>TRANSPORT</b> Monitoring of Product Transport The Applicant shall keep accurate records of all laden truck movements to and from the site (hourly, daily, weekly, monthly and annually) and publish a summary of records on its website every 6 months.</p>	6.16.7 and Appendix T – Traffic Management Plan

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 3 Condition 22	<p>Operating Conditions</p> <p>The Applicant shall ensure that:</p> <p>(a) all reasonable measures are taken such that laden trucks have appropriate signage, including a contact phone number, so they can be easily identified by road users;</p> <p>(b) all laden trucks entering or exiting the site have their loads covered;</p> <p>(c) all laden trucks exiting the site are cleaned of material that may fall on the road, before leaving the site; and</p> <p>(d) no trucks queue at the entrance to the quarry access road before 5 am.</p>	6.16.4 and Appendix R – Traffic Management Plan
Schedule 3 Condition 23	<p>Transport Management Plan</p> <p>The Applicant shall prepare and implement a Transport Management Plan for the development to the satisfaction of the Secretary. This plan must:</p> <p>(a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;</p> <p>(b) describe the measures that would be undertaken to monitor the level of service at the Jenolan Caves Road and Great Western Highway intersection and maintain an acceptable level of service at this intersection;</p> <p>(c) include a Drivers' Code of Conduct to minimise the impacts of development—related trucks on local residences and road users including measures to minimise use of local roads; and</p> <p>(d) describe the measures that would be put in place to ensure compliance with the Drivers' Code of Conduct.</p>	6.16 and Appendix R – Traffic Management Plan
Schedule 3 Condition 24	<p>ABORIGINAL HERITAGE</p> <p>If any item or object of Aboriginal heritage significance is identified on site, the Applicant shall ensure that:</p> <p>(a) all work in the immediate vicinity of the suspected Aboriginal item or object ceases immediately;</p> <p>(b) a 10 m buffer area around the suspected item or object is cordoned off; and</p> <p>(c) the OEH is contacted immediately.</p> <p>Work in the vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the National Parks and <i>Wildlife Act 1974</i>.</p>	6.13.4
Schedule 3 Condition 25	<p>LANDSCAPE AND REHABILITATION</p> <p>Biodiversity Offset Strategy</p> <p>The Applicant shall implement the Biodiversity Offset Strategy, described in the EIS and including Conservation Area H, shown conceptually in Appendix 6, to the satisfaction of the Secretary.</p>	6.9, 6.11 and Appendix P – Biodiversity Offset Management Plan



Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section												
Schedule 3 Condition 26	<p>Security of Offsets Within 2 years of this consent, unless otherwise agreed with the Secretary, the Applicant shall make suitable arrangements to provide appropriate long—term security for the Biodiversity Offset Strategy, to the satisfaction of the Secretary.</p> <p><i>Note: Mechanisms to provide appropriate long term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014, including a Biobanking Agreement, Voluntary Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome. Any mechanism must remain in force in perpetuity.</i></p>	6.9.4 and Appendix P – Biodiversity Offset Management Plan												
Schedule 3 Condition 27	<p>Rehabilitation Objectives The Applicant shall rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and the conceptual final landform in Appendix 4 and must comply with the objectives in Table 5.</p> <p><i>Table 5: Rehabilitation Objectives</i></p> <table border="1" data-bbox="465 754 1585 1098"> <thead> <tr> <th data-bbox="465 754 734 786">Feature</th> <th data-bbox="734 754 1585 786">Objective</th> </tr> </thead> <tbody> <tr> <td data-bbox="465 786 734 922">Site (as a whole)</td> <td data-bbox="734 786 1585 922"> <ul style="list-style-type: none"> <li>• Safe, stable and non—polluting</li> <li>• Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land</li> </ul> </td> </tr> <tr> <td data-bbox="465 922 734 962">Surface Infrastructure</td> <td data-bbox="734 922 1585 962"> <ul style="list-style-type: none"> <li>• Decommissioned and removed, unless DRE agrees otherwise</li> </ul> </td> </tr> <tr> <td data-bbox="465 962 734 994">Quarry Benches</td> <td data-bbox="734 962 1585 994"> <ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul> </td> </tr> <tr> <td data-bbox="465 994 734 1026">Quarry Pit Floor</td> <td data-bbox="734 994 1585 1026"> <ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul> </td> </tr> <tr> <td data-bbox="465 1026 734 1098">Final Void</td> <td data-bbox="734 1026 1585 1098"> <ul style="list-style-type: none"> <li>• Minimise the size, depth and slope of the batters of the final void</li> <li>• Minimise the drainage catchment of the final void</li> </ul> </td> </tr> </tbody> </table>	Feature	Objective	Site (as a whole)	<ul style="list-style-type: none"> <li>• Safe, stable and non—polluting</li> <li>• Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land</li> </ul>	Surface Infrastructure	<ul style="list-style-type: none"> <li>• Decommissioned and removed, unless DRE agrees otherwise</li> </ul>	Quarry Benches	<ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul>	Quarry Pit Floor	<ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul>	Final Void	<ul style="list-style-type: none"> <li>• Minimise the size, depth and slope of the batters of the final void</li> <li>• Minimise the drainage catchment of the final void</li> </ul>	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
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Schedule 3 Condition 28	<p>Progressive Rehabilitation The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.</p> <p><i>Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.</i></p>	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan												
Schedule 3 Condition 29	<p>Landscape and Rehabilitation Management Plan The Applicant shall prepare and implement a Landscape and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:</p>	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan												

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
	<p>(a) be prepared in consultation with OEH and be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless the Secretary agrees otherwise;</p> <p>(b) provide details of the conceptual final landform and associated land uses for the site;</p> <p>(c) describe how the implementation of the Biodiversity Offset Strategy would be integrated with the overall rehabilitation of the site;</p> <p>(d) include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and rehabilitation of the site, including triggers for any necessary remedial action;</p> <p>(e) describe the short, medium and long term measures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• manage remnant vegetation and habitat on site, including within the Biodiversity Offset Strategy area; and</li> <li>• ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;</li> </ul> <p>(f) include a detailed description of the measures that would be implemented over the next 3 years (to be updated for each 3 year period following initial approval of the plan) including the procedures to be implemented for:</p> <ul style="list-style-type: none"> <li>• maximising the salvage of environmental resources within the approved disturbance area,</li> <li>• including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of the offset area or site rehabilitation;</li> <li>• restoring and enhancing the quality of native vegetation and fauna habitat in the biodiversity and rehabilitation areas through assisted natural regeneration, targeted vegetation establishment and the introduction of fauna habitat features;</li> <li>• protect, conserve, propagate, plant and/or regenerate Silver—leafed Mountain Gum (<i>Eucalyptus pulverulenta</i>) (including the propagation and planting of at least 1,000 individuals of this species);</li> <li>• protecting vegetation and fauna habitat outside the approved disturbance area on—site;</li> <li>• minimising the impacts on native fauna, including undertaking pre—clearance surveys;</li> <li>• establishing vegetation screening to minimise the visual impacts of the site on surrounding receivers;</li> <li>• ensuring minimal environmental consequences for threatened species, populations and habitats;</li> <li>• collecting and propagating seed;</li> <li>• controlling weeds and feral pests;</li> <li>• controlling erosion;</li> <li>• controlling access; and</li> <li>• managing bushfire risk;</li> </ul> <p>(g) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;</p> <p>(h) identify the potential risks to the successful implementation of the Biodiversity Offset Strategy, and include a</p>	

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
	description of the contingency measures that would be implemented to mitigate these risks; and (i) include details of who would be responsible for monitoring, reviewing, and implementing the plan.	
Schedule 3 Condition 30	<p>Conservation and Rehabilitation Bond</p> <p>Within 6 months of the approval of the Landscape Management Plan, the Applicant shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the plan and relevant conditions of this consent. The sum of the bond shall be determined by:</p> <p>(a) calculating the cost of implementing the Biodiversity Offset Strategy over the next 3 years;</p> <p>(b) calculating the cost of rehabilitating the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and</p> <p>(c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>• <i>Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement, or transfer to conservation reserve estate can be used to reduce the liability of the conservation and rehabilitation bond.</i></li> <li>• <i>If capital and other expenditure required by the Landscape Management Plan is largely complete, the Secretary may waive the requirement for lodgement of a bond in respect of the remaining expenditure.</i></li> <li>• <i>If the Biodiversity Offset Strategy and rehabilitation of the site area are completed to the satisfaction of the Secretary, then the Secretary will release the bond. If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.</i></li> </ul>	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Schedule 3 Condition 31	<p>Within 3 months of each Independent Environmental Audit (see condition 8 of Schedule 5), the Applicant shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:</p> <p>(a) effects of inflation;</p> <p>(b) likely cost of implementing the Biodiversity Offset Strategy and rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the development); and</p> <p>(c) performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.</p>	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Schedule 3 Condition 32	The Applicant shall implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development to the satisfaction of the Secretary.	6.15.4

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 3 Condition 33	<p><b>WASTE</b> The Applicant shall: (a) manage on—site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council; (b) minimise the waste generated by the development; (c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.</p>	6.8.4
Schedule 3 Condition 34	<p>Except as expressly permitted in an EPL, the Applicant must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.</p>	6.8.3
Schedule 3 Condition 35	<p><b>LIQUID STORAGE</b> The Applicant shall ensure that all tanks and similar facilities for storage of liquids (other than for water) are protected by appropriate bunding, which must exceed 110% of the stored volume of the liquid.</p>	6.4.4
Schedule 3 Condition 36	<p><b>DANGEROUS GOODS</b> The Applicant shall ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the <i>Dangerous Goods Code</i>.</p>	6.4.4
Schedule 3 Condition 37	<p><b>BUSHFIRE</b> The Applicant shall: (a) ensure that the development is suitably equipped to respond to any fires on site; and (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the Site.</p>	6.12.3
Schedule 4 Condition 1	<p><b>NOTIFICATION OF LANDOWNERS</b> As soon as practicable after obtaining monitoring results showing: (a) an exceedance of any relevant criteria in Schedule 3, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and (b) an exceedance of any relevant air quality criteria in Schedule 3, the Applicant shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and current tenants of the land (including the tenants of land which is not privately—owned).</p>	3.9

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 4 Condition 2	<p><b>INDEPENDENT REVIEW</b></p> <p>If an owner of privately—owned land considers the development to be exceeding the relevant criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.</p> <p>If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Applicant shall:</p> <p>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:</p> <ul style="list-style-type: none"> <li>• consult with the landowner to determine his/her concerns;</li> <li>• conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 3; and</li> <li>• if the development is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria; and</li> </ul> <p>(b) give the Secretary and landowner a copy of the independent review.</p>	3.9
Schedule 5 Condition 1a	<p><b>ENVIRONMENTAL MANAGEMENT</b></p> <p>Environmental Management Strategy</p> <p>The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:</p> <p>(a) be submitted to the Secretary for approval within 6 months of the date of this consent;</p>	3.0
Schedule 5 Condition 1b	(b) provide the strategic framework for environmental management of the development;	3.0
Schedule 5 Condition 1c	(c) identify the statutory approvals that apply to the development;	4.0
Schedule 5 Condition 1d	(d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	2.2 & 2.3
Schedule 5 Condition 1e	<p>(e) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> <li>• keep the local community and relevant agencies informed about the operation and environmental performance of the development;</li> <li>• receive, record, handle and respond to complaints;</li> <li>• resolve any disputes that may arise during the course of the development;</li> <li>• c respond to any non—compliance;</li> <li>• respond to emergencies; and</li> </ul>	3.8, 3.9 and 6
Schedule 5 Condition 1f	<p>(f) include:</p> <ul style="list-style-type: none"> <li>• copies of any strategies, plans and programs approved under the conditions of this consent; and</li> <li>• a clear plan depicting all the monitoring to be carried out under the conditions of this consent.</li> </ul>	EMSP Appendices and Monitoring Sections of 6.1 to 6.17 inclusive.

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 5 Condition 2a	<p>Management Plan Requirements</p> <p>The Applicant shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:</p> <p>(a) detailed baseline data;</p>	Contained in EIS documents, to be held with EMSP on Site
Schedule 5 Condition 2b	<p>(b) a description of:</p> <ul style="list-style-type: none"> <li>• the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>• any relevant limits or performance measures/criteria; and</li> <li>• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul>	4
Schedule 5 Condition 2c	<p>(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;</p>	6
Schedule 5 Condition 2d	<p>(d) a program to monitor and report on the:</p> <ul style="list-style-type: none"> <li>• impacts and environmental performance of the development; and</li> <li>• effectiveness of any management measures (see (c) above);</li> </ul>	6
Schedule 5 Condition 2e	<p>(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</p>	6
Schedule 5 Condition 2f	<p>(f) a program to investigate and implement ways to improve the environmental performance of the development over time;</p>	6
Schedule 5 Condition 2g	<p>(g) a protocol for managing and reporting any:</p> <ul style="list-style-type: none"> <li>• incidents;</li> <li>• complaints;</li> <li>• non—compliances with statutory requirements; and</li> <li>• exceedances of the impact assessment criteria and/or performance criteria; and</li> </ul>	3.8, 3.9 and 6
Schedule 5 Condition 2h	<p>(h) a protocol for periodic review of the plan.</p> <p><i>Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i></p>	3.5

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 5 Condition 3	<p><b>Adaptive Management</b> The Applicant must assess and manage development—related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&amp;A Act or EP&amp;A Regulation.</p> <p>Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <p>(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not reoccur;</p> <p>(b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and</p> <p>(c) implement remediation measures as directed by the Secretary; to the satisfaction of the Secretary.</p>	3.5
Schedule 5 Condition 4	<p><b>Annual Review</b> By the end of September each year, or other timing as may be agreed by the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:</p> <p>(a) describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year;</p> <p>(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous financial year, which includes a comparison of these results against the:</p> <ul style="list-style-type: none"> <li>• relevant statutory requirements, limits or performance measures/criteria;</li> <li>• requirements of any plan or program required under this consent;</li> <li>• monitoring results of previous years; and</li> <li>• relevant predictions in the EIS;</li> </ul> <p>(c) identify any non—compliance over the past financial year, and describe what actions were (or are being) taken to ensure compliance;</p> <p>(d) identify any trends in the monitoring data over the life of the development;</p> <p>(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</p> <p>(f) describe what measures will be implemented over the current financial year to improve the environmental performance of the development.</p>	3.5

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 5 Condition 5	<p>Revision of Strategies, Plans &amp; Programs Within 3 months of the submission of an:</p> <ul style="list-style-type: none"> <li>(a) annual review under condition 4 above;</li> <li>(b) incident report under condition 6 below;</li> <li>(c) audit report under condition 8 below; and</li> <li>(d) any modifications to this consent,</li> </ul> <p>the Applicant shall review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary.</p> <p><i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the development.</i></p>	3.6
Schedule 5 Condition 6	<p><b>REPORTING</b> Incident Reporting The Applicant shall immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.</p>	3.8.2
Schedule 5 Condition 7	<p><b>Regular Reporting</b> The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.</p>	3.9
Schedule 5 Condition 8	<p><b>INDEPENDENT ENVIRONMENTAL AUDIT</b> Within a year of the date of this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:</p> <ul style="list-style-type: none"> <li>(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;</li> <li>(b) include consultation with the relevant agencies;</li> <li>(c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent and any relevant EPL or necessary water licences for the development (including any assessment, strategy, plan or program required under these approvals);</li> <li>(d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and</li> <li>(e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, strategy, plan or program required under the abovementioned approvals.</li> </ul> <p><i>Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.</i></p>	3.7



Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Schedule 5 Condition 9	Within 6 weeks of completion of this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.	3.7
Schedule 5 Condition 10	<p>ACCESS TO INFORMATION</p> <p>Within 6 months of the date of this consent, the Applicant shall:</p> <p>(a) make the following information publicly available on its website:</p> <ul style="list-style-type: none"> <li>• the documents listed in condition 2 of Schedule 2;</li> <li>• current statutory approvals for the development;</li> <li>• all approved strategies, plans and programs required under the conditions of this consent;</li> <li>• a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;</li> <li>• a complaints register, updated monthly;</li> <li>• the annual reviews of the development;</li> <li>• any independent environmental audit, and the Applicant's response to the recommendations in any audit; and</li> <li>• any other matter required by the Secretary; and</li> </ul> <p>keep this information up—to—date, to the satisfaction of the Secretary.</p>	3.9
Appendix 1	Refer to Appendix 1 of the Development Consent SSD-6084	DC appended to EMSP
Appendix 2	Refer to Appendix 2 of the Development Consent SSD-6084	DC appended to EMSP
Appendix 3 Condition 1.1	Comply with commitments recorded in this table.	2.1 and 3.0
Appendix 3 Condition 1.2	<p>Comply with all conditional requirements included in the :</p> <ul style="list-style-type: none"> <li>• Development Consent,</li> <li>• Environment Protection Licence;</li> <li>• Approval under the EPBC Act;</li> <li>• Water Access Licence</li> <li>• Any other approvals</li> </ul>	3.0
Appendix 3 Condition 2.1	Place all paper and general wastes originating from the site office, together with routine maintenance consumables from the daily servicing of equipment in waste skip bins located adjacent to the site office and workshop	6.8.4
Appendix 3 Condition 2.2	Segregate waste into recyclables and non-recyclable materials for removal by a licensed contractor.	6.8.4
Appendix 3 Condition 2.3	Ensure the appropriate storage and regular collection of industrial wastes including waste oils and scrap metal.	6.8.4

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 3.1	Retain all soil and suitable cleared vegetation resources for use in the rehabilitation of the final landform.	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Appendix 3 Condition 3.2	Include <i>Eccalypus pulverulenta</i> in the revegetation of the Stage 2 Site.	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Appendix 3 Condition 3.3	Re-instate the pre-disturbance soil and land capability in the area used for the secondary processing area and Yorkeys Creek stockpile area.	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Appendix 3 Condition 3.4	Mark, and where appropriate fence, boundaries relevant to the Biodiversity Offset Area.	6.9.4 and Appendix P – Biodiversity Offset Management Plan
Appendix 3 Condition 4.1	Provide for rehabilitation of the secondary processing area and Yorkeys Creek stockpile area back to agricultural land.	6.11.4 and Appendix Q – Landscape and Rehabilitation Management Plan
Appendix 3 Condition 5.1	All transport contractors required to complete Hy-Tec Chain of Responsibility: Driver Vehicle Check System.	6.16 and Appendix R – Traffic Management Plan
Appendix 3 Condition 5.2	Maintain a complaints management system to appropriately respond to any complaints received through investigation and implementation of corrective treatments.	6.13.4 and Appendix R – Traffic Management Plan
Appendix 3 Condition 5.3	Monitor the delays for vehicles turning right onto the Great Western Highway at two-yearly intervals from 2022 onwards.	6.16 and Appendix R – Traffic Management Plan
Appendix 3 Condition 6.1	Implement design and sequencing measures to minimise exposure of the Quarry, namely: a) undertake the extraction area and overburden emplacement extensions in accordance with the limits noted on Figure 2.4 of the EIS and sequence generally as presented on Figure 2.6 of the EIS; b) retain the primary crusher in its current location within the Stage 1 extraction area; c) retain the visual screen provided by the Northern Ridge; and d) restrict further extension of the secondary processing area and Yorkeys Creek stockpile area.	6.15.4

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 6.2	<p>Implement management measures to limit impacts to visual amenity including the following.</p> <ul style="list-style-type: none"> <li>a) Complete a trial of short-term visual mitigation measures for the Yorkeys Creek stockpile area.</li> <li>b) Implement short-term visual mitigation measures for the Yorkeys Creek stockpile area.</li> <li>c) Progressive revegetation or rehabilitation of terminal faces of the extraction area and overburden emplacement and profiled slopes between the administration area and the extraction area.</li> <li>d) Maintain existing visual barriers including retained northern face of extraction area and tree-lined visual barriers.</li> <li>e) Apply a bituminous film to reduce the contrast between the pale rhyolite and darker background vegetation on completed western facing slopes where necessary.</li> <li>f) Minimise dust emissions through suppression measures such as regular watering of areas.</li> <li>g) Maintain the Site in a tidy and orderly manner.</li> <li>h) Minimise the impacts of lighting by directing lights away from critical receptors (to the south and east) and minimise the 'lume' created by the lights.</li> </ul> <p><i>Note: If superseded by more effective measures, or no longer required due to progressive development of the Quarry Site, the above will cease to be implemented.</i></p>	6.15.4
Appendix 3 Condition 6.3	Monitor the sequence of visual impacts using a series of annual photographs from vantage points surrounding the Quarry Site. These photos, along with a discussion as to compliance with the impact predicted, would be included in annual reporting.	6.15.5
Appendix 3 Condition 7.1	Ensure any off-site discharge is monitored and reported in accordance with EPL 12323.	6.1.5
Appendix 3 Condition 7.2	Ensure the capacity of the various sediment basins and water storage of the site provides the required water settlement and sediment storage volumes for a 5-day 95 <sup>th</sup> percentile rainfall event.	6.1.3
Appendix 3 Condition 7.3	Apply procedures established in the Water Management Plan for the appropriate treatment of water that is to be discharged to natural drainage.	6.1 and 6.2
Appendix 3 Condition 7.4	Secure store all hydrocarbon products within designated and bunded areas.	6.4.4
Appendix 3 Condition 7.5	Refuel and maintain all equipment within designated areas of the Site i.e. workshop area.	6.4.4
Appendix 3 Condition 8.1	Securely store all hydrocarbon products within designated and bunded areas.	6.4.4
Appendix 3 Condition 8.2	Refuel and maintain all equipment within designated areas of the Site i.e. workshop area.	6.4.4
Appendix 3 Condition 8.3	Obtain and maintain a Water Access Licence(s) for the volume of groundwater seepage into the extraction area annually.	6.1.3
Appendix 3 Condition 8.4	Report annual and projected groundwater extraction to the NSW Office of Water	6.1.7

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 9.1	Locate primary crushing station within extraction footprint.	6.9.4
Appendix 3 Condition 9.2	Limit extent of extraction area as nominated in the development consent.	6.9.4
Appendix 3 Condition 9.3	Operate a conveyor between the primary crushing station and secondary processing area to limit transportation of raw materials.	6.9.4
Appendix 3 Condition 9.4	Maintain a 10m buffer and exclusion zone around the proposed area of disturbance.	6.9.4
Appendix 3 Condition 9.5	Fence, as appropriate, sections of the Stage 2 Site not required for ongoing operations.	6.9.4
Appendix 3 Condition 9.6	Include the Silver-leafed mountain gum in progressive revegetation of the final landform.	6.11.4
Appendix 3 Condition 9.7	Install appropriate erosion and sediment control measures prior to vegetation clearing activities (to reduce the potential for pollution of downstream riparian and aquatic habitat).	6.2.4
Appendix 3 Condition 9.8	Limit vehicle speeds within the Site to limit the potential for vehicle trauma to wildlife.	6.16.4 and Appendix R – Traffic Management Plan
Appendix 3 Condition 10.1	Design and construct any ancillary development works, e.g. access roads, in the vicinity of watercourses in accordance with the NSW DPI <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> .	6.2.4
Appendix 3 Condition 10.2	Minimise the occurrence of uncontrolled discharge of water by managing water in accordance with a Water Management Plan.	6.1 & 6.2
Appendix 3 Condition 10.3	Maintain a bunded area for storage of fuels, oils, refuelling and appropriate maintenance of vehicles and mechanical plant.	6.4.4
Appendix 3 Condition 10.4	Procedures would be implemented to manage handling of hazardous material and spill response protocols.	6.4.4
Appendix 3 Condition 10.5	Install and maintain scour protection at pipe outlet points.	6.4.4
Appendix 3 Condition 11.1	Undertake processing operation with the current or equivalent crushing and screening plant.	6.6.4 and Appendix M – Noise Management Plan
Appendix 3 Condition 11.2	Ensure all equipment on Site has sound power levels at or below that nominated for noise modelling purposes (see Table 5-1 of below, 2014a).	6.6.4 and Appendix M – Noise Management Plan
Appendix 3 Condition 11.3	Limit transport noise by ensuring: <ul style="list-style-type: none"> <li>a) all trucks under control Hy-Tec, or accredited contractors would comply at all times with RMS noise limits</li> <li>b) All truck drivers would be required to sign a Code of Conduct that includes noise limiting behaviour.</li> <li>c) Comply with conditional limits on truck movements.</li> <li>d) The internal road network would be graded, as required, to limit body noise from empty trucks</li> </ul>	6.6.4 and Appendix M – Noise Management Plan

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 11.4	Maintenance work would be confined to standard daytime hours where practicable.	6.6.4 and Appendix M – Noise Management Plan
Appendix 3 Condition 12.1	Undertake operations in accordance with an Air Quality Management Plan.	6.5.4 and Appendix L – Air Quality Management Plan
Appendix 3 Condition 12.2	Minimise the impacts of greenhouse gases relating to diesel consumption by: a) minimising use of haul trucks through use of an overland conveyor b) minimising rehandling of overburden and products c) maintaining and servicing equipment to ensure efficiently d) minimising the quarry footprint to reduce land disturbance e) optimising the design of the Processing Plant to f) maximise the use of gravity to move material throughout the plant and maximise energy efficient motors in major equipment.	6.5.4 and Appendix L – Air Quality Management Plan
Appendix 3 Condition 12.3	Continue to monitor dust impacts through: a) the existing deposited dust gauges; and b) on-site meteorological monitoring to record relevant parameters.	6.5.4 and Appendix L – Air Quality Management Plan
Appendix 3 Condition 13.1	Include Indigenous heritage protocols and obligations within training and induction processes for the quarry.	6.13.4
Appendix 3 Condition 13.2	Halt all works in the immediate area if cultural objects are found and contact a suitably qualified archaeologist and Aboriginal community representative.	6.13.4
Appendix 3 Condition 13.3	Halt all works in the immediate area if human remains are found and contact NSW Police, Aboriginal community representative and OEH.	6.13.4
Appendix 3 Condition 13.4	Maintain reasonable efforts to avoid impacts to Aboriginal cultural heritage values at all stages of the development works	6.13.4
Appendix 3 Condition 13.5	Complete an Aboriginal Site Impact Recording Form to submit it to the Aboriginal Heritage Management Information System (AHMIS) Registrar, for each AHMIS site that is harmed through the proposed development.	6.13.4
Appendix 3 Condition 14.1	Halt all works in the immediate area if cultural object(s) are found.	6.13.4
Appendix 3 Condition 14.2	Secure the location, e.g. through the installation of protective fencing, flagging with high visibility tape.	6.13.4
Appendix 3 Condition 14.3	Contact a suitably qualified archaeologist to determine the significance of the object(s).	6.13.4
Appendix 3 Condition 14.4	Report discovery of relic (if advised of validity by archaeologist) in accordance within Section 146 of the <i>Heritage Act 1977</i> .	6.13.4
Appendix 3 Condition 14.5	Do not recommence works within the secured area until advised by archaeologist.	6.13.4

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 14.6	Include the commitments of 14.1 to 14.4 within training and induction processes for the Site.	6.13.4
Appendix 3 Condition 15.1	Ensure refuelling is undertaken within designated fuel bays and vehicles are turned off during refuelling.	6.4.4, and Appendix T – Safety Management Plan
Appendix 3 Condition 15.2	Ensure no smoking policy is enforced in designated areas of the site.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.3	Ensure fire extinguishers are maintained within site vehicles and refuelling areas.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.4	Ensure that a water cart is available to assist in extinguishing any fire ignited.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.5	Establish and maintain an Outer Protection Area around the administration area.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.6	Maintain the access road to the extraction area such that safe passage is guaranteed should an emergency evacuation be required.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.7	Maintain access to water contained within SD1 to SD6, as well as SB1 for use in fighting ember attack.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.8	Complete appropriate training with site personnel in relation to fire-fighting tasks and procedures.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.9	Ensure access is provided for Rural Fire Service and its and other emergency services' authority is recognised and assistance offered in the event of a bush fire.	6.4.3 and Appendix T – Safety Management Plan
Appendix 3 Condition 15.10	Ensure route selection for delivery of quarry products follows routes designated in the EIS for entry and exit to the Site, transportation through the Blue Mountains and local deliveries of products.	6.16 and Appendix R– Traffic Management Plan
Appendix 3 Condition 15.11	Operate a Traffic Management Plan for all trucks entering and exiting Austen Quarry.	6.16 and Appendix R – Traffic Management Plan
Appendix 3 Condition 15.12	Continue to implement the Chain of Responsibility — Driver Vehicle Check system for all transportation activities undertaken at the Site.	6.16 and Appendix R – Traffic Management Plan
Appendix 3 Condition 15.13	Implement measures to ensure the safety of public including visitors, contractors and employees through recruitment, induction and training programs.	Appendix T – Safety Management Plan
Appendix 3 Condition 15.14	Ensure gate at entrance on Jenolan Caves Road is locked outside standard operating hours.	Appendix T – Safety Management Plan
Appendix 3 Condition 15.15	Use of locks on equipment when site personnel are not working on or with this equipment or plant.	Appendix T – Safety Management Plan
Appendix 3 Condition 15.16	Installation and maintenance of safety signage around the Site and perimeter fencing, where necessary.	Appendix T – Safety Management Plan

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 3 Condition 15.17	Instruct all visitors entering and departing the Site to visit either the Site office or weighbridge for registration including time of arrival and departure, and an induction, if required.	Appendix T – Safety Management Plan
Appendix 3 Condition 15.18	Install appropriate controls to ensure the stability of the open cut, overburden emplacement and stockpiles.	Appendix T – Safety Management Plan
Appendix 3 Condition 16.1	Maintain the existing ‘open door’ policy for community member to approach the management staff of the Austen Quarry.	6.14.1
Appendix 3 Condition 16.2	Maintain the existing community complaints and response system.	6.14.4
Appendix 3 Condition 16.3	Seek local supply and service contractors from within the Lithgow LGA where it is practicable to do so.	6.14.2
Appendix 4	Refer to Appendix 4 of the Development Consent SSD-6084	DC appended to EMSP
Appendix 5 Condition 1	<p>Applicable Meteorological Conditions</p> <p>The noise criteria in Table 2 are to apply under all meteorological conditions except the following:</p> <ul style="list-style-type: none"> <li>a) wind speeds greater than 3 m/s at 10 m above ground level; or</li> <li>b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level; or</li> <li>c) temperature inversion conditions greater than 3°C/100 m.</li> </ul>	6.6.3 and Appendix M – Noise Management Plan
Appendix 5 Condition 2	<p>Determination of Meteorological Conditions</p> <p>Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 25 of Schedule 3.</p>	6.6.3 and Appendix M – Noise Management Plan
Appendix 5 Condition 3	<p>Compliance Monitoring</p> <p>Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.</p> <p>Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:</p> <ul style="list-style-type: none"> <li>a) monitoring locations for the collection of representative noise data;</li> <li>b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;</li> <li>c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and</li> <li>d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the INP) and before comparison with the specified noise levels in the consent.</li> </ul>	6.6.5 and Appendix M – Noise Management Plan
Appendix 6	Refer to Appendix 6 of the Development Consent SSD-6084	DC appended to EMSP

Development Consent SSD-6084 Condition	Matter	Covered in EMSP Section
Appendix 7	The Applicant shall pay Council \$0.025 per tonne of quarry product extracted and transported from the Stage 2 Extraction Area on a quarterly basis. Each payment shall be: (a) based on weighbridge records of the quantity of extraction material transported from the site in the relevant quarter; (b) paid within 21 days of the end of the relevant quarter; (c) adjusted in line with the Consumer Price Index calculated from the date of approval and applied annually from the first day of operation.	4.2



## 5.0 Potential Environmental Impacts and Risks

The identification of activities and their potential environmental impacts is fundamental to designing and implementing procedures and measures proposed in the EMSP. This section outlines the possible environmental impacts which may occur due to the extraction and screening operations on-site. Activities associated with the proposed operation have been tabulated against environmental issues to provide a focus for preparing this EMSP, refer to Table 9 – Identification of Potential Environmental Impacts.

Table 9 – Identification of Potential Environmental Impacts

Item No.	Activity	Potential Environmental Impact
1	Vegetation Clearing	Water quality degradation, soil erosion and sediment loss, dust and particulate matter emissions, noise generation, habitat and vegetation community reduction, weeds, and visual amenity impacts.
2	Topsoil Stripping and Stockpiling	Water quality degradation, soil erosion and sediment loss, dust and particulate matter emissions, noise generation, weeds, and visual amenity impacts.
3	Extraction of Raw Materials	Water quality degradation, soil erosion and sediment loss, dust and particulate matter emissions, noise generation, weeds, and visual amenity impacts.
4	Blasting	Dust and particulate matter emissions, and ground vibration.
5	Handling and Stockpiling of Raw Material	Water quality degradation and sediment loss, dust and particulate matter emissions, noise generation.
6	Crushing and Screening of Raw Material	Water quality degradation and sediment loss, dust and particulate matter emissions, noise generation.
7	Handling, Storage and Haulage of Processed Material	Water quality degradation and sediment loss, dust and particulate matter emissions, noise generation.
8	Maintenance Activities	Water quality degradation and waste generation, and land contamination.
9	Handling of Hydrocarbons and Chemicals on-site	Water quality degradation and waste generation, and land contamination.
10	Site Rehabilitation	Water quality degradation, soil erosion and sediment loss, dust and particulate matter emissions, noise generation, weeds.
11	Stormwater Management	Water quality degradation.
12	Waste Management (i.e. paper, food packaging and scraps, waste oil/lubricates, oily rags and packaging)	Water quality degradation and waste generation, and land contamination.

The risk assessment adopted is a qualitative risk-based approach designed to assess risk based on:

- the likelihood of an environmental impact or event occurring
- the consequences of the occurrence on the surrounding environment.

The likelihood and consequences are scored between 1 and 5 for each potential impact or event Table 10 – Definitions of Likelihood and Table 11 – Definitions of Consequence outline the identifiers and scores used in the risk assessment.

Table 10 – Definitions of Likelihood

Rating	Descriptor	Score
Rare	May occur only in exceptional circumstances	1
Unlikely	Could occur but doubtful	2
Possible	Might occur at some time in the future	3
Likely	Will probably occur	4
Almost Certain	Is expected to occur in most circumstances	5

Table 11 – Definitions of Consequence

Rating	Descriptor	Score
Negligible	Impacts not requiring any treatment or management action	1
Minor	Nuisance or insignificant environmental harm requiring minor management action	2
Moderate	Serious environmental impacts, readily manageable at low cost	3
Major	Substantial environmental impacts, manageable but at considerable cost and some disruption	4
Catastrophic	Severe environmental impacts with major consequent disruption and heavy cost	5

The consequence and likelihood scores are then plotted on the Risk Assessment Matrix, refer to Table 12 – Risk Assessment Matrix. The final risk level assigned is a product of the likelihood and consequence scores. The higher the risk score, the greater the priority is for management to manage the risk at an acceptable level.

Table 12 – Risk Assessment Matrix

Likelihood		Consequence				
		Negligible	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Almost Certain	5	5 Medium	10 High	15 High	20 Extreme	25 Extreme
Likely	4	4 Low	8 Medium	12 High	16 High	20 Extreme
Possible	3	3 Low	6 Medium	9 Medium	12 High	15 High
Unlikely	2	2 Low	4 Low	6 Medium	8 Medium	10 High
Rare	1	1 Low	2 Low	3 Low	4 Low	5 Medium

Table 13 – Indicative Management Option for Each Risk Assessment Rating describes the possible actions required for each risk assessment rating.

Table 13 – Indicative Management Option for Each Risk Assessment Rating

Risk Rating	Risk Rating Scores	Indicative Management Option
Extreme (E)	16 – 25	Manage by implementing site management and emergency procedures, plant design controls and regular monitoring
High (H)	10 – 15	Manage by implementing site management and emergency procedures, specific monitoring and may require some operation/plant design controls
Medium (M)	5 – 9	Manage by implementing specific monitoring or response procedures
Low (L)	1 - 4	Manage by routine procedures, unlikely to need specific application of resources

Site activities have been tabulated against environmental risk to provide a focus for preparing the EMSP, refer Table 14 – Identification of Environmental Impacts and Risks.

Table 14 – Identification of Environmental Impacts and Risks

Activity	Impacts										
	Stormwater and Soil Erosion	Groundwater	Land Contamination	Air Quality (Dust)	Noise and Vibration	Waste	Fauna and Flora	Visual Amenity	Spread of Declared Plants	Bushfire	Cultural and Heritage
Vegetation Clearing	M 4x2=8	L 2x1=2	L 2x1=2	L 3x1=3	L 3x1=3	M 4x1=4	L 2x1=2	L 3x1=3	M 3x2=6	M 3x3=9	L 2x2=4
Topsoil Stripping and Stockpiling	H 5x3=15	L 2x1=2	L 2x1=2	M 3x2=6	M 3x2=6	L 2x1=2	L 2x1=2	L 3x1=3	M 3x2=6	L 2x1=2	M 2x3=6
Blasting	M 3x2=6	L 2x1=2	L 2x1=2	M 3x2=6	H 5x2=10	L 3x1=3	L 2x1=2	L 2x1=2	L 2x1=2	L 2x1=2	L 1x1=1
Raw Material Extraction	H 5x2=10	L 2x1=2	L 2x1=2	M 3x2=6	M 3x2=6	L 2x1=2	L 2x1=2	M 3x2=6	L 2x1=2	L 2x1=2	L 1x1=1
Raw Material Stockpiling and Handling	M 4x2=8	L 1x1=1	L 1x1=1	L 3x1=3	M 3x2=6	L 2x1=2	L 2x1=2	L 3x1=3	L 2x2=4	L 1x1=1	L 1x1=1
Crushing and Screening	M 4x2=8	L 1x1=1	L 3x1=3	M 3x2=6	M 3x2=6	L 2x1=2	L 2x1=2	M 3x2=6	L 2x2=4	L 2x1=2	L 1x1=1
Product Stockpiling	H 3x4=12	L 1x1=1	L 2x1=2	L 3x1=3	L 3x1=3	L 2x1=2	L 1x1=1	L 2x1=2	L 2x2=4	L 1x1=1	L 1x1=1
Product Hauling	L 2x2=4	L 1x1=1	L 2x1=2	M 3x2=6	M 3x2=6	L 2x1=2	L 3x1=3	L 2x1=2	L 2x2=4	L 1x1=1	L 1x1=1
Maintenance Activities	M 3x3=9	L 1x1=1	M 3x2=6	L 2x1=2	M 3x2=6	H 5x2=10	L 2x1=2	L 2x1=2	L 1x2=2	M 3x3=9	L 1x1=1
Handling of Hydrocarbons and Chemicals	M 3x3=9	L 2x1=2	M 3x2=6	L 1x1=1	L 1x1=1	M 3x2=6	L 2x1=2	L 2x1=2	L 1x2=2	M 3x3=9	L 1x1=1
Rehabilitation	M	L	L	L	L	L	L	L	L	L	L

Activity	Impacts										
	Stormwater and Soil Erosion	Groundwater	Land Contamination	Air Quality (Dust)	Noise and Vibration	Waste	Fauna and Flora	Visual Amenity	Spread of Declared Plants	Bushfire	Cultural and Heritage
Activities	3x2=6	1x1=1	2x1=2	3x1=3	3x1=3	2x1=2	2x1=2	2x1=2	2x2=4	2x1=2	1x1=1
Stormwater Management	M 3x2=6	L 1x1=1	L 1x1=1	L 2x1=2	L 2x1=2	L 2x1=2	L 2x1=2	L 1x1=1	L 2x2=4	L 2x1=2	L 1x1=1
Waste Management	M 3x3=9	L 1x3=3	M 3x2=6	L 2x1=2	L 2x1=2	L 2x2=4	M 3x2=6	L 3x1=3	L 2x2=4	M 3x3=9	L 1x1=1
<i>Equipment</i>											
Bulldozer	M 3x2=6	L 1x1=1	L 2x2=4	L 2x1=2	M 3x2=6	L 2x1=2	L 2x1=2	L 1x1=1	M 3x2=6	L 2x1=2	M 2x3=6
Drill Rig	L 2x2=4	L 1x1=1	L 2x2=4	L 3x1=3	M 3x3=9	L 2x1=2	L 2x1=2	L 1x1=1	L 2x2=4	L 2x1=2	L 2x2=4
Front End Loader(s)	L 2x2=4	L 1x1=1	L 2x2=4	L 2x1=2	M 3x2=6	L 2x1=2	L 2x1=2	L 1x1=1	L 2x2=4	L 2x1=2	M 2x3=6
Haul Truck(s)	L 2x1=2	L 1x1=1	L 2x2=4	L 2x1=2	M 3x2=6	L 2x1=2	L 3x1=3	L 1x1=1	L 2x2=4	L 2x1=2	L 2x2=4
Crushing/ Screening Plant(s)	L 2x2=4	L 1x1=1	L 2x2=4	L 2x1=2	M 3x3=9	L 2x1=2	L 2x1=2	L 1x1=1	L 2x2=4	L 2x1=4	L 2x2=4
Excavator(s)	M 3x2=6	L 2x2=4	L 2x2=4	L 2x1=2	M 3x2=6	L 2x1=2	L 2x1=2	L 1x1=1	M 3x2=6	L 2x1=2	M 2x3=6
Product Delivery Truck(s)	L 2x2=4	L 1x1=1	L 1x2=1	L 3x1=3	L 3x1=3	L 2x1=2	L 3x1=3	L 1x1=1	L 2x2=4	L 2x1=2	L 2x2=4
Service/Light Vehicles	L 2x1=2	L 1x1=1	L 1x2=1	L 2x1=2	L 2x1=2	L 2x1=2	L 3x1=3	L 1x1=1	M 3x2=6	L 2x1=2	L 2x2=4

## 6.0 Environmental Management Strategies

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### 6.1 Water Management

#### 6.1.1 Purpose

- Extraction activities on-site have the potential to impact upon overland flow water quality (e.g. elevated suspended solids, turbidity and due to chemical spills such as hydrocarbons). These activities include:
  - vegetation clearing
  - topsoil and overburden stripping
  - quarry pit development
  - maintenance of internal roads
  - stockpiling of topsoil, overburden, raw source material and product
  - spillage during handling of materials
  - use of oils, greases, fuels and other chemicals.
- Potential water discharged from the Site include:
  - control discharge of stormwater that collects within the on-site sediment basins.
  - overtopping of quarry pit sumps / sediment dam.
  - overland flow from disturbed areas including quarry pit and product stockpiling area(s).
  - overland flows from handling areas of oils, greases, fuels and other chemicals.
- Environmental values of the receiving environment that may be potentially impacted as a result of water discharge.

#### Water Supply

- The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations under the consent to match its available water supply, to the satisfaction of the Secretary.

#### 6.1.2 Operational Policy

- To carry out on-site activities so as to prevent or minimise as far as practicable, any contamination of waters and any release of contaminated water off-site.
- To ensure compliance with the release water quality limits of the EPL12323, or to comply with Section 120 of the POEO Act.
- A *Surface Water Management and Discharge Assessment (SWMDA)* was prepared as Part 9 of a Specialist Consultant Studies Compendium to accompany an EIS for the Stage 2 Extension of the Austen Quarry ("the Stage 2 Extension"), located on Jenolan Caves Road, Hartley, NSW to detail management strategies designed to minimise water pollution.

#### 6.1.3 Development Consent Conditions

##### SOIL AND WATER

*Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain the necessary water licences for the development, including in respect of the extraction and/or interception of groundwater.*

##### Water Supply

The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations under the consent to match its available water supply, to the satisfaction of the Secretary.

##### Water Discharges

- The Applicant shall comply with the discharge limits in any EPL, or with section 120 of the POEO Act.

##### Surface Water Audit and Water Management Improvement Program

Within three months of the date of this consent, the Applicant shall commission independent surface water expert/s, approved by the Secretary, to undertake an audit of current and proposed surface water management practices and infrastructure on the site. The audit shall:

- (a) be undertaken in consultation with EPA and Water NSW;
- (b) fully describe and audit existing site water management practices and consider the EIS's proposed water management practices;
- (c) identify all reasonable and feasible measures to improve surface water management on the site, with particular reference to opportunities to divert clean water away from the site; and
- (d) recommend design parameters for proposed water management systems on the site.

Unless otherwise agreed with the Secretary, the Applicant shall submit the Surface Water Audit report to the Secretary within six months of commissioning the audit. The report must be accompanied by a Water Management Improvement Program, based on the report's recommendations, to improve surface water management practices on the site, including a program of proposed timeframes for implementation.

The Applicant must implement the Water Management Improvement Program to the satisfaction of the Secretary.

A Surface Water Audit has been undertaken and the report and Water Management Improvement Program has been provided as Appendix S to this EMSP.

#### Water Management Plan

The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (a) be prepared by suitably qualified person/s approved by the Secretary;
- (b) be prepared in consultation with the EPA, NOW and Water NSW;
- (c) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;
- (d) include a:
  - (i) Site Water Balance that includes:
    - details of:
    - sources and security of water supply;
    - water use and management on site;
    - any off—site water transfers; and
    - reporting procedures.
    - measures that would be implemented to minimise clean water use on site;
  - (ii) Surface Water Management Plan that includes:
    - detailed baseline data on surface water flows and quality in water bodies that could potentially be affected by the development;
    - detailed description of the surface water management system on site including the:
      - clean water diversion system;
      - erosion and sediment controls;
      - dirty water management system; and
      - water storages; and
      - a program to monitor and report on:
        - any surface water discharges;
        - the effectiveness of the water management system; and
        - surface water flows and quality in local watercourses;
  - (iv) Surface and Ground Water Contingency Strategy, that includes:
    - a protocol for the investigation, notification and mitigation of identified impacts on surface water flows and quality in water bodies and/or groundwater levels, yield and quality in local aquifers and privately—owned groundwater bores that could be potentially affected by the development; and
    - the procedures that would be followed if any unforeseen impacts are detected during the development.

A Water Management Plan has been prepared and is provided as Appendix J to this EMSP.

Ensure any off-site discharge is monitored and reported in accordance with EPL 12323.

Ensure the capacity of the various sediment basins and water storage of the site provides the required water settlement and sediment storage volumes for a 5-day 95<sup>th</sup> percentile rainfall event.

Apply procedures established in the Water Management Plan for the appropriate treatment of water that is to be discharged to natural drainage.

Obtain and maintain a Water Access Licence(s) for the volume of groundwater seepage into the extraction area annually.

Report annual and projected groundwater extraction to the NSW Office of Water

#### 6.1.4 Performance Targets

- Ensure that water discharging from disturbed areas on-site does not impact aquatic ecosystems or water quality downstream of the quarrying operations.
- Water leaving the Site during and post extraction operations are of no lesser quality than that which exited the Site pre-development.
- Ensure the capacity of the various sediment basins and water storages of the Site provides the required water settlement and sediment storage volumes for a 5-day 95<sup>th</sup> percentile rainfall event.
- Site discharge waters must comply with the Water Quality Criteria prescribed by Condition L2.4 of the EPL, refer to Table 15 – EPL: Water Quality Criteria.

Table 15 – EPL: Water Quality Criteria

Monitoring Point	Frequency	Sampling Method	Pollutant	Units of Measure	100 <sup>th</sup> percentile concentration limit
EPL Points 1, 8, 9, 10, 11	Daily During Discharge	Grab Sample	Oil and Grease	mg/L	10
			pH	pH	6.5 – 8.5
			Total Suspended Solids	mg/L	30
EPL Points 2, 3	Special Frequency 1*	Grab Sample	Oil and Grease	mg/L	10
			pH	pH	6.5 – 8.5
			Total Suspended Solids	mg/L	30

\*Special Frequency 1 = collection of samples monthly, exception when discharge is occurring from Point 1, where samples must be collected daily.

#### 6.1.5 Implementation Strategy / Mitigation Measures

A number of key administrative controls / actions are to be prepared and implemented, including the following:

- An audit of current and proposed surface water management practices and infrastructure on the site
- Preparation of a Water Management Improvement Program, based on the audit report's recommendations, to improve surface water management practices on the site, including a program of proposed timeframes for implementation
- Implementation of a Water Management Plan
- Preparation of a Site Water Balance

Regarding the above, a Water Management Plan was prepared during the EIS phase as a part of the document *Surface Water Assessment*, which also included a *Site Water Balance*. Baseline data for the receiving environment may be found in that document also. Additionally a Soil and Water Management Plan was also prepared as part of the EIS and appended to the Surface Water Assessment.

An audit has been undertaken, and a Water Management Improvement Program prepared (refer Appendix S).

Other Mitigation measures include:

- A sustainable water management system has been implemented at the Site, which aims for the current and future operations to be 100 % self-sufficient in water, excluding drinking water supply. This system is based upon capturing stormwater run-off for dust suppression and environmental controls.
- A Site Water Balance complying with Development Consent requirements has been submitted as part of the *Austen Quarry Stage 2 Extension Project EIS – Surface Water Assessment – Specialist Consultant Studies Compendium Volume 1, Part 2*.
- Water supply is captured within the extraction area and pre-quarry farm dams (i.e. SD1, SD2, SD5 and SD6). These dams capture water prior to being re-used on site or released directly, or indirectly via Yorkeys Creek, into the Coxs River as environmental flows.
- Runoff from undisturbed areas is to be diverted around areas disturbed by quarry operations wherever practicable to reduce the potential for clean runoff to be polluted by quarry activities.
- Diversion of clean waters will be effected by contour and diversion drains, perimeter bunds and pipe culverts wherever practicable.
- During the extension and operation of the current and future extraction area and overburden emplacement, drainage will convey water from areas of disturbance to sediment basins located within the extraction area and around the Site (i.e. SB1, SB2 and SB3) to prevent sediment laden or contaminated runoff leaving the Site.
- Sediment traps and sediment ponds form part of the Site water management system and improve water quality at various points along water drainage networks.
- Excess waters are to be treated in-situ within sediment basins SB2a, SB3a and SD2 using a coagulant (i.e. NALCO 8187.15H or similar) to improve water quality prior to pumping out or draining, directly or indirectly, via Yorkeys Creek into the Coxs River. (Note: NALCO 8187 is a patented coagulant, which is widely used within the water treatment industry).
- Potable water supply is supplied by Lithgow City Council on an 'as needs' basis, while sewage treatment for the offices and amenities are comprised of a self-contained unit that relies upon rainwater captured by the on-site infrastructures roof-tops. No treated effluent is discharged on-site.
- A schematic overview of the drainage and water management network is included in the Site's SWMDA, refer to Appendix J – Water Management Plan for details.

### Groundwater

- Hy-Tec has obtained and will maintain a Water Access Licence(s) (WAL 37423) for the volume of groundwater seepage into the extraction area annually.

### 6.1.6 Monitoring

Monitoring of the volume of release waters is to be undertaken daily during any discharge event at the prescribed discharge locations EPL12323 Point 1, 8, 9, 10 and 11 as per Table 16 – EPL: Discharge Volume Monitoring. Monitoring of locations Points 2 and 3 do not require volumetric monitoring as they are river, not discharge, monitoring locations.

Table 16 – EPL: Discharge Volume Monitoring

Monitoring Point	Frequency	Sampling Method	Units of Measure
EPL Points 1, 8, 9, 10, 11	Daily During Discharge	Grab Sample	Kilolitres per day

Table 17 – Release Water Monitoring Program: Water Quality Monitoring Parameters shows the parameters to be monitored.

Table 17 – Release Water Monitoring Program: Water Quality Monitoring Parameters

Parameter	Units	Sample Type
pH	pH units	Grab Sample or <i>In-situ</i>
Total Suspended Solid	mg/L	Grab Sample
Visual Oil and Grease/Litter	mg/l	Grab sample



Water quality sampling sites and monitoring frequency for discharge events are described in Table 18 – Release Water Monitoring Program: Water Quality Monitoring Frequency and Points, while locations of monitoring points are also shown on Figure 5 – Discharge, Emission and Monitoring Location Plan.

*Table 18 – Release Water Monitoring Program: Water Quality Monitoring Frequency and Points*

Monitoring Point	Location Description	Monitoring Frequency
EPL Point 9	Release point from SB3(a/b)	Prior to a controlled discharge and within 24 hours then weekly during uncontrolled discharge events;
EPL Point 1	Release point from SB1	
EPL Point 8	Release point from SB2b	
EPL Point 10	Release point from SD2	
EPL Point 11	Release point from SD6	
EPL Point 2	Upstream Coxs River	At commencement of discharge then weekly during site discharge events for oil and grease; daily for PH and TSS if there is any discharge at Points 2 & 3
EPL Point 3	Downstream Coxs River	

- Based on the locally derived water quality objectives, monitoring results at EPL Points 1, 8, 9, 10 and 11 would be compared against the following contaminated release limits presented in Table 19 – Release Water Monitoring Program: Contaminant Release Limits or alternative contaminated release limits imposed by the EPL. The release criteria would be updated as more data is collected and Background Reference Conditions for metals and nutrients can be determined.

*Table 19 – Release Water Monitoring Program: Contaminant Release Limits*

Parameter	Release Criteria	Type
Total Suspended Solids	30 mg/L)	Maximum
pH	6.5 – 8.5	Range
Oil and Grease	10 mg/L	Maximum

### 6.1.7 Review

- The effectiveness of the water management strategies will be reviewed at least once every three (3) years.

### 6.1.8 Reporting and Responsibility

- The EPA will be notified of the results of all monitoring undertaken in accordance with ‘Section 6 Reporting Conditions’ of the EPL. Results of monitoring are to be submitted with the Annual Return documents at the end of each reporting period.
- Any incidents or complaints regarding water quality are to be immediately reported to the Quarry Manager or a person nominated by the Quarry Manager.
- All complaints regarding water quality will be managed by the Quarry Manager or a person nominated by the Quarry Manager in accordance with the procedures outlined in Section 3.8.
- In the event of an emergency or incident regarding water management at the Site, the Quarry Manager or a person nominated by the Quarry Manager shall notify the EPA in accordance with the procedures outlined in Section 3.8.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.
- Records, including monitoring results prepared in accordance with the Pollution Control Approval, results of any maintenance or monitoring program undertaken on-site in accordance with the SWMDA, complaint or incidents, etc will be kept for a minimum of four (4) years for inspection by the EPA.

Groundwater

- Report annual and projected groundwater extraction to the NSW Office of Water.

6.1.9 *Identification of Incident or Failure to Comply*

- An incident or failure to comply may include, but may not be limited to:
  - Deterioration of water quality, with waters leaving the Site being of lesser quality than background values when monitored in accordance with the Release Water Monitoring Program.
  - Reported failure(s) to implement the programs or strategies outlined in the SWMDA.

Unforeseen Impacts

In the event of unforeseen impacts associated with surface water, the following protocol will be implemented:

- A preliminary review will be conducted of the nature of the impact, including:
  - any relevant monitoring data; and
  - current quarrying activities and land use practices;
- Commission of an investigation by an appropriate qualified expert into the unforeseen impact to confirm cause and effect and consider relevant options for amelioration of impact(s) as appropriate; prepare an action plan in consultation with the appropriate regulatory agency;
- Mitigate causal factors where possible; and
- Implement additional monitoring as necessary to measure the effectiveness of the controls implemented. The outcomes of this protocol will be reported in the Annual Environmental Review report. The implementation of any mitigation measures will be undertaken in consultation with the relevant regulatory authorities.

6.1.10 *Corrective Action*

The following general protocol will be implemented on identification of an incident and / or failure:

- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.

Pollution Control Approval Requirements

- If a discharge of waters occurs as a result of on-site activities outside of the parameters conditioned by the Pollution Control Approval for the Site, an investigation will be conducted and appropriate action taken to rectify the cause of the variation.

Release Water Monitoring Program developed under SWMDA

- If contaminant release limits are exceeded at EPL Points 1, 8, 9, 10 and 11, corrective action would be implemented as presented in Table 20 – Corrective Action to Exceedance of Contaminant Release Limits.

Table 20 – Corrective Action to Exceedance of Contaminant Release Limits

Release Water Quality	Corrective Action(s)
Less than or equal to locally derived release limit or release limit prescribed by EPL or less than 10 % above background (as measured at EPL Point 2), whichever is greater	Nil

Release Water Quality	Corrective Action(s)
Greater than locally derived release limit or greater than release limit prescribed by EPL or greater than 10 % above background (as measured at EPL Point 2), whichever is greater	Cease discharge if practicable, advise EPA, investigate cause, implement immediate action to rectify (i.e. re-treat / re-test to confirm compliance or implementation of additional SSEC) prior to recommencing control discharge.
Presence of visual oil and Grease	Cease discharge if practicable, test for Oil and Grease and if > 10 mg/L advise EPA, investigate and implement immediate action to rectify and to prevent reoccurrence, arrange contractor to remove visual contamination and appropriately dispose/recycle contaminated water off-site at an appropriately licensed facility.

## 6.2 Stormwater, Erosion and Sediment Control

### 6.2.1 Purpose

- To provide a set of best practice management procedures to:
  - control drainage
  - minimise the severity and extent of soil erosion and pollutant transport occurring as a result of land disturbance necessary for extraction to the receiving environment.
- The principal objectives of the stormwater, erosion and sediment control at the Site are to:
  - segregate stormwater sub-catchments with similar uses, levels of disturbance and risk of pollution as clean, dirty and contaminated sub-catchments.
  - ensure adequate control measures are implemented to manage runoff from disturbed areas.
  - implement appropriate measures to eliminate or reduce pollutant and sediment loading in stormwater discharges from disturbed areas.
  - preserve downstream water quality.
  - reduce the potential for erosion on-site and subsequent sedimentation of natural waterways.
  - prevent the release of untreated stormwater from disturbed areas.
  - provide a framework for the surveillance, response and reporting of incidents which may impact on stormwater quality.
  - provide a basis for the training of quarry personnel for the management of stormwater and minimisation of the potential for stormwater contamination.
- The SWMDA prepared as Part 9 of a Specialist Consultant Studies Compendium details the proposed stormwater, erosion and sediment control measures for the Site. Refer to the SWMDA included as Appendix J –Water Management Plan for details.

### 6.2.2 Operational Policy

- To carry out on-site activities so as to prevent or minimise as far as practicable, contamination of stormwater, on-site soil erosion and any release of contaminated water off-site

### 6.2.3 Development Consent Conditions

Install appropriate erosion and sediment control measures prior to vegetation clearing activities (to reduce the potential for pollution of downstream riparian and aquatic habitat).

Design and construct any ancillary development works, e.g. access roads, in the vicinity of watercourses in accordance with the NSW DPI *Policy and Guidelines for Fish Habitat Conservation and Management*.

Minimise the occurrence of uncontrolled discharge of water by managing water in accordance with a Water Management Plan.

### 6.2.4 Performance Targets

- Ensure that water discharging from disturbed areas on-site does not impact aquatic ecosystems or water quality downstream of the quarrying operations.
- Stormwater leaving the Site during and post extraction operations is of no lesser quality than that which exited the Site pre-development.
- Stormwater, erosion and sediment control at the Site will be in accordance with the Site's SWMDA. Refer to the SWMDA included as Appendix J –Water Management Plan for details.

### 6.2.5 Implementation Strategy / Mitigation Measures

- Stormwater, erosion and sediment control at the Site will be in accordance with the Site's SWMDA. Refer to the SWMDA included as Appendix J –Water Management Plan for details.

Water Management Hierarchy

- The following general water management hierarchy should be adopted on-site:
  - (a) AVOID stormwater contamination by diverting overland flow from clean catchments around and away from disturbed areas to the extent practicable.
  - (b) REDUCE the generation of contaminated stormwater by minimising land disturbance to that which is absolutely necessary.
  - (c) RE-USE contaminated stormwater captured within the quarry pit sumps or sediment basins for irrigating onsite pasture gasses, revegetated areas, dust suppression (e.g. on roads, stockpiles and plant).
  - (d) RECYCLE water on site, where practicable.
  - (e) RECOVER excess recycled water or contaminated stormwater from the disturbed areas within the quarry development area in the quarry pit/sump.
  - (f) TREAT contaminated water by settlement or flocculation when necessary, within the quarry sump prior to discharge.
  - (g) DISPOSE of contaminated water only if there is no viable alternative, prolonged period of wet weather or greater than 1-in-5 year storm event, to allow onsite operations to continue.

Drainage Techniques

- Site specific stormwater, erosion and sediment controls have been developed for the Site as part of the SWMDA. Examples of drainage control techniques that may be used on-site are provided in Table 21 – Drainage Techniques.
- Scour protection shall be installed and maintained at pipe outlet points.

Table 21 – Drainage Techniques

Technique	Typical Use
Flow Diversion Banks / Perimeter Bund (earth, sandbags, etc)	<ul style="list-style-type: none"> <li>• Diversion of minor flows when in situ subsoils are dispersive or otherwise highly erodible</li> <li>• Flow diversion at the base of fill slopes</li> <li>• Cross drainage on unsealed roads</li> </ul>
Catch Drain	<ul style="list-style-type: none"> <li>• The catchment and diversion of sheet flow across a slope or around soil disturbance</li> <li>• Best used in non-dispersive soils, otherwise the drain must be lined with non-dispersive soil (minimum 100 mm thick) prior to placement of a channel liner</li> </ul>
Chute	<ul style="list-style-type: none"> <li>• Discharge of concentrated flows down steep slopes</li> <li>• Control of flow into sediment basins</li> </ul>
Level Spreader	<ul style="list-style-type: none"> <li>• Used when it is desirable to convert minor concentrated flow back to “sheet” flow before releasing it down a stable grassed slope</li> <li>• Used to discharge water from rural table drains into grassland or bushland</li> </ul>

Source: International Erosion Control Association (IECA) (2008), *Best Practice Erosion and Sediment Control*

Erosion and Sediment Control Measures

- Any ancillary development works, e.g. access roads, in the vicinity of watercourses shall be designed and constructed in accordance with the NSW DPI Policy and Guidelines for Fish Habitat Conservation and Management.
- Reasonable and practicable erosion control measures will be implemented on-site to limit soil erosion including stabilising and vegetating road embankments and batters, temporary overburden and topsoil stockpiles and diversion banks or perimeter bunds.
- Site specific stormwater, erosion and sediment controls have been developed for the Site as part of the SWMDA. Table 22 – Erosion Control Measures and Table 23 – Sheet Flow Sediment Control Measures provide examples of soil stabilisation techniques that may be applied on-site.

Table 22 – Erosion Control Measures

Technique	Type Use
Gravelling	<ul style="list-style-type: none"> <li>• Protection of non-vegetated soils from raindrop impact erosion</li> <li>• Stabilisation of hardstand areas including site office area, processing areas, temporary car parks and access roads</li> </ul>
Revegetation	<ul style="list-style-type: none"> <li>• Temporary and permanent stabilisation of soil</li> <li>• Stabilisation of long-term stockpiles</li> <li>• Includes turfing and/or temporary seeding</li> </ul>
Grass Linings	<ul style="list-style-type: none"> <li>• Permanent protection, low-to-medium velocity chutes, channels and exposed soil surfaces</li> </ul>
Rock Mattress	<ul style="list-style-type: none"> <li>• Suitable for temporary and permanent high velocity chutes and spillways</li> </ul>
Rock Lining (rip rap rock protection)	<ul style="list-style-type: none"> <li>• High velocity drainage channels</li> <li>• Drainage chutes</li> <li>• Sediment basin/trap spillways or outfall</li> </ul>

Source: International Erosion Control Association (IECA) (2008), *Best Practice Erosion and Sediment Control*

Table 23 – Sheet Flow Sediment Control Measures

Technique	Type Use
Buffer Zone	<ul style="list-style-type: none"> <li>• Type 3 sediment trap.</li> <li>• Mostly suited to sandy soils.</li> <li>• Generally only suitable for rural and rural residential building / constructions sites.</li> <li>• Can provide some degree of turbidity control while the buffer remains saturated.</li> </ul>
Sediment Fence – woven fabric	<ul style="list-style-type: none"> <li>• Type 3 sediment trap.</li> <li>• Suitable for all soil types.</li> <li>• Long duration construction sites likely to experience several storm events.</li> </ul>

Source: International Erosion Control Association (IECA) (2008), *Best Practice Erosion and Sediment Control*

## 6.2.6 Monitoring

### Water Quality

- Water Quality will be monitored in accordance with the Release Water Monitoring Program which has been prepared for the existing and proposed operations at the Austen Quarry as part of the SWMDA. Refer to Section 6.1.5 for details.

### Stormwater, Erosion and Sediment Controls

- A monitoring and maintenance program has been prepared for the existing and proposed operations at the Austen Quarry. This program involves regular inspection of the erosion, drainage and sediment controls.
- All quarry personnel shall be responsible for the general surveillance of the stormwater control devices; however, a surveillance program would be implemented to monitor the effectiveness of the implemented devices.
- Stormwater management devices identified by quarry personnel as having failed or as being laden with sediments will be reported to the Quarry Manager.
- A summary schedule of the various inspections, performance criteria and responses that must be performed is shown in Table 24 – Maintenance Plan for Stormwater Control Devices.

Table 24 – Maintenance Plan for Stormwater Control Devices

Inspection	Minimum Frequency	Performance Criteria	Response
Inspect water conveyance structures such as catch drains, contour drains and diversions.	Following significant rainfall events.	Erosion in areas adjacent to water conveying structures.	Eroded areas will be rip rapped as soon as practicable.
		Overtopping of water conveying structures (identified by the scouring of the drain batters perpendicular to the direction of flow).	The drain will be cleaned of sediments and rip rapping replaced to the original design specifications. Rehabilitation with suitable grasses in the catchment of the drain may be required to reduce sediment loading.
		Deposition of material in the water conveying structure greater than half the design depth.	Sediment/grit will be removed from the structure and used in rehabilitation works.
Inspect potential sediment storage capacity of sediment basins.	Following significant rainfall events.	30 per cent of the total sediment capacity remaining.	Sediment will be removed from the structure and used in rehabilitation works.
		Overtopping of the sediment dams.	To recycle dam water to ensure that adequate free storage is maintained for the collection and holding of runoff.
Inspect check dams, rock armouring and riprap.	Following significant rainfall events.	Check if dam walls have collapsed or riprap has moved.	Larger sized rocks will be used in the construction of check dams and riprap or the drain will be concreted or redesigned.
Inspect culverts, pipe inlets and outlets.	Following significant rainfall events.	Check for erosion of inlets and outlets.	Riprap inflows and outflows of pipes where erosion has been observed.
		Debris build-up in pipe inlets or outlets or in culverts.	Remove debris.
		Overflow of pipes.	Check pipes for debris or blockages and remove the offending materials.

Note: Significant rainfall event is rainfall greater than 25 mm in one (1) day.

### 6.2.7 Review

- The effectiveness of the stormwater, erosion and sediment control management strategies will be reviewed at least once every three (3) years to ensure consistency with Site specific management documents.

### 6.2.8 Reporting and Responsibility

- Any incidents or complaints regarding water quality are to be immediately reported to the Quarry Manager or a person nominated by the Quarry Manager.
- All complaints regarding water quality will be managed by the Quarry Manager or a person nominated by the Quarry Manager in accordance with the procedures outlined in Section 3.8.
- In the event of an emergency or incident regarding water management at the Site, the Quarry Manager or a person nominated by the Quarry Manager shall ensure the EPA is notified as appropriately in accordance with the procedures outlined in Section 3.8.
- Records, including results of any maintenance or monitoring program undertaken on-site in accordance with the SWMDA, complaint or incidents will be kept for a minimum of four (4) years for inspection by the EPA.

- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

### 6.2.9 *Identification of Incident or Failure to Comply*

- An incident or failure may include but not be limited to:
  - deterioration of stormwater leaving the Site being of lesser quality than that which exited the site pre-development or does not meet release quality limits outlined in the Release Water Monitoring Program of the SWMDA
  - significant soil erosion evident within disturbed areas following rainfall events
  - reported failure(s) of implemented drainage, sediment and erosion control devices/systems as prescribed by the SWMDA.

### 6.2.10 *Corrective Action*

The following general protocol will be implemented on identification of an incident and / or failure:

- Immediately re-instate appropriate erosion and sediment control devices after the identification of a failure.
- Immediately install appropriate erosion and sediment control devices if erosion or sedimentation has occurred in area that has not had adequate measures installed. Consult with any affected land owners to inform them of the breach and the action taken to rectify the problem.
- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Stabilisation of areas that have suffered erosion or sediment build up followed by correct erosion and sediment management of the area until it has reached stabilisation and been adequately rehabilitated.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.
- Refer to Section 6.1.9 for corrective action to be taken in the event of water quality exceeding the parameters specified in the Release Water Monitoring Program.
- Corrective actions regarding SSEC will be undertaken in accordance with the summary schedule as shown in Table 24 – Maintenance Plan for Stormwater Control Devices.



## 6.3 Groundwater Management Plan

A comprehensive Groundwater Management Plan that supplements Section 6.3 has been prepared and is appended at Appendix J –Water Management Plan.

### 6.3.1 Purpose

- Extraction activities on-site have the potential to impact upon ground water quantity and quality. These activities include:
  - vegetation clearing
  - topsoil and overburden stripping
  - quarry pit development intercepting aquifers
  - spillage during handling of oils, greases, fuels and other chemicals.
- Under the Water Act 1912 and/or the Water Management Act 2000, Hy-Tec is required to maintain the necessary water licences for the quarry, including in respect of the extraction and/or interception of groundwater (WAL 37423).

### 6.3.2 Operational Policy

To carry out on-site activities so as to prevent or minimise as far as practicable impact on the groundwater aquifers present on site.

### 6.3.3 Development Consent Conditions

Groundwater Management Plan, that includes:

- baseline data on groundwater levels, yield and quality in local aquifers and privately- owned groundwater bores that could be potentially affected by the development;
- a program to monitor and report on groundwater inflows to the quarry pit and the impacts of the development on surrounding aquifers and privately—owned groundwater bores; and
- an analysis of these monitoring results to predict long—term water levels within the quarry void;

And hydrocarbon product management conditions per 6.4.4 Hydrocarbon storage conditions.

### 6.3.4 Performance Targets

No unauthorised impact upon the water table on site.

As it has been anticipated during the EIS process that groundwater would be intersected by extraction, some impact on the water table on site is expected. However it has been predicted that there will be no significant impact on the amount of ground water discharging form the Site to adjacent creeks and or adjoining land owners.

### 6.3.5 Implementation Strategy / Mitigation Measures

As the principal intent of the groundwater management plan is to principally monitor the impact of extraction upon the groundwater table, there are no management measures per se.

### 6.3.6 Monitoring

A monitoring program to monitor and report on groundwater inflows to the quarry pit and the impacts of the development on surrounding aquifers and privately-owned groundwater bores; and an analysis of these monitoring results to predict long-term water levels within the quarry void shall be undertaken commencing with the first year of operation.

Any bores installed as part of the EIS ground water investigation shall be utilised and maintained in this monitoring program.

Monitoring of analytical parameters other than water level (which may be undertaken by quarry staff where appropriately trained) shall be undertaken by qualified professionals.

Analysis of monitoring results to predict long term water levels within the quarry shall be undertaken by qualified professionals.

Monitoring reports shall be prepared by appropriately trained professionals.

### *6.3.7 Auditing and Review*

The effectiveness of the groundwater management plan will be reviewed at least once every three (3) years.

### *6.3.8 Reporting and Responsibility*

Reporting required by the EPL and DC shall be undertaken as required by the Quarry Manager or a person nominated by the Quarry Manager.

All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

### *6.3.9 Identification of Incident or Failure to Comply*

In the event of unforeseen impacts associated with Groundwater, the following protocol will be implemented:

- A preliminary review will be conducted of the nature of the impact, including:
  - iii. any relevant monitoring data; and
  - iv. current quarrying activities and land use practices;
- Commission of an investigation by an appropriate qualified expert into the unforeseen impact to confirm cause and effect and consider relevant options for amelioration of impact(s) as appropriate; prepare an action plan in consultation with the appropriate regulatory agency;
- Mitigate causal factors where possible; and
- Implement additional monitoring as necessary to measure the effectiveness of the controls implemented. The outcomes of this protocol will be reported in the Annual Environmental Review report. The implementation of any mitigation measures will be undertaken in consultation with the relevant regulatory authorities.

### *6.3.10 Corrective Action*

The following general protocol will be implemented on identification of an incident and / or failure:

- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.

## 6.4 Hydrocarbons and Chemicals

### 6.4.1 Purpose

- The *Occupational Health and Safety Act 2000* (OHS Act) and associated regulation places a number of obligations on the storage and handling of dangerous goods on-site, so that it is:
  - protected against damage and deterioration
  - secured to prevent loss, misuse and theft
  - for a liquid, banded to contain spillage
  - stored and handled in a way having regard to the National Occupational Health and Safety Council's (NOHSC) *National Code of Practice for the Storage and Handling of Dangerous Goods [NOHSC:2017]* and WorkCover NSW *Storage and Handling of Dangerous Goods, 2005*
- Site operations have the potential to contaminate land and water in and surrounding the quarry development by the release of various hydrocarbons and chemicals used and/or stored in small volumes on-site. These chemicals could include:
  - distillate (fuel for stationary and mobile engines)
  - oils and greases (lubricants and hydraulic oils for stationary and mobile equipment)
  - miscellaneous chemicals (e.g. weedicide).
- In NSW, licensees are required to prepare, implement and test a site-specific Pollution Incident Response Management Plan (PIRMP) for the activity in accordance with the requirements prescribed under part 5.7A of the POEO Act. Additional information requirements are found in the *Protection of the Environment (General) Amendment (Pollution incident response management plans) Regulation 2012*. Refer to Appendix K – Pollution Incident Response Management Plan for the Hy-Tec PIRMP applicable to the Austen Quarry.

### 6.4.2 Operational Policy

- To manage the on-site handling of hydrocarbons and chemicals to prevent soil and water becoming contaminated.

### 6.4.3 Development Consent Conditions

#### LIQUID STORAGE

The Applicant shall ensure that all tanks and similar facilities for storage of liquids (other than for water) are protected by appropriate bunding, which must exceed 110% of the stored volume of the liquid.

#### DANGEROUS GOODS

The Applicant shall ensure that the storage, handling, and transport of dangerous goods is done in accordance with the relevant Australian Standards, particularly AS1940 and AS1596, and the *Dangerous Goods Code*.

Secure store all hydrocarbon products within designated and banded areas.

Refuel and maintain all equipment within designated areas of the Site i.e. workshop area.

Securely store all hydrocarbon products within designated and banded areas.

Refuel and maintain all equipment within designated areas of the Site i.e. workshop area.

Maintain a banded area for storage of fuels, oils, refuelling and appropriate maintenance of vehicles and mechanical plant.

Procedures would be implemented to manage handling of hazardous material and spill response protocols.

Install and maintain scour protection at pipe outlet points.

Ensure refuelling is undertaken within designated fuel bays and vehicles are turned off during refuelling.

Ensure no smoking policy is enforced in designated areas of the site.

Ensure fire extinguishers are maintained within site vehicles and refuelling areas.

Ensure that a water cart is available to assist in extinguishing any fire ignited.

Establish and maintain an Outer Protection Area around the administration area.

Maintain the access road to the extraction area such that safe passage is guaranteed should an emergency evacuation be required.

Maintain access to water contained within SD1 to SD6, as well as SB1 for use in fighting ember attack.

Complete appropriate training with site personnel in relation to fire-fighting tasks and procedures.

Ensure access is provided for Rural Fire Service and its and other emergency services' authority is recognised and assistance offered in the event of a bush fire.

#### 6.4.4 Performance Targets

- No land contamination that would require the Site to be registered on the Contaminated Land Public Record.
- No serious spills of oils, greases, fuels or other hazardous chemicals (for this purpose hydrocarbon spill incidents have been classified as follows: minor spill  $\leq 5$  L, major spill 5 L to 20 L, and serious spill  $\leq 20$  L).
- No preventable release of hydrocarbons and chemicals to the environment.

#### 6.4.5 Implementation Strategy / Mitigation Measures

##### General

- All new employees are to be inducted / trained on the use and handling of chemicals used and stored on-site and records of personnel training kept.
- Chemical and hydrocarbon storage vessels (e.g. drums and chemical cabinets) on-site are to be sealed and secured appropriately during storage and transport so as to prevent accidental spillage resulting in polluted runoff or land contamination.
- All vehicles and equipment should be serviced and cleaned in a designated area where contaminants do not have the potential to be released to waters or stormwater drainage systems.
- Plant and equipment should be serviced in accordance with a programmed maintenance schedule.
- Refuelling of on-site equipment will be conducted within a controlled environment where practical or using drip pans or similar device during refuelling and equipment maintenance.
- "Topping-off" of fuel tanks is to be discouraged so as to prevent gas vapours entering the environment.
- Service vehicles(s), re-fuelling trailers and other vehicles used for the transportation of hydrocarbons and chemicals should have appropriate spill kits and drip trays provided (drip trays will be used to capture all spills and drips whenever re-fuelling is being undertaken).
- Effective spill kits or spill clean up materials are to be readily available at each work area and on all mobile service trucks or vehicles, where hydrocarbons and chemicals are stored and / or used.
- Spills are to be cleaned up immediately as per the PIRMP. Refer to Appendix K – Pollution Incident Response Management Plan for the Hy-Tec PIRMP applicable to the Austen Quarry.
- Incidents regarding hydrocarbons and chemicals are to be reported to the Quarry Manager and recorded in the complaint / incident register and an investigation carried out to identify the cause and controls to be implemented to improve the management system.

##### Bunding / Chemical Stores

- The storage, handling and transport of dangerous goods on-site shall be done in accordance with Australian Standard AS 1940 *The storage and handling of flammable and combustible liquids*, AS1596 *LPG Gas Storage and Handling* and the Dangerous Goods Code.
- All chemical and fuel tank storages must have sufficient bunding capacity so as to contain at least 110 % of the tank volume, or where multiple tanks are stored within a single facility, ensure that the bund is capable of containing at least 110 % of the largest tank.

- Bund walls must be no less than 250 mm in height.
- Bunds for storage of transportable containers must be able to contain at least 10 % of the maximum volume of liquids stored within the bund, and the bund must have a minimum capacity of no less than 400 L.
- Bunding is to be constructed of materials impervious to the contents of the banded tanks / chemicals being stored (e.g. brick, concrete, etc).
- A collection sump must be provided in the floor of the banded facility to facilitate removal of liquids. The bund floor is to be graded appropriately so as to encourage liquids to fall towards the sump.
- No drains / drain valves are to be installed on the bund. Pipework from enclosed tanks and/or pumps must be directed over the bund wall (not through).
- Hose couplings are to terminate within the bund wall so that all spillages are contained within the bund. In the event that housing cannot terminate within the bund wall, suitable collection measures must be implemented to ensure spills are capture and managed appropriately.
- All elevated storage of transportable containers are to be designed and installed so as to ensure, in the event of the container(s) becoming dislodged, that spillage is able to be contained within the bund wall.
- All banded areas are to be roofed accordingly
- Stormwater captured within any bunding is to be removed as soon as practicable after a rain event and disposed of as contaminated water. Appropriate suction / pumps should be available at Site to evacuate water from bunds and other containment areas.
- Empty hydrocarbon and chemical containers are to be stored on a concrete hardstand or within a banded area.
- Spills within banded areas must be cleaned up as soon as practicable.
- All storage facilities must be adequately monitored and maintained (including banded pallets and multiple storage facilities).

#### Material Safety Data Sheets (MSDS)

- Current Material Safety Data Sheets (MSDS) for all chemicals are to be kept at the Site.
- MSDS are to be filed with the chemical, or alternatively, a clearly marked sign should be installed to direct employees to the location of the MSDS.
- An MSDS folder should be maintained at Site and contain an index of materials.
- Storage (e.g. bunding, labelling, ventilation, weatherproofing, etc) and disposal of chemical requirements shall comply with the requirements detailed within the MSDS.

#### Chemical and Hydrocarbon Waste Disposal

- Hydrocarbon contaminated materials are to be appropriately disposed of at a licensed facility (where the material has been assessed as trackable waste, it will be transported and disposed of by an appropriately licensed contractor and records of the transportation / disposal method and location maintained at Site).
- Oily waste materials, including liquid hydrocarbons, should be segregated from general wastes for disposal / recycling off-site by a licensed contractor.
- Records are to be kept on disposal of all trackable waste materials used on-site.

#### 6.4.6 Monitoring

- Areas where handling of hydrocarbons and chemicals occur (e.g. refuelling or servicing areas) shall be regularly inspected by the Quarry Manager.
- All employees will be responsible for the safe day-to-day handling, use and temporary storage of chemicals being used on-site.

#### 6.4.7 Auditing and Review

- The hydrocarbon and chemical management strategies for the Site will be reviewed as required or at least once every three (3) years by the Quarry Manager.

#### 6.4.8 Reporting and Responsibility

- In the case of an incident, the following information shall be recorded as a minimum, kept and reviewed during Site decommissioning:
  - date and time of spill
  - approximate location of the spill
  - substance spilled
  - quantity spilled
  - actions taken to contain and control spill
  - method of disposal
  - person responsible for managing and removing the spill.
- The location, volumes and chemicals involved in major and serious spills that threaten or cause material harm (refer to definition of material harm in Section 6.4.8 Identification of Incident or Failure to Comply) will be reported to the EPA.
- The Quarry Manager or a person nominated by the Quarry Manager shall be responsible for ensuring all Employees and contractors are aware of the requirement of the hydrocarbon and chemical management strategies.
- The Quarry Manager or a person nominated by the Quarry Manager shall be responsible for recording the training of all Employees on the procedure for containing and cleaning up of chemical oil and fuel spills and the handling of other dangerous goods that may be used on-site.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### 6.4.9 Identification of Incident or Failure to Comply

- Serious environmental incidents are defined as those meeting the legislated criteria for material harm, or having the potential to cause material harm.
- The threshold for serious environmental harm is defined in the Protection of the Environment Operations Act 1997 Section 147 Meaning of Material Harm to the Environment.

(1) For the purpose of this Part:

(a) harm to the environment is material if:

- (i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
- (ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

(2) For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.

#### 6.4.10 Corrective Action

- Spillage and contamination will be immediately contained and a program designed to remediate any contamination shall be implemented in accordance with the on-site Pollution Incident Response Management Plan, refer to Appendix K – Pollution Incident Response Management Plan.
- Assess processes to identify any significant changes and if required, modify activities / processes.
- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).

- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.

## 6.5 Air Quality (Dust) Management

For further information and detailed plans on the management of air quality to meet SSD-6084 conditions, refer to Appendix L – Air Quality Management Plan.

### 6.5.1 Purpose

- Quarry activities have the potential to generate dust that if inadequately controlled, has the potential to cause nuisance to surrounding rural residents. Activities on-site that may generate dust emissions include:
  - wind action on topsoil stockpiles and disturbed areas.
  - topsoil stripping, blasting, extraction and transportation (earthmoving machinery ground-interaction, materials digging, rehabilitation works, loading and dumping, haul truck tyre/unsealed road interaction, unsealed roads, material spillage from haul trucks).
  - crushing and screening operations.
  - product stockpiling and dispatch (stockpiles and stockpile pads, product loading, truck tyre-road interaction, material spillage from trucks).

### 6.5.2 Operational Policy

- To protect the air quality characteristics of the surrounding environment (e.g. rural residences).

### 6.5.3 Development Consent Conditions

#### AIR QUALITY

#### Air Quality Impact Assessment Criteria

The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 4 at any residence on privately—owned land.

Table 4: Air quality criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	<sup>a, d</sup> 30 µg/m <sup>3</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>
Total suspended particulates (TSP)	Annual	<sup>a, d</sup> 90 µg/m <sup>3</sup>
<sup>c</sup> Deposited dust	Annual	<sup>b</sup> 2 g/m <sup>2</sup> /month <sup>a, d</sup> 4 g/m <sup>2</sup> /month

Notes to Table 4:

*a* Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).

*b* Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).

*c* Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

*d* Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

*e* "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 11 and 12 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

#### Operating Conditions

The Applicant shall:

- (a) implement best practice management to minimise the dust emissions of the development;
- (b) regularly assess meteorological and air quality monitoring data and relocate, modify and/or stop operations on site to ensure compliance with the air quality criteria in this consent;



(c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note d under Table 4);

(d) monitor and report on compliance with the relevant air quality conditions in this consent; and

(e) minimise the area of surface disturbance and undertake progressive rehabilitation of the site, to the satisfaction of the Secretary.

#### Air Quality Management Plan

The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:

(a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;

(b) describe the measures that would be implemented to ensure:

- compliance with the relevant conditions of this consent;
- best practice management is being employed; and
- the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;

(c) describe the proposed air quality management system;

(d) include an air quality monitoring program that:

- is capable of evaluating the performance of the development;
- includes a protocol for determining any exceedances of the relevant conditions of consent;
- effectively supports the air quality management system; and
- evaluates and reports on the adequacy of the air quality management system.

#### Meteorological Monitoring

For the life of the development, the Applicant shall ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.

Undertake operations in accordance with an Air Quality Management Plan.

Minimise the impacts of greenhouse gases relating to diesel consumption by:

- a) minimising use of haul trucks through use of an overland conveyor
- b) minimising rehandling of overburden and products
- c) maintaining and servicing equipment to ensure efficiently
- d) minimising the quarry footprint to reduce land disturbance
- e) optimising the design of the Processing Plant to maximise the use of gravity to move material throughout the plant and maximise energy efficient motors in major equipment.

Continue to monitor dust impacts through:

- a) the existing deposited dust gauges; and
- b) on-site meteorological monitoring to record relevant parameters.

#### 6.5.4 Performance Targets

- To protect the amenity of the surrounding environment and rural setting, and to minimise the likelihood of complaints regarding dust nuisance.
- The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in *Table 25 – Air Quality Criteria* when measured at the prescribed ambient air monitoring locations in accordance with the *Approved*

*Methods for the Sampling and Analysis of Air Pollutants in NSW as required by the Protection of the Environment Operations (Clean Air) Regulation 2010.*

Table 25 – Air Quality Criteria

Pollutant	Averaging Period	Criterion	
Particulate matter <10µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup> <sub>a,d</sub>	
Particulate matter <10µm (PM <sub>10</sub> )	24 hr	50 µg/m <sup>3</sup> <sub>b</sub>	
Total suspended particulates (TSP)	Annual	90 µg/m <sup>3</sup> <sub>a,d</sub>	
Deposited dust <sub>c</sub>	Annual	2 g/m <sup>2</sup> -month <sub>b</sub>	4 g/m <sup>2</sup> -month <sub>a,d</sub>

Notes:

- (a) Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).
- (b) Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development).
- (c) Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- (d) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.
- (e) "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements outlined in Section 6.4.4 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

### 6.5.5 Implementation Strategy / Mitigation Measures

An Air Quality Management Plan has been prepared for the Quarry operation, and is located in Appendix L – Air Quality Management Plan. The plan includes the following:

- Describes the measures that would be implemented to ensure:
  - compliance with the relevant conditions of the DC
  - best practice management is being employed
  - the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events.
  -
- Describes the proposed air quality management system
- Includes an air quality monitoring program that:
  - is capable of evaluating the performance of the development
  - includes a protocol for determining any exceedances of the relevant conditions of the DC and EPL
  - effectively supports the air quality management system
  - evaluates and reports on the adequacy of the air quality management system.

Controls measures to be implemented for particular operational phases or activities include, but are not necessarily limited to:

- ensuring employees and contractors are aware of dust management practices on-site
- dampening down cleared areas, extraction working areas, stockpiles and other hardstand areas by water spraying when visual surveillance indicates excessive dust generation and propagation from mobile sources
- temporarily revegetating topsoil and overburden stockpiles where practicable
- limiting topsoil / overburden removals at any one time to that necessary while providing for effective production
- utilising the surrounding natural or man-made topography / structures as a wind break, where practicable
- restricting vehicle and mobile machinery movements to designated routes and hardstand areas and reduce vehicle speeds on unsealed internal roads if dust emission from roads are visually excessive (e.g. less than 40 km/hr)
- clearing of spillage from side rails, tailgates and draw bars of trucks (following loading and tipping)
- cleaning of trafficable areas as necessary
- conducting daily visual surveillance of control measures to ensure system performance accords with design and implementation criteria
- applying good housekeeping practices
- as areas become available, progressive rehabilitation should be commenced at the Site.

- Specific control measures and assumptions presented in the Air Quality Assessment (refer to Appendix D – Air Quality Assessment) for air quality control measures for the Site include:
  - scheduling of blasting activities, where practicable, around favourable wind conditions to minimise potential for dust nuisance from such activities
  - use of water trucks on unsealed areas to ensure optimum moisture at all times (e.g.  $\geq 2$  L/m<sup>2</sup>/hr)
  - use of water sprays on stockpiles for areas where front end loaders and excavators are active
  - shielding the primary, secondary and tertiary crushing plant by way of enclosures, screens, vegetation, windbreaks, etc where practicable
  - ensuring this EMSP is updated as necessary to reflect current operating stages and conditions.

### 6.5.6 Monitoring

- Daily visual surveillance will be undertaken by all employees.
- Dust and particulate monitoring will be undertaken on a continuous basis to ensure compliance with the EPL at the locations and frequency as shown in Table 26 – Ambient Air Monitoring Locations.

Table 26 – Ambient Air Monitoring Locations

Air Monitoring Point	Pollutant	Frequency	Sampling Method	Units of Measure	Pollutant
4, 5 & 6	Particulates - Deposited Matter	Continuous	AM-19	g/m <sup>2</sup> /month	4

- Weather analysis monitoring will be undertaken on a continuous basis to ensure compliance with the EPL at the locations and frequency as shown in Table 27 – Weather Analysis Monitoring Locations.

Table 27 – Weather Analysis Monitoring Locations

Monitoring Location Point	Parameter	Units of Measure	Sampling Method	Averaging Period	Frequency
12	Air Temperature	°C	AM-4	1 Hour	Continuous
	Wind Direction	°	AM-2 and AM-4	15 Minutes	
	Wind Speed	m/s	AM-2 and AM-4	15 Minutes	
	Sigma theta	°	AM-2 and AM-4	15 Minutes	
	Rainfall	mm	AM-4	24 Hours	

- All monitoring of pollutants emitted to air for the Site are to be undertaken in accordance with the test methods prescribed by the EPL Condition M3.1, being in accordance with the publication *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* as required by the *Protection of the Environment Operations (Clean Air) Regulation 2010*.
- The results of the blast monitoring required by condition M7.1 of the EPL must be submitted to the EPA at the end of each reporting period with the Annual Return.
- For the life of the development, Hy-Tec shall ensure that there is a suitable meteorological station operating in the vicinity of the Site that complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline.

### 6.5.7 Auditing and Review

- Air quality management strategies shall be reviewed at least every three (3) years or earlier if required by the Quarry Manager.

### 6.5.8 Reporting and Responsibility

- The EPA will be notified of the results of all monitoring undertaken in accordance with 'Section 6 Reporting Conditions' of the EPL. Results of monitoring are to be submitted with the Annual Return documents at the end of each reporting period and be published on the Hy-Tec Website
- Any incidents or complaints regarding air quality are to be immediately reported to the Quarry Manager or a person nominated by the Quarry Manager.
- All complaints regarding air quality will be managed by the Quarry Manager or a person nominated by the Quarry Manager in accordance with the procedures outlined in Section 3.8.
- The Quarry Manager or delegate will investigate all complaints and take actions where required and maintain records of any dust monitoring undertaken on-site for a minimum of four (4) years.
- The Quarry Manager or a person nominated by the Quarry Manager will be responsible for ensuring that dust suppression equipment is maintained and in good working order.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

### 6.5.9 Identification of Incident or Failure to Comply

- Upon receipt of a complaint regarding air quality.
- Observations of uncontrolled visible dust being generated on-site, leaving the Site boundary.
- Dust results indicate exceedance of acceptable limits.

### 6.5.10 Corrective Action

- If a complaint is received as a result of the on-site activities, this will be managed in accordance with Section 3.8 of the EMSP.

The following general protocol will be implemented on identification of an incident and / or failure:

- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.
- The Quarry Manager or a person nominated by the Quarry Manager will undertake appropriate action to rectify any identified deficiencies in dust control, and may request the services of a specialist consultant to investigate the matter and to give advice on any additional dust control measures that may be required.

## 6.6 Noise Management

For further information and detailed plans on the management of noise to meet SSD-6084 conditions, refer to Appendix M – Noise Management Plan.

### 6.6.1 Purpose

- The *NSW Industrial Noise Policy (2000)*, developed by the EPA, provides the legislative and regulatory controls for management of noise emissions for industry.
- The land surrounding the Site is predominately rural land containing sparse residential properties.
- Site equipment or activities that have potential to generate significant noise have been identified and include:
  - excavator / bulldozer (clearing vegetation, stripping topsoil, landforming)
  - rock drilling and blasting (blast preparation for raw product extraction)
  - processing plant (crushing and screening)
  - front end loader (out loading, feeding processing plant)
  - heavy vehicles (product haulage, product delivery, water truck, etc.)
  - light vehicles (employee vehicles, maintenance vehicles, service vehicles, etc.)
  - maintenance activities
  - ancillary plant and equipment (i.e. pumps and welders).
- Section 6.7 provides blasting management strategies for noise due to site blasting activities.

### 6.6.2 Operational Policy

- To protect the acoustic environment and amenity of the surrounding rural setting.

### 6.6.3 Development Consent Conditions

Noise Impact Assessment Criteria

The Applicant shall ensure that the noise generated by the development does not exceed the criteria in

Table 2 at any residence on privately—owned land

Table 2: Noise criteria dB(A)

Receiver	Day dB(A) <sub>L<sub>aeq</sub>(15min)</sub>	Evening dB(A) <sub>L<sub>aeq</sub>(15min)</sub>	Morning dB(A) <sub>L<sub>aeq</sub>(15min)</sub>	Shoulder
All privately-owned residences	35	35	35	

Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. Appendix 5 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria. However, the noise criteria in Table 2 do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Operating Conditions

The Applicant shall:

- (a) implement best practice management to minimise the operational and road transportation noise of the development;
- (b) minimise the noise impacts of the development during meteorological conditions when the noise criteria in this consent do not apply (see Appendix 5);
- (c) carry out noise monitoring (at least every 6 months) to determine whether the development is complying with the relevant conditions of this consent; and
- (d) regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this consent, to the satisfaction of the Secretary.

*Note: Required frequency of noise monitoring may be reduced if approved by the Secretary.*

Noise Management Plan

The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (a) be prepared in consultation with EPA;
- (b) be submitted to the Secretary at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;
- (c) describe the measures that would be implemented to ensure:
  - compliance with the noise criteria in this consent;
  - best practice management is being employed; and
  - the noise impacts of the development are minimised during meteorological conditions under which the noise criteria in this consent do not apply (see Appendix 5);
- (d) describe the proposed noise management system; and
- (e) include a monitoring program to be implemented to measure noise from the development against the noise criteria in Table 2, and which evaluates and reports on the effectiveness of the noise management system on site.

Undertake processing operation with the current or equivalent crushing and screening plant.

Ensure all equipment on Site has sound power levels at or below that nominated for noise modelling purposes (see Table 5-1 of below, 2014a).

Limit transport noise by ensuring:

- a) all trucks under control Hy-Tec, or accredited contractors would comply at all times with RMS noise limits
- b) All truck drivers would be required to sign a Code of Conduct that includes noise limiting behaviour.
- c) Comply with conditional limits on truck movements.
- d) The internal road network would be graded, as required, to limit body noise from empty trucks

Maintenance work would be confined to standard daytime hours where practicable.

#### Applicable Meteorological Conditions

The noise criteria in Table 2 are to apply under all meteorological conditions except the following:

- a) wind speeds greater than 3 m/s at 10 m above ground level; or
- b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level; or
- c) temperature inversion conditions greater than 3°C/100 m.

#### Determination of Meteorological Conditions

Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 25 of Schedule 3.

#### Compliance Monitoring

Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.

Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:

- a) monitoring locations for the collection of representative noise data;
- b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;
- c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and
- d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the INP) and before comparison with the specified noise levels in the consent.

#### 6.6.4 Performance Targets

- Noise from the premises is not to exceed 35 dB(A) $L_{Aeq(15\text{ minute})}$  at any time at any residence on privately owned land in accordance with Condition L4.1 of the EPL and DC Schedule 3 Condition 3.
- However, the noise criteria do not apply if the Applicant has an agreement with the relevant landowner to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.
- The noise criteria are to apply under all meteorological conditions except the following:
  - (a) wind speeds greater than 3 m/s at 10 m above ground level
  - (b) temperature inversion conditions between 1.5°C and 3°C/100 m and wind speed greater than 2 m/s at 10 m above ground level
  - (c) temperature inversion conditions greater than 3°C/100 m.
- Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under DC Condition 25 of Schedule 3.

#### 6.6.5 Implementation Strategy / Mitigation Measures

The approved hours of operation are presented in Table 2 – Hours of Operation.

A Noise Management Plan has been developed for the quarry and is provided as Appendix M – Noise Management Plan, and includes the following:

- Describes the measures that would be implemented to ensure:
  - compliance with the noise criteria in the DC
  - best practice management is being employed
  - the noise impacts of the development are minimised during meteorological conditions under which the noise performance targets in this consent do not apply.
- describe the proposed noise management system
- includes a monitoring program to be implemented to measure noise from the development against the noise performance targets, and which evaluates and reports on the effectiveness of the noise management system on site.

Noise control measures that will be implemented include, but are not limited to:

- utilising the natural topography of the Site to provide buffer to nearby sensitive receptors where practicable
- positioning the processing plant away from adjacent noise sensitive receptors as far as practicable
- positioning the stockpiles and ancillary equipment such as generators, and crushing and screening plant, so as to prevent undue noise amenity impacts on surrounding noise sensitive receptors
- positioning the crushing plant and associated noisy equipment to utilise the surrounding natural or man-made topography (i.e. quarry pit) as an acoustic barrier, where practicable
- enclosing fixed engines, generators, pumps and compressors, where practicable
- operating and maintaining modern, well maintained road worthy product delivery trucks fitted with high efficiency mufflers
- shutting down equipment when not in use
- avoiding unnecessary operation of plant or revving of mobile or stationary motors and engines.
- restricting rock drilling at exposed locations (e.g. elevated benches) to the day period (6am to 6pm).

#### 6.6.6 Monitoring

Refer to Appendix M – Noise Management Plan for an illustration of Noise Monitoring Locations.

- Noise generated by the development is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy. DC, Schedule 5, Appendix 5 sets out

the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

- However, the performance target set in Section 6.6.3 do not apply if Hy-Tec has an agreement with the relevant landowner to exceed the noise criteria, and Hy-Tec has advised the DoP&E in writing of the terms of this agreement.
- The Quarry Manager will ensure regular surveillance of the Site to subjectively assess noise generation from Site plant and machinery.
- The Quarry Manager may initiate a noise survey following a noise complaint or when requested by the EPA to investigate a noise complaint, providing the complaint is reasonable and not frivolous or vexatious.
- To determine compliance with Condition L4.1 of the EPL, noise must be measured at, or computed for, any affected noise sensitive locations (such as a residence, school or hospital). A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the NSW Industrial Noise Policy.
- The measurement and reporting of noise levels will be undertaken by a person or body possessing both the qualifications and the experience appropriate to perform the required measurements.
- Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.
- Unless the DoP&E agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (as amended from time to time), in particular the requirements relating to:
  - (a) monitoring locations for the collection of representative noise data
  - (b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment
  - (c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration
  - (d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the INP) and before comparison with the specified noise levels in the consent.

#### 6.6.7 Auditing and Review

- Noise management strategies will be reviewed at least every three (3) years or earlier if required.

#### 6.6.8 Reporting and Responsibility

- The EPA will be notified of the results of all monitoring undertaken in accordance with Section 6 Reporting Conditions of the EPL. Results of monitoring are to be submitted with the Annual Return documents at the end of each reporting period.
- Any incidents or complaints regarding noise nuisance are to be immediately reported to the Quarry Manager or delegate.
- All complaints regarding noise nuisance will be managed by the Quarry Manager in accordance with the procedures outlined in Section 3.8.
- The Quarry Manager or delegate will investigate all complaints and take appropriate actions and maintain records of any noise monitoring undertaken on-site for a minimum of four (4) years.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### 6.6.9 Identification of Incident or Failure to Comply

- Upon receipt of a noise nuisance complaint.
- Noise monitoring indicates an exceedance of the acceptable levels.

#### 6.6.10 Corrective Action

- If a noise nuisance complaint is received as a result of Site activities and at the request of the EPA, an investigation will be conducted to determine the cause of the complaint and appropriate steps to minimise or resolve the issue to the maximum extent practicable. This will be managed in accordance with Section 3.8 of the EMSP.

The following general protocol will be implemented on identification of an incident and / or failure:



- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.
- The Quarry Manager or a person nominated by the Quarry Manager will undertake appropriate action to rectify any identified deficiencies in dust control, and may request the services of a specialist consultant to investigate the matter and to give advice on any additional dust control measures that may be required.
- The Quarry Manager may request assistance of the services of a specialist consultant to investigate and to give advice on noise control devices that should be implemented on-site to prevent repeat noise nuisance.

## 6.7 Blasting Management

For further information and detailed plans on the management of blasting to meet SSD-6084 conditions, refer to Appendix N – Blasting Management Plan.

### 6.7.1 Purpose

- Blasting is required to fragment rock to a manageable size that can be transported and fed into the crushing and screening plant.
- Blasting practices have the potential to generate excessive noise and vibration that may cause nuisance to surrounding neighbours.

### 6.7.2 Operational Policy

- Manage blasts so not to exceed the performance targets prescribed by EPL Condition L5.1 and DC Schedule 3 Condition 6.
- To ensure blasting activities are carried out in a manner that minimises annoyance, discomfort and any adverse effects being caused by the impact of air blast overpressure and ground-borne vibration at surrounding rural residences.
- All blasting is to be carried out by a suitably qualified person.

### 6.7.3 Development Consent Conditions

#### BLASTING

#### Blasting Impact Assessment Criteria

The Applicant shall ensure that blasting on site does not cause any exceedance of the criteria in Table 3.

Table 3: Blasting Criteria

Receiver	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any residence on privately-owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months

However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed the limits in Table 3, and the Applicant has advised the Department in writing of the terms of this agreement.

#### Blasting Frequency

The Applicant may carry out a maximum of 1 blast per calendar week, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site.

*Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.*

#### Operating Conditions

During blasting operations, the Applicant shall:

(a) implement best practice management to:

- protect the safety of people and livestock in the areas surrounding blasting operations;
- protect public or private infrastructure/property in the surrounding area from damage from blasting operations and
- minimise the dust and fume emissions of blasting;

- (b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and
- (c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.

**Blast Management Plan**

The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;
- (b) describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of this consent;
- (c) include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this consent;
- (d) include community notification procedures for the blasting schedule; and
- (e) include a protocol for investigating and responding to complaints.

**6.7.4 Performance Targets**

- Blasting should not exceed the airblast overpressure limits prescribed by EPL Condition L5.1 and DC Schedule 3 Condition 6 when measured in, or on, the most affected noise-sensitive location not under the ownership or control of the licensee, refer to Table 28 – Airblast Overpressure Levels for details.

*Table 28 – Airblast Overpressure Levels*

Location	Monday to Friday 10am – 3pm	Saturdays, Sundays and Public Holidays
Most affected noise-sensitive location (location not under the ownership or control of the licensee)	a) Airblast overpressure level is not to exceed 115 dB (Lin Peak) for more than 5 % of the total number of blasts over a period of 12 months. AND b) 120 dB (Lin Peak) at any time.	No blasting to occur

- Blasting should not exceed the vibration limits prescribed by EPL Condition L5.3 and DC Schedule 3 Condition 6 when measured in, or on, the locations shown in Table 29 – Ground Vibration Limits.

*Table 29– Ground Vibration Limits*

Location	Monday to Friday 10am – 3pm	Saturdays, Sundays and Public Holidays
Most affected sensitive location (location not under the ownership or control of the licensee)	Must not exceed: a) 5 mm/s for more than 5 % of the total number of blasts carried out on the premises over a period of 12 months. AND b) 10 mm/s at any time.	No blasting to occur
Most sensitive location within Hartley Valley	Must not exceed 2 mm/s	No blasting to occur

- However, these criteria do not apply if Hy-Tec has a written agreement with the relevant owner to exceed the limits and Hy-Tec has advised the DoP&E in writing of the terms of this agreement.
- Hy-Tec may carry out a maximum of 1 blast per calendar week, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site.

**6.7.5 Implementation Strategy / Mitigation Measures**

- Hours of blasting will be restricted to 9am to 3pm Monday to Friday.
- A Blast Management Plan has been prepared and is provided as Appendix N – Blast Management Plan. This includes the following:
  - Implementation of best practice management to:

- protect the safety of people and livestock in the areas surrounding blasting operations;
- protect public or private infrastructure/property in the surrounding area from damage from blasting operations and
- minimise the dust and fume emissions of blasting;
- describes the measures that are to be implemented to ensure compliance with the blast criteria and operating conditions of the DC
- includes a monitoring program for evaluating and reporting on compliance with the blasting criteria in the DC
- includes local community notification procedures for the blasting schedule including a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site
- includes a protocol for investigating and responding to complaints.

### 6.7.6 Monitoring

- Where any complaint regarding blast vibration or overpressure is received, consideration will be given to available monitoring results and locations, and if required or advantageous a monitor will be installed at the appropriate location for the next blast to assess compliance or when requested by the EPA.
- Monitoring and reporting shall be undertaken by a person or body possessing both the qualifications and the experience appropriate to perform the required measurements.
- Monitoring will be conducted in accordance with the EPL and the Australian and New Zealand Environment Council (1990) *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration*, as follows:
  - i) *Measurements of air blast overpressure shall be taken at an appropriate location which is exposed to the blasting and is at least 3.5 m from any noise affected building or structure, at a position between 1.2 m and 1.5 m above the ground.*
  - ii) *Ground-borne vibration transducer (or triaxial array) shall be attached to a cube or cylinder of equal diameter and length and having a mass of at least 30 kg, to ensure good coupling with the ground. Where the blast site and the measurement site cannot be shown to be on the same underlying strata, the mass shall be buried so that its uppermost surface is at the same level as the ground surface.*
  - iii) *Ground-borne vibration transducer (or array) shall be placed at a distance of at least the longest dimension of the foundations of a noise affected building or structure away from such building or structure and placed between that building or structure and the site of the blasting.*
- At least the following descriptors, characteristics and conditions shall be monitored:
  - maximum instantaneous charge (MIC) of blast
  - location of the blast within the quarry (including X, Y and Z coordinates and bench level)
  - distance from blast to monitoring point, location of monitoring point and date and time of recording / measurement
  - overpressure level (dB linear peak)
  - peak particle velocity and frequency (for ground vibration monitoring only)
  - effects due to extraneous factors including estimated wind speed and direction
  - measurement instrumentation used
  - name of the person performing the measurement.

### 6.7.7 Auditing and Review

- The Quarry Manager is to review the effectiveness of the blast management strategies as necessary or at least every three (3) years.

### 6.7.8 Reporting and Responsibility

- The EPA will be notified of the results of all monitoring undertaken in accordance with 'Section 6 Reporting Conditions' of the EPL. Results of monitoring are to be submitted with the Annual Return documents at the end of each reporting period.
- Publish monitoring results on the Hy-Tec website

- The Quarry Manager or delegate must maintain design records of all explosive blasts undertaken on site, in writing and diagrammatic form.
- All blast complaints received will be recorded in the complaint register and reported to the Quarry Manager.
- The Quarry Manager or delegate will investigate all complaints and will maintain records of any blast monitoring undertaken and blast records for a minimum of four (4) years.
- The Quarry Manager or delegate will be responsible to ensure staff and/or contractors are aware of the blast management strategies.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### *6.7.9 Identification of Incident or Failure to Comply*

- Receipt of a complaint relating to blasting.
- Blasting operations not complying with conditions of the Site's EPL.

#### *6.7.10 Corrective Action*

- Any incidents or complaints regarding on-site blasting activities are to be immediately reported to the Quarry Manager or delegate.
- All complaints regarding on-site blasting activities will be managed by the Quarry Manager or delegate in accordance with the procedures outlined in Section 3.8.
- If a blast complaint is received as a result of on-site blasting activities, an investigation will be initiated by the Quarry Manager or delegate and action taken to resolve the matter to the extent practicable.
- Commence an investigation into the incident and / or failure.
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.
- The Quarry Manager or a person nominated by the Quarry Manager will undertake appropriate action to rectify any identified deficiencies in dust control, and may request the services of a specialist consultant to investigate the matter and to give advice on any additional dust control measures that may be required.
- Appropriate actions will be undertaken to rectify any identified deficiencies in the management of on-site blasting.
- The Quarry Manager or delegate may request the services of specialist consultants to investigate and give advice on blasting techniques or to audit blasting methods.

## 6.8 Waste Management

### 6.8.1 Purpose

- Wastes generated on-site may include recyclable wastes, general wastes and trackable wastes. Schedule 1 of the *Protection of the Environment Operations (Waste) Regulation 2005* describes the types of wastes to which waste tracking requirements apply.
- The principal wastes from the on-site extractive industry may include, but are not necessary limited to:
  - domestic waste including food scraps, packaging, recyclable items
  - scrap steel / faulty or reject equipment
  - trackable waste materials at Site may include, but are not limited to, batteries, waste oils, oil filters and containers, oil/water emulsions, tyres, etc.
  - domestic wastewaters.
- The *Waste Avoidance and Resource Recovery Act 2001* provides the statutory basis for waste management for protection of environmental values.
- The objects of the *Waste Avoidance and Resource Recovery Act 2001* are as follows:
  - (a) *to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development,*
  - (b) *to ensure that resource management options are considered against a hierarchy of the following order:*
    - (i) *avoidance of unnecessary resource consumption,*
    - (ii) *resource recovery (including reuse, reprocessing, recycling and energy recovery),*
    - (iii) *disposal,*
  - (c) *to provide for the continual reduction in waste generation,*
  - (d) *to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,*
  - (e) *to ensure that industry shares with the community the responsibility for reducing and dealing with waste,*
  - (f) *to ensure the efficient funding of waste and resource management planning, programs and service delivery,*
  - (g) *to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,*
  - (h) *to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.*
- The *Waste Avoidance and Resource Recovery Act 2001* establishes a waste hierarchy to ensure that waste management options are considered against the following priorities:
  - Avoidance - including action to reduce the amount of waste generated by households, industry and all levels of government
  - Resource recovery- including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources
  - Disposal - including management of all disposal options in the most environmentally responsible manner.

### 6.8.2 Operational Policy

- To prevent or minimise, as far as practicable, the generation of wastes and to contain, control and dispose of all wastes on-site in accordance with appropriate waste management practices.

### 6.8.3 Development Consent Conditions

#### WASTE

The Applicant shall:

- (a) manage on—site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council;
- (b) minimise the waste generated by the development;
- (c) ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and
- (d) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.

Except as expressly permitted in an EPL, the Applicant must not receive waste at the site for storage, treatment, processing, reprocessing or disposal.

Place all paper and general wastes originating from the site office, together with routine maintenance consumables from the daily servicing of equipment in waste skip bins located adjacent to the site office and workshop.

Segregate waste into recyclables and non-recyclable materials for removal by a licensed contractor.

Ensure the appropriate storage and regular collection of industrial wastes including waste oils and scrap metal.

#### 6.8.4 Performance Targets

- Implement the *Waste Avoidance and Resource Recovery Act 2001* waste management hierarchy to minimise disposal to landfill.
- Maintain a record of any disposal of trackable wastes for the Site.
- No unlawful disposal of wastes on-site or off-site.
- No wastes with the exception of those permitted by the EPL (refer to Table 30 – Waste Approved to be Received at the Licenced Premises) are to be received at the Site.

Table 30 – Waste Approved to be received at the Licenced Premises

Waste	Description	Activity	Other Limits
Cured concrete waste from a batch plant	Recycled concrete aggregate sourced from Hy-Tec Industries Pty Limited's concrete batching plants	Resource recovery Waste processing (non-thermal treatment) Waste storage	5,000 tonnes per year
General or Specific exempted waste	Waste that meets all the conditions of a resource recovery exemption under Clause 51A of the <i>Protection of the Environment Operations (Waste) Regulation 2005</i>	As specified in each particular resource recovery exemption	NA

#### 6.8.5 Implementation Strategy / Mitigation Measures

- Site wastes will be managed in the following manner:
  - manage on-site sewage treatment and disposal in accordance with the requirements of its EPL, and to the satisfaction of the EPA and Council;
  - minimise the waste generated by the development;
  - ensure that the waste generated by the development is appropriately stored, handled, and disposed of; and
  - report on waste management and minimisation in the Annual Review to the satisfaction of the Secretary.
  - Waste stations will be available at the Site, which shall include all necessary bin types required for appropriate segregation of all waste types generated in an area
  - Wastes are to be stored in a neat and orderly manner and clearly signed as waste materials where wastes have to be temporarily stored on-Site
  - Waste skips are to be emptied prior to reaching the point of overflowing
  - Waste skips and bin types with lids shall be closed when not in use
  - Waste skips and bin types with no lids will be covered to prevent any wind blown litter
  - Ensure the appropriate storage and regular collection of industrial wastes including waste oils and scrap metal
  - Wastes will be segregated on-site into scrap metal, oily wastes, recyclable wastes (paper/cardboard and aluminium), tyres, batteries and general wastes
  - Place all paper and general wastes originating from the Site office, together with routine maintenance consumables from the daily servicing of equipment in waste skip bins located adjacent to the Site office and workshop.

- Wastes will be removed from the Site for disposal or re-cycling by appropriate licensed operator(s)
- Waste oils are collected within approved containers before removal off-site by a licenced contractor
- Properly constructed cigarette butt containers, not open trays or tins, will be placed around offices, crib rooms and workshops
- No burning or burying of wastes on-site unless approved by the EPA
- Salvageable items are to be neatly stored within a designated area (e.g. graveyard) until re-used on-site or disposed off-site.

#### 6.8.6 *Monitoring*

- The Quarry Manager or delegate shall undertake regular visual surveillance to ensure that waste management measures are implemented for the Site.

#### 6.8.7 *Auditing and Review*

- The effectiveness of waste management strategies at the Site shall be reviewed at least once every three (3) years.

#### 6.8.8 *Reporting and Responsibility*

- The Quarry Manager or delegate shall maintain a manifest of wastes on-site and methods of disposal in accordance with the EP (Waste Management) Regulation and any other waste records as required by the EPL.
- All employees and contractors shall be responsible for ensuring wastes are segregated and temporarily stored appropriately.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### 6.8.9 *Identification of Incident or Failure to Comply*

- Waste bins or storage vessels overflowing.
- Litter observed within the on-site operational areas.
- Wastes not correctly disposed of.
- Burning of wastes on-site.
- Re-usable or recyclable wastes not being segregated.
- Disposal records of trackable wastes not being maintained.

#### 6.8.10 *Corrective Action*

The following general protocol will be implemented on identification of an incident and / or failure:

- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.



## 6.9 Fauna and Flora Management

For further information and detailed plans on the management of the silver leaved mountain gum and biodiversity to meet SSD-6084 conditions, refer to Appendix O – Silver-Leaved Mountain Gum Management Plan and Appendix P – Biodiversity Offset Management Plan.

### 6.9.1 Purpose

- Extractive industry operations, by their very nature cause land disturbance and modification of the landscape. The modification of the biological environment has the potential to alter existing biodiversity. Quarry operations therefore have the potential to impact on flora and fauna both within the site and the surrounding environment. Particular activities which have the potential to affect biodiversity include:
  - land clearing required for the effective and efficient winning of raw materials
  - vehicle movements outside designated operational areas damaging vegetation
  - mobile and stationary equipment noise / movement
  - dust affecting vegetation
  - indiscriminate waste disposal encouraging feral animals
  - land disturbance resulting in an increase in weed infestation
  - fires resulting in the accidental burning of bushland
  - introduction of declared plants and pests
  - release of fuels, lubricants and solvents to watercourses
  - pollution of waterways with sediments.

### 6.9.2 Operational Policy

- To ensure land disturbance is kept to the minimum necessary and vegetation communities and habitats are managed appropriately.
- To ensure ongoing fauna and flora monitoring is undertaken at the Site on an annual basis in accordance with Condition 7a of DA103/94.
- To protect the *Eucalyptus pulverulenta* (Silver-Leaved Mountain Gum) vegetation community at Site.
- To protect the riparian corridor between the processing plant and the Coxs River.

### 6.9.3 Development Consent Conditions

#### IDENTIFICATION OF APPROVED EXTRACTION LIMITS

By 30 September 2015, unless otherwise agreed with the Secretary, the Applicant shall:

- (a) engage a registered surveyor to mark out the boundaries of the approved limits of extraction within the development area; and
- (b) submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary.

While quarrying operations are being carried out, the Applicant shall ensure that these boundaries are clearly marked at all times in a manner that allows operating staff to clearly identify the approved limits of extraction.

#### LANDSCAPE AND REHABILITATION

##### Biodiversity Offset Strategy

The Applicant shall implement the Biodiversity Offset Strategy, described in the EIS and including Conservation Area H, shown conceptually in Appendix 6, to the satisfaction of the Secretary.

##### Security of Offsets

Within 2 years of this consent, unless otherwise agreed with the Secretary, the Applicant shall make suitable arrangements to provide appropriate long—term security for the Biodiversity Offset Strategy, to the satisfaction of the Secretary.

*Note: Mechanisms to provide appropriate long term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014, including a Biobanking Agreement, Voluntary*

*Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome. Any mechanism must remain in force in perpetuity.*

### Appendix 3 Statement of Commitments

Mark, and where appropriate fence, boundaries relevant to the Biodiversity Offset Area.

Locate primary crushing station within extraction footprint.

Limit extent of extraction area as nominated in the development consent.

Operate a conveyor between the primary crushing station and secondary processing area to limit transportation of raw materials.

Maintain a 10m buffer and exclusion zone around the proposed area of disturbance.

Fence, as appropriate, sections of the Stage 2 Site not required for ongoing operations.

#### 6.9.4 Performance Targets

- Biodiversity values to be enhanced during the life of the quarry.
- Control fire and weeds.
- Enhance the rate of recovery of *Eucalyptus pulverulenta* community.
- Ensure the long term viability of the existing habitat and safe movement opportunities for fauna (particularly for species of special conservation significance) in the buffer areas.
- Ensure the long term viability of rehabilitated and enhanced habitat, particularly for species of special conservation significance.
- Ensure that rehabilitation of all quarry development areas includes local plant species or other native plants which will attract and sustain native fauna.

#### 6.9.5 Implementation Strategy / Mitigation Measures

##### Security of Offsets

- Within 2 years of this consent, unless otherwise agreed with the Secretary, the Applicant shall make suitable arrangements to provide appropriate long-term security for the Biodiversity Offset Strategy, to the satisfaction of the Secretary.
- Note: Mechanisms to provide appropriate long term security to the land within the Biodiversity Offset Strategy in accordance with the NSW Biodiversity Offset Policy for Major Projects 2014, including a Biobanking Agreement, Voluntary Conservation Agreement or an alternative mechanism that provides for a similar conservation outcome. Any mechanism must remain in force in perpetuity.
- Management practices that are currently in use and continue to be applicable to the entire Site include the following:
  - Location of the primary crushing station within extraction footprint.
  - Limit extent of extraction area as nominated in the development consent.
  - Operation of a conveyor between the primary crushing station and secondary processing area to limit transportation of raw materials.
  - Maintain a 10m buffer and exclusion zone around the proposed area of disturbance.
  - species used in revegetation works shall comprise species from the local area
  - exclude feral animals from the Site to the extent practicable
  - provide barriers and warning signs to discourage illegal recreation vehicles within the rehabilitated and buffer areas as appropriate.
  - ensure fire control plans are in place for the Site
  - encourage natural regenerations of native plant species
  - carry out weed and feral pest control in accordance with the standards adopted by local landholders
  - ensure all employees and contractors are made aware of the habitat value of the Site

- implement dust controls as described in the Air Quality Management Strategy contained in Section 6.5
  - ensure that persons entering the Site are made aware that no native vegetation is to be disturbed without the approval and supervision of the Quarry Manager
  - ban the lighting of fires on site
  - implement weed management in accordance with Section 6.10 of the EMSP and seek advice from NSW Department of Primary Industries (DPI) on suitable weedicides
  - exclude vehicles and equipment from revegetation areas except vehicles and equipment necessary for fire controls, pest and weed management, fence replacement or repair, and general land care practices
  - clean all vehicles and equipment entering revegetation areas to ensure they are free of weed seeds and sediment if practicable to do so
  - allow access to the bushland for environmental studies, environmental appreciation and necessary land management only to the extent that environmental values will not be compromised
  - speed limits on site shall be controlled within the property boundary and that signage shall be erected to ensure that drivers are aware of the potential presence of native fauna.
- Management practices applying specifically to the area to be quarried include:
    - demarcate the proposed limits of quarrying with durable markers and maintaining the markers
    - demarcate the area to be cleared for each clearing phase
    - design and install temporary erosion and sediment control measures
    - ensure timber and forest products are salvaged where practicable
    - inspect (with a suitably qualified or experienced person) areas to be cleared prior to clearing to identify habitat trees, animal species and protected species prior to clearing
    - an animal spotter shall be present during clearing
    - carry out vegetation clearing in accordance with any instructions given by a person trained and skilled in the capture and release of fauna
    - clear only to the extent necessary at any one time to provide for efficient and effective
    - windrow cleared vegetation along contour on the lower elevation of the cleared area and ensure vegetation is not pushed into gullies or creeks
    - dispose vegetation in the following order of preference:
      1. retrieval of material for habitat enhancement
      2. milling of commercial timber
      3. chipping and mulching on-site
      4. chipping and mulching off-site
      5. rotting or composting on-site.
    - keeping cleared areas free of invasive weeds
    - undertake progressive rehabilitation to the extent practicable.
  - Specific measures to protect and enhance the *Eucalyptus pulverulenta* community at Site include:
    - ongoing maintenance of *Eucalyptus pulverulenta* stock at the off site Landcare for use in Site rehabilitation
    - propagation of *Eucalyptus pulverulenta* in rehabilitation areas.
    - Ongoing local Landcare collection of *Eucalyptus pulverulenta* seed from the site for propagation of tube stock for the site use

### 6.9.6 Monitoring

- Fauna and flora reports are undertaken for the Site on an annual basis in accordance with Condition 7a of DA103/94.
- Bi-annual weed inspection and herbicide treatment program shall be undertaken or as required.
- Animal pest inspection and control program shall be undertaken as required.
- An animal spotter shall be appointed prior to clearing activities.

### 6.9.7 Audit and Review

- The Quarry Manager shall review the fauna and flora management plan as required and at least once every three (3) years.

### *6.9.8 Reporting and Responsibility*

- The Quarry Manager or delegate shall require the wildlife spotter and catcher to report on animals sighted during vegetation clearing, animals caught and relocated and place of relocation, and shall keep such records for a period of at least four (4) years.
- Records will be kept on-site of weed control works including the type and quantity of weedicide used.
- Vegetation monitoring results and fauna and flora surveys shall be recorded and available for inspection by authorised officers. Fauna and flora reports are undertaken for the Site on an annual basis in accordance with Condition 7a of DA103/94.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

### *6.9.9 Identification of Incident or Failure to Comply*

- Quarry operations contravene performance targets and / or EPL conditions.

### *6.9.10 Corrective Action*

- The Quarry Manager or delegate shall investigate the incident and review work place practices.
- The Quarry Manager or delegate shall arrange the destruction of identified weeds prior to flowering and seed production.
- The Quarry Manager or delegate shall make arrangements for feral animals, foxes and domesticated grazing animals to be removed from the land.
- Fauna that does not leave the site after tree felling will be removed by an experienced wildlife spotter and catcher and relocated to nearby bushland. Injured or abandoned fauna shall be taken to nominated carers.

## 6.10 Weed Management

### 6.10.1 Purpose

- A weed is a plant which, because of its characteristics and location, is causing economic, ecological, physical or aesthetic problems.
- Weeds have the potential to cause significant economical and environmental impacts. Weeds can dramatically alter ecosystem functionality, reduce primary production and profitability and limit the long-term sustainability of natural and agricultural resources if not appropriately controlled.
- Negative impacts that may occur due to the Quarry operations include:
  - spread of weeds due to mobilisation of unclean vehicles and equipment to the Site.
  - areas of exposed earth available for weed colonisation.
  - spread of existing weed infestations due to disturbance and vehicle/equipment traffic.
- The main legislation governing the management of weeds within NSW is the *Noxious Weeds Act 1993*. This Act declares plants considered to pose a serious or potentially serious threat to biosecurity (noxious weeds) and imposes a legal responsibility on occupiers of land to control noxious weeds declared in their area.
- Five (5) classes of noxious weeds in NSW as follows:
  - Class 1 - Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.
  - Class 2 - Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.
  - Class 3 - Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.
  - Class 4 - Plants that pose a potentially serious threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.
  - Class 5 - Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.
- Fauna and flora reports are undertaken for the Site on an annual basis in accordance with Condition 7a of DA103/94.
- The *Ecological Monitoring Report: Austen Quarry, Hartley (2013)* (see Appendix B – Ecological Monitoring Report: Austen Quarry, Hartley) identified that the noxious weeds with the highest overall abundance at the Site are:
  - *Hypericum perforatum* (St John's Wort)
  - *Nassella trichotoma* (Serrated Tussock).

### 6.10.2 Operational Policy

- To ensure adequate control measures are implemented to remove and / or control the spread and infestations of noxious weeds and other weeds within the quarry development area.

### 6.10.3 Development Consent Conditions

As per Section 6.11 Landscape and Rehabilitation management conditions.

### 6.10.4 Performance Targets

- The following performance targets have been identified for weed management:
  - control any existing weed infestations
  - reduce, where practicable, the extent of infestations of established weeds
  - prevent the potential introduction or establishment of new weed species
  - ensure rehabilitated areas are free from noxious weeds.

### 6.10.5 Implementation Strategy / Mitigation Measures

#### General

- Identify weeds on-site and in surrounding areas, prioritise weeds and weed management options, and determine the cause.
- Control infestations as soon as possible to prevent further spread of weeds.
- Adopt a combination of weed management options to reduce weeds on-site. Depending on the weed types these may include mechanical, chemical, biological, slashing or hand removal.
- Monitor and evaluate the progress of weed management efforts on-site.
- Employees should be able to recognise existing and potential weeds present on-site and within the surrounding area to ensure they are not inadvertently brought in via items contaminated by seed (e.g. vehicles, machinery, hand tools, soil, mulch or livestock).
- Use established roads and tracks and avoid weed-infested areas / sites.
- If areas containing weeds are encountered, where practicable, clean all equipment, vehicles and machinery prior to leaving.
- Dispose of weed plant material and seed by disposal at the Council refuse station.
- Maintain existing groundcover for as long as possible by minimising land disturbance at any one (1) time, where practicable.
- Restrict vehicular and stock access on-site.
- Ensure equipment entering and leaving the Site is free of soil and vegetation, both externally (include tracks / tyres, underbody, engine bay, radiator, buckets, body, chassis, trays, blades) and internally (include cabin, tool boxes, storage compartments).

#### Access Roads / Hardstand areas

- All access routes and hardstand areas will be maintained in a weed-free or weed-reduced state to lessen the spread of weed seed by vehicle movements.

#### Topsoil Management

- Visual surveys will be undertaken prior to all topsoil stripping operations and, where necessary, control mechanisms may be implemented to reduce the risk of the contamination of topsoil stockpiles with seed and vegetative weed material.
- Weed control mechanisms may include; segregating stockpiles, herbicide spraying of stripped soils, or disposal as fill of soil materials infested with weeds.
- Weed control mechanism strategies will be implemented to control weed infestation if required, both before and after use of top-dressing material in the rehabilitation program.
- All topsoil stockpiles will be regularly monitored and managed for weed infestation.

#### Progressive Rehabilitation

- Progressive rehabilitation should be commenced as areas as become available to limit the occurrence of weeds.
- Importation of topsoils onto the Site should be avoided where possible.
- Prior to the establishment of vegetation:
  - a spraying campaign may be required to prevent migration or establishment of weed species into the area under rehabilitation.
  - alternative methods may also be used for controlling pest grasses and weeds including manual weeding, slashing, weed matting and mulching, where practicable.

Weed Control Methods

- As a guide to assist in planning weed control, a summary of weed control options that can be implemented are presented in Table 31 – General Weed Control Options.

Table 31 – General Weed Control Options

Infestation Level	Biological	Chemical	Mechanical	Physical
Low (Canopy cover between 1% and 10%)	Not suitable	Spot-spraying by hand with a registered herbicide	Not suitable	Hand grubbing (remove roots)
Medium (Canopy cover between 11% and 50%)	Release of biological control agents	Spot-spraying by hand with a registered herbicide	Chaining, rolling, raking or back-ploughing	Follow up control of seedlings – could include physical removal
High (Over 50% canopy cover)	Inspect infestation to refer if, and what, bio-control agents are already present. If necessary, release biological control agents and monitor their progress	Aerial spraying with a registered herbicide	Attach with chaining, rolling or raking. Use fire to kill any regrowth and break seed dormancy	Follow up control of seedlings – could include physical removal

- Department of Primary Industries (DPI) provides information on weeds including plants declared as Weeds of National Significance and weeds on the National Environmental Alert List. These listing can be found at: <http://www.dpi.nsw.gov.au>.

6.10.6 Monitoring

- All employees on-site shall carry out general daily visual surveillance for weeds within the quarry and ensure that vehicles leaving site are free of soil and vegetation.
- The Quarry Manager or delegate shall conduct regular inspections of all access routes on-site to ensure they are maintained weed free or in weed reduced state to lessen the spread of weed seed by vehicle movements.
- The Quarry Manager or delegate shall conduct an inspection of areas to be excavated and treat any weed infestations prior to topsoil removal.
- The Quarry Manager or delegate shall carry out at least four (4) thorough inspections per year of the quarry to identify:
  - effectiveness of weed control measures implemented and whether an amendment is required
  - new areas where weed control is required
  - infestations of new weed species
  - areas where rehabilitation should be carried out
- The frequency of Site inspections will vary depending on the time of year, the identified weed species on-site and what management requirements are necessary for those species identified.

6.10.7 Audit and Review

- The list of declared noxious weed species should be reviewed as required (at least annually) to ensure the correct control procedures are applied for each weed listed.
- The effectiveness of the weed management strategies shall be reviewed as necessary and at least once every three (3) years.

### *6.10.8 Reporting and Responsibility*

- The Quarry Manager or a person nominated by the Quarry Manager will ensure monitoring of weed infestations occur across the Site.
- The Quarry Manager or a person nominated by the Quarry Manager will ensure appropriate weed management strategies are selected and implemented.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

### *6.10.9 Identification of Incident or Failure to Comply*

- Spread of existing weed infestations.
- New infestations established on-site.
- Weeds of National Significance and weeds on the National Environmental Alert List present on-site
- Weeds established within rehabilitated areas.

### *6.10.10 Corrective Action*

- If a weed infestation occurs as a result of on-site activities, an investigation may be initiated by the Quarry Manager or delegate and actions taken to resolve the matter to the extent practicable.
- Restrict access to weed infested areas.
- Identify and apply appropriate weed control measures as necessary.



## 6.11 Landscape and Rehabilitation Management

For further information and detailed plans on the management of landscape and rehabilitation to meet SSD-6084 conditions, refer to Appendix Q – Landscape and Rehabilitation Management Plan and Appendix P –Biodiversity Offset Management Plan.

### 6.11.1 Purpose

- Land degradation and its management are recognised as important environmental issues in Australia. Extractive industry operations, by their very nature, cause land disturbance and modification of the landscape. This land disturbance and modification has the potential to result in land degradation and impact on the visual amenity. Extractive industry is a temporary land use. Design and implementation of rehabilitation works is therefore an important element of extractive industry. Integration of rehabilitation and extractive operations assists in minimising potential environmental impacts as well as cost control.
- Rehabilitation works shall be guided by the post-extraction land use – the land will likely return to grazing lands. Quarrying is likely to create a gently sloping free draining area surrounded by stepped benches and batters of varying slopes depending on the geotechnical properties of the substrate. Water filled voids may also be included within the final landform.

### 6.11.2 Operational Policy

- To minimise the impact of the extractive industry operation on the environment during the operational phase.
- To return the land to a stable, non-polluting and self-sustaining state for the final land use at the cessation of the quarrying operations.
- To ensure the Site is aesthetically consistent with the surrounding landform.
- To ensure topsoil resources on-site are preserved and effectively utilised in rehabilitation works.
- To ensure suitable drainage systems (erosion and sediment control measures) are incorporated into the final landform where necessary.
- To undertake progressive rehabilitation as areas become available.

### 6.11.3 Development Consent Conditions

#### Rehabilitation Objectives

The Applicant shall rehabilitate the site to the satisfaction of the Secretary. This rehabilitation must be generally consistent with the rehabilitation strategy in the EIS and the conceptual final landform in Appendix 4 and must comply with the objectives in Table 5.

Table 5: Rehabilitation Objectives

Feature	Objective
Site (as a whole)	<ul style="list-style-type: none"> <li>• Safe, stable and non—polluting</li> <li>• Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land</li> </ul>
Surface Infrastructure	<ul style="list-style-type: none"> <li>• Decommissioned and removed, unless DRE agrees otherwise</li> </ul>
Quarry Benches	<ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul>
Quarry Pit Floor	<ul style="list-style-type: none"> <li>• Landscaped and vegetated using native tree and understorey species</li> </ul>
Final Void	<ul style="list-style-type: none"> <li>• Minimise the size, depth and slope of the batters of the final void</li> <li>• Minimise the drainage catchment of the final void</li> </ul>

## Progressive Rehabilitation

The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.

*Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.*

### *Landscape and Rehabilitation Management Plan*

*The Applicant shall prepare and implement a Landscape and Rehabilitation Management Plan for the development to the satisfaction of the Secretary. This plan must:*

*(a) be prepared in consultation with OEH and be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless the Secretary agrees otherwise;*

*(b) provide details of the conceptual final landform and associated land uses for the site;*

*(c) describe how the implementation of the Biodiversity Offset Strategy would be integrated with the overall rehabilitation of the site;*

*(d) include detailed performance and completion criteria for evaluating the performance of the Biodiversity Offset Strategy and rehabilitation of the site, including triggers for any necessary remedial action;*

*(e) describe the short, medium and long term measures that would be implemented to:*

- manage remnant vegetation and habitat on site, including within the Biodiversity Offset Strategy area; and*
- ensure compliance with the rehabilitation objectives and progressive rehabilitation obligations in this consent;*

*(f) include a detailed description of the measures that would be implemented over the next 3 years (to*

*be updated for each 3 year period following initial approval of the plan) including the procedures to be implemented for:*

- maximising the salvage of environmental resources within the approved disturbance area,*
- including tree hollows, vegetative and soil resources, for beneficial reuse in the enhancement of*
- the offset area or site rehabilitation;*
- restoring and enhancing the quality of native vegetation and fauna habitat in the biodiversity*
- and rehabilitation areas through assisted natural regeneration, targeted vegetation*
- establishment and the introduction of fauna habitat features;*
- protect, conserve, propagate, plant and/or regenerate Silver—leafed Mountain Gum (Eucalyptus*
- pulverulenta) (including the propagation and planting of at least 1,000 individuals of this species);*
- protecting vegetation and fauna habitat outside the approved disturbance area on—site;*
- minimising the impacts on native fauna, including undertaking pre—clearance surveys;*
- establishing vegetation screening to minimise the visual impacts of the site on surrounding receivers;*
- ensuring minimal environmental consequences for threatened species, populations and habitats;*
- collecting and propagating seed;*
- controlling weeds and feral pests;*
- controlling erosion;*
- controlling access; and*
- managing bushfire risk;*

*(g) include a program to monitor and report on the effectiveness of these measures, and progress against the performance and completion criteria;*

*(h) identify the potential risks to the successful implementation of the Biodiversity Offset Strategy, and include a description of the contingency measures that would be implemented to mitigate these risks; and*

*(i) include details of who would be responsible for monitoring, reviewing, and implementing the plan.*

#### *Conservation and Rehabilitation Bond*

*Within 6 months of the approval of the Landscape Management Plan, the Applicant shall lodge a Conservation and Rehabilitation Bond with the Department to ensure that the Biodiversity Offset Strategy and rehabilitation of the site are implemented in accordance with the performance and completion criteria set out in the plan and relevant conditions of this consent. The sum of the bond shall be determined by:*

*(a) calculating the cost of implementing the Biodiversity Offset Strategy over the next 3 years;*

*(b) calculating the cost of rehabilitating the site, taking into account the likely surface disturbance over the next 3 years of quarrying operations; and*

*(c) employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the Secretary.*

#### *Notes:*

- Alternative funding arrangements for long term management of the Biodiversity Offset Strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement, or transfer to conservation reserve estate can be used to reduce the liability of the conservation and rehabilitation bond.*
- If capital and other expenditure required by the Landscape Management Plan is largely complete, the Secretary may waive the requirement for lodgement of a bond in respect of the remaining expenditure.*
- If the Biodiversity Offset Strategy and rehabilitation of the site area are completed to the satisfaction of the*

*Secretary, then the Secretary will release the bond. If the Biodiversity Offset Strategy and rehabilitation of the site are not completed to the satisfaction of the Secretary, then the Secretary will call in all or part of the bond, and arrange for the completion of the relevant works.*

*Within 3 months of each Independent Environmental Audit (see condition 8 of Schedule 5), the Applicant shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the Secretary. This review must consider the:*

*(a) effects of inflation;*

*(b) likely cost of implementing the Biodiversity Offset Strategy and rehabilitating the site (taking into account the likely surface disturbance over the next 3 years of the development); and*

*(c) performance of the implementation of the Biodiversity Offset Strategy and rehabilitation of the site to date.*

Retain all soil and suitable cleared vegetation resources for use in the rehabilitation of the final landform.

Include *Eccalypus pulverulenta* in the revegetation of the Stage 2 Site.

Re-instate the pre-disturbance soil and land capability in the area used for the secondary processing area and Yorkeys Creek stockpile area.

Provide for rehabilitation of the secondary processing area and Yorkeys Creek stockpile area back to agricultural land.

Include the Silver-leafed mountain gum in progressive revegetation of the final landform.

#### *6.11.4 Performance Targets*

- Maintain the general amenity of the surrounding area and ensure maximum buffer zones are maintained where practicable.
- Retain topsoil stripped ahead of each stage for rehabilitation works.
- Ensure progressive rehabilitation is carried out wherever possible to reduce areas of disturbance.

- Prevent the release of wind-blown dust from any areas undergoing rehabilitation.
- Reinststate stable drainage pattern(s) following completion of the operational phase of the Site.
- Ensure water quality is of a suitable standard, consistent with the post extraction land use requirements.
- Identify any land contamination and implement appropriate remediation or management where necessary.
- Ensure compacted surfaces are deep ripped to relieve compaction unless subsurface conditions or beneficial uses dictate otherwise.
- Prevent the introduction or spread of declared or environmental weeds (See Section 6.10 – Weed Management Plan).
- Ensure there are no declared weeds present in the rehabilitated areas (See Section 6.10 – Weed Management Plan).
- Monitor and manage rehabilitated areas until they are self-sustaining.
- Ensure the post-extraction landform is stable and suitable for the long-term land use (e.g. grazing uses).
- As areas are identified as potentially available for progressive rehabilitation, development of Stage Rehabilitation Plan may be initiated by the Quarry Manager and implemented appropriately.

### 6.11.5 Implementation Strategy / Mitigation Measures

#### Landuse

- The Site and surrounding land has been historically used for agricultural purposes such as beef cattle grazing and cropping. The sequential land use shall be compatible with the adjacent land use(s) at the time the Site progresses into the post-extraction phase.

#### Landform

- The Applicant shall rehabilitate the site to the satisfaction of the DoP&E. This rehabilitation must be generally consistent with the conceptual final landform in Appendix 4 of the DC (Appendix I – Development Consent SSD-6084) and must comply with the objectives in Table 32 – Rehabilitation Objectives.

Table 32 – Rehabilitation Objectives

Feature	Objective
Site (as a whole)	Safe, stable and non-polluting. Final landform integrated with surrounding natural landforms as far as is reasonable and feasible, and minimising visual impacts when viewed from surrounding land.
Surface Infrastructure	Decommissioned and removed, unless DoP&E agrees otherwise.
Quarry Benches	Landscaped and vegetated using native tree and understorey species.
Quarry Pit Floor	Landscaped and revegetated using native tree and understorey species.
Final Void	Minimise the size, depth and slope of the batters of the final void. Minimise the drainage catchment of the final void.
Yorkey's Creek stockpile and secondary processing area.	Re-instate the pre-disturbance soil and land capability. Provide for rehabilitation of these areas back to agricultural land.

Hy-Tec shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time.

Interim stabilisation measures must be implemented where reasonable and feasible to control dust emissions in disturbed areas that are not active and which are not ready for final rehabilitation.

*Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in future.*

### Rehabilitation

Hy-Tec shall submit this EMSP and Appendix Q – Landscape and Rehabilitation Management Plan to the DoP&E for approval at least three (3) months prior to the commencement of quarrying operations under this consent, unless the DoP&E agrees otherwise.

Rehabilitation shall be guided by previous Rehabilitation and Vegetation Management Plans (References 6 and 9) that were associated with the current approval (LCC DA 103/94). Whilst these are nominally superceded by this EMSP and Appendix Q – Landscape and Rehabilitation Management Plan, information contained in those documents remains useful for execution of this Plan.

### Conservation and Rehabilitation Bond

Within 6 months of the approval of this EMSP and Appendix Q – Landscape and Rehabilitation Management Plan, Hy-Tec shall lodge a Conservation and Rehabilitation Bond with the DoP&E to ensure that the proposed Biodiversity Offset Strategy and rehabilitation of the Site are implemented in accordance with the performance and completion criteria set out in the plan and relevant conditions of this consent. The sum of the bond shall be determined by:

- (a) Calculating the cost of implementing the proposed Biodiversity Offset Strategy over the next three (3) years
- (b) Calculating the cost of rehabilitating the site, taking into account the likely surface disturbance over the next three (3) years of quarrying operations
- (c) Employing a suitably qualified quantity surveyor or other expert to verify the calculated costs, to the satisfaction of the DoP&E.

Within three (3) months of each Independent Environmental Audit (as per DC Condition 8 of Schedule 5), Hy-Tec shall review, and if necessary revise, the sum of the Conservation and Rehabilitation Bond to the satisfaction of the DoP&E. This review must consider the:

- (d) Effects of inflation
- (e) Likely cost of implementing the proposed Biodiversity Offset Strategy and rehabilitating the Site (taking into account the likely surface disturbance over the next 3 years of the development)
- (f) Performance of the implementation of the proposed Biodiversity Offset Strategy and rehabilitation of the Site to date.

- The final landform will be determined based on the environmental values of the surrounding region, practicalities of the final land use and economical limitations for implementation of the final landform. A conceptual final landform is shown in Figure 6 – Conceptual Rehabilitation Plan.
- The landform is likely to consist of a gently sloping, free draining platform. If required, the quarry void may be converted into a water reservoir or similar feature as an alternative high value beneficial use.
- Topsoil, mulched cleared vegetation, and any residual overburden and extracted materials on-Site, will be used as part of the rehabilitation of the final landform.
- The following measures shall ensure that the landform created by extraction activities is stable and is married into the surrounding landscape:
  - using earthmoving equipment to progressively shape and trim the workings to the desired design profiles.
  - flattening the gradients of selective batters to a stable angle of repose on reaching the terminal limits of extraction, refer Figure 7 – Batter Treatments.
  - rounding or marrying the contours into the natural ground surface.
  - scaling down loose rock.
  - topsoiling and stabilising of contours.
  - providing access to the terminal workings to allow maintenance of rehabilitation works.
  - designing landform and drainage to control erosion for the particular hydrological regime.
  - where necessary planting media should be spread and shaped over selected rock benches and topsoiled to assist in retaining precipitation and controlling sediment movement, refer options provided in Figure 8 – Schematic of Quarry Bench Rehabilitation.

### Erosion and Sediment Control

- Erosion and sediment control is an integral component for establishing groundcover and stabilised final landforms.
- Erosion and sediment control measures may include measures such as gravel mulch, organic mulch, turfing, alternative treatments such as hydro-mulching, planting, etc.
- Erosion and sediment controls should be implemented during the operational phase and remain in place until the area is rehabilitated.

### Control of Vehicle / Extraction Movements

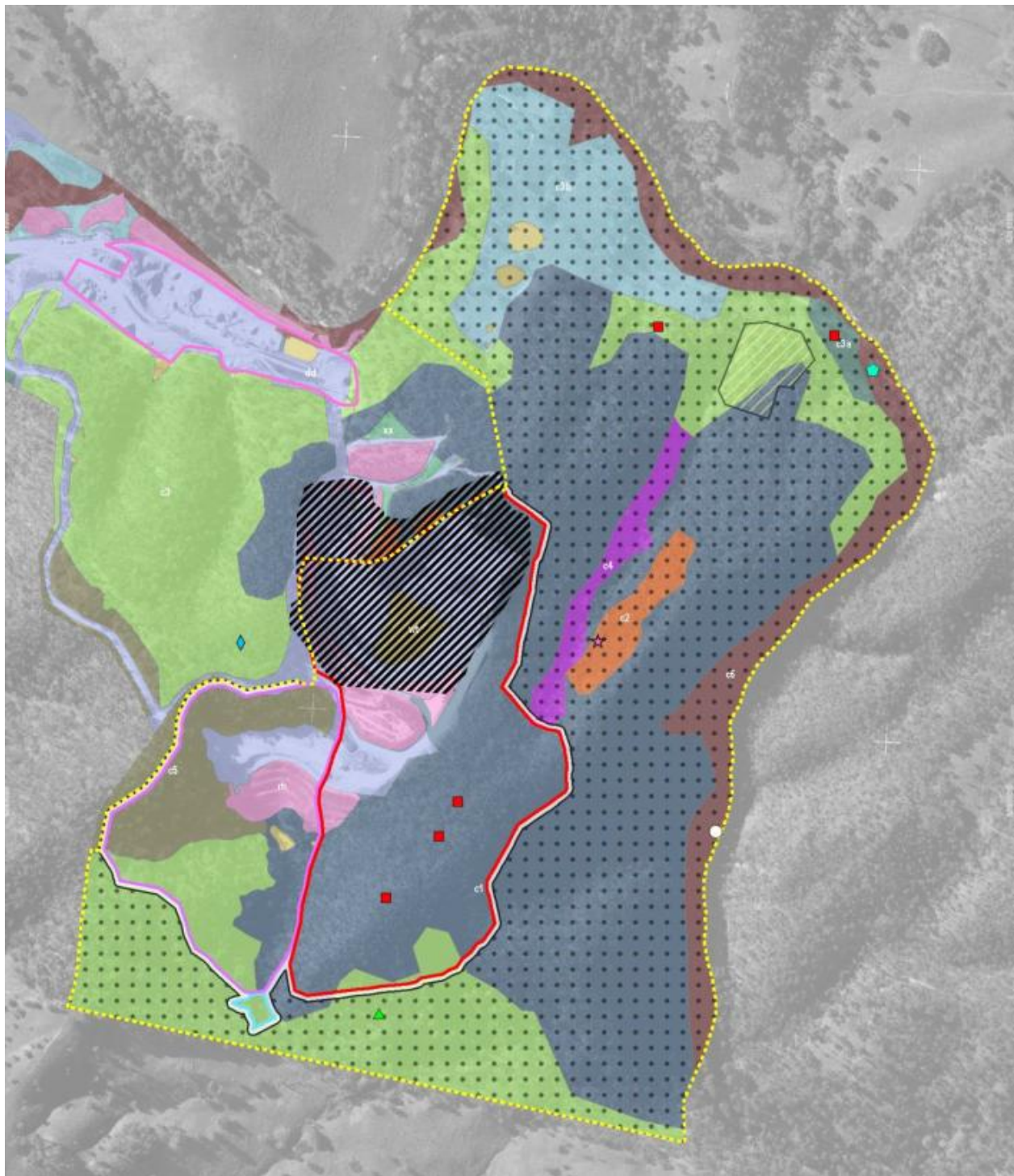
- Employees and contractors shall be made aware of restricted areas undergoing rehabilitation through Site training and awareness.
- Wire fencing, flagging or other suitable barricades shall be installed around areas undergoing rehabilitation.
- Existing temporary internal access roads shall be used where possible.

### Eucalyptus pulverulenta Management

- The Site supports a rare *Eucalyptus pulverulenta* community which constitutes approximately 5% of the total *Eucalyptus pulverulenta* population in the Hartley Lowther district. A conservation program has been established for the *Eucalyptus pulverulenta* at the Site.

The native population of approximately 300 *Eucalyptus pulverulenta* trees combined with a combination of other native species such as grasses, geebung, eucalypt species were identified in the eastern part of the Quarry area (Refer Map 1 – Location of Eucalyptus Pulverulenta Trees). Management of the *Eucalyptus pulverulenta* trees will be in accordance with the Biodiversity Offset Strategy.

Map 1 – Location of *Eucalyptus Pulverulenta* Trees



Threatened fauna recorded during the field surveys (Niche 2012)

Source: Austen Quarry Stage 2 Extension Project – Terrestrial Ecology Assessment, August 2014 (Niche Environment and Heritage) – Figure 12.

- In 1997, over 70,000 *Eucalyptus pulverulenta* seeds were collected by Greening Australia. This seed stock has been utilised to propagate a large number of *Eucalyptus pulverulenta* tubestock which are maintained at an off-site nursery for use in Site rehabilitation.
- *Eucalyptus pulverulenta* tubestock will continue to be utilised in rehabilitation areas.

Riparian Corridor Management

- A riparian corridor area has been established at the Site between the processing area and the Coxs River; refer to Figure 6 – Conceptual Rehabilitation Plan for the approximate location of this rehabilitation area. The purpose of the riparian corridor are to:
  - stabilise the riverbank to prevent erosion and slumping resulting from higher rainfall and flood events
  - ensure water quality is maintained / improved through filtering of sediments through the corridor area
  - reduce contaminated surface runoff and runoff velocities through revegetation of riverbanks
  - improve the native ecosystem and connectivity of the fauna corridor.
- Specific management strategies for the riparian corridor include, but shall not be limited to:
  - implement revegetation of the corridor in accordance with the *Vegetation Management Plan (VMP)* prepared by Geoff Cunningham Natural Resource Consultants Pty Ltd (2005), (Reference 6).
  - undertaking targeted weed management in the riparian corridor
  - ensuring fencing is installed and maintained to exclude livestock and unauthorised access
  - undertake monitoring and maintenance of the riverbank slopes to repair flood damages sections
- A further botanical survey and review of the progress of the VMP was undertaken by Aquila Ecological Survey (2013). This review incorporated the following recommendations for the bund wall:
  - planting of a band through the middle of the bund wall at 5 m spacing using deep rooted, low nutrient tolerant wattle and eucalypt species
  - revegetation of the bund crest with native species in accordance with the VMP at a reduced density of one tree per 5 m<sup>2</sup> (i.e. 400 trees)
  - broadened range of groundcover and shrub species for the revegetation at reduced spacing.
- Aquila Ecological Survey (2013) recommended the following revised planting schedule for the riparian corridor bund wall:

Table 33 – Riparian Corridor Bund Wall Planting Recommendations

Position	Trees	Shrubs	Groundcover
Mid Slope	Combination of at least four of the following: Yellow Box, Apple Box, Ribbon Gum, Brittle Gum, Broad-leaved Peppermint and Red Stringybark.  81 plants at least 16 of which should be Yellow Box	Silver Wattle, Mountain Hickory.  81 Plants	-
Crest	Combination of Yellow Box and at least three of the following: Apple Box, Ribbon Gum, Brittle Gum, Broad-leaved Peppermint and Red Stringybark.  81 plants at least 16 of which should be Yellow Box	Combination of Silver Wattle, Hickory Wattle, Box-leaf Wattle, Native Cherry, <i>Cassinia quinquefaria</i> , Blackthorn, Sticky Cassinia, Australian Indigo, Long-leaf Wax Flower, Forest Nightshade.  500 plants with no species >25%.	Oat Spear Grass, Purple Wiregrass, Three-awn Speargrass, Windmill Grass, Barbed-wire Grass, Climbing Saltbush, Hedgehog Grass, Common Wheatgrass, Wirey Panic, Kangaroo Grass, Australian Cranesbill, Redanther Wallaby Grass, Tussock Grass, Snow Grass, Wild Sorghum. Flax-lily Spiny-headed Mat-rush, Weeping Grass, Variable Groundsel, Purple Coral Pea, Fireweed, New Holland Daisy.  6,000 plants (3,600 of which should be grasses).



Note: Table sourced from Aquila Ecological Survey (2013) report incorporating a review of VMP and existing rehabilitation

### General Vegetation Management

- Vegetation protection measures may be installed prior to the commencement of each quarry development stage if necessary. These measures should be maintained until the area is rehabilitated.
- Protection measures may include, but shall not be limited to, markers, flagging, or fencing around vegetation to be retained or areas undergoing rehabilitation.
- Prior to the clearing of vegetation, a Vegetation Clearing Plan may be prepared in accordance with the following:
  - Wherever possible, land disturbance is to be minimised and clearing limited to the extent necessary for quarry development.
  - Vegetation clearing shall be carried out in stages using a sequential clearing strategy.
  - Prior to clearing, the limits of the approved area to be cleared shall be clearly marked with flagging, fencing or other clearly visible markers.
  - Buffer widths are to be maintained to the maximum extent practicable.

### Topsoil Management

- Topsoil supports and promotes plant growth as it often contains remnant seed (i.e. grass and plant), soil micro-organisms, organic matter and nutrients. Topsoil is the organic-rich and friable layer at the natural ground surface. The physical properties of topsoil are important for promoting and supporting plant growth.
- The following measures should be implemented for topsoil stripping:
  - Topsoil should not be stripped when it is too wet or too dry.
  - Topsoil, when stripped, should be used directly for rehabilitation to the maximum practicable extent or stockpiled and preserved for future use.
  - Topsoil stockpiles should not exceed a height of 2 m, shaped (i.e. batters < 2:1) and revegetated to protect the soil from erosion, dust generation and weed colonisation.
  - Topsoil stockpiles should be maintained in a free draining condition and long-term soil saturation should be avoided.
  - Stormwater should be diverted away from the proposed area to be stripped.
  - Topsoil stripping should be limited to the area necessary.
- The following measures should be implemented for topsoil spreading:
  - Areas to be topsoiled should be re-shaped where necessary prior to placing topsoil.
  - Equipment used to spread topsoil should be scheduled to avoid compaction.
  - Before respreading the topsoil, the subsoil should be ripped to break up any compacted areas to allow keying of the two (2) soils.
  - On slopes less than 3:1, lightly compacted subsoils should be ripped with a tined implement ensuring all ripping operations occur along the natural contours.
  - Topsoil should be removed from stockpiles in a manner that prevents equipment from traversing over the stockpiles.
  - Topsoil should be re-spread in reverse sequence to the direction of removal wherever possible so that the original upper soil layer is returned to the surface to encourage re-establishment of the preserved seed content.
  - All exposed subsoils should be covered, and topsoil respread over selected batters, contours, bunds and disturbed areas to a minimum depth of 100 mm (slopes <3:1) or 50 mm (flatter areas), where practicable.
  - Soil spreading is to be immediately followed by seeding, planting or alternative revegetation methods if applicable.
  - Mulch may be spread over the respread topsoil to minimise potential soil erosion until the area is revegetated.
- If erosion occurs on treated surfaces, the area should be respread with topsoil as necessary and revegetated appropriately.

### Species Selection

- Grasses - native or naturalised pasture grasses shall be the preferred species selected for initial stabilisation of rehabilitated areas such as former hardstand area(s).
- Plants - plant species selection will be based on either a Site survey of remnant vegetation or consideration of pre-clear mapped regional ecosystems and/or surrounding regional ecosystems.
- For terminal batters where supplementary revegetation is required, a preference shall be given to selecting local regional ecosystems species that are suited to the on-site soil conditions.

### Revegetation

- Methods: There are a range of methods for establishing vegetation including natural regeneration, hydro-mulching, seed broadcasting, tubestock planting, direct seeding and other alternative methods. Natural regeneration shall be the preferred method of establishing vegetation supported by supplementary seeding or planting where required.
- Ground Preparation: If the area has become compacted, the area is to be ripped prior to revegetation where necessary.
- Fertilisation: Fertilizer may be spread over the areas being revegetated if necessary at a rate prescribed by the supplier / product manufacturer. Fertilisers selected should be suitable for the application / plant species.
- Watering: Revegetation of areas is best carried out prior to good rainfall or following soaking rain. Following revegetation, the area should be watered as required to ensure soil moisture is retained during establishment.
- Staging: The staging of the rehabilitation works will follow the sequence of quarry development as terminal batters are reached, the timing of which will also be dependent upon market demand and general economic conditions.

### Weed and Pest Control (See also Section 6.9 Weed Management Plan)

- Any materials (e.g. soil, mulch, straw, etc) brought onto the Site for rehabilitation shall be inspected to ensure the materials are free from weeds and pests.
- Prior to the commencing any revegetation, a spraying campaign may be required to control weeds and prevent weed migration into areas under rehabilitation.
- Alternative methods for controlling both grass and weeds may include manual weeding, slashing, weed matting and mulching.
- Predation (e.g. grazing animals, birds, kangaroos, hares, and insects) may also pose a threat to the successful establishment of vegetation. Specific controls measures may be required to protect vegetation from predation by animals such as hares, cattle, etc.

### Demobilisation

- All temporary infrastructure and materials (including flagging tape and survey pegs) associated with the quarry activities are to be removed at cessation of the operations.
- Any sumps or other temporary installations are to be backfilled, unless approved to remain in place for ongoing beneficial reuse as agreed by the landowner.
- All wastes are to be removed and disposed of appropriately to licensed landfill or waste disposal / recycling facility.
- Any hydrocarbon contaminated soils are to be remediated appropriately.

### Landcare and Community Group Involvement

- The community as a whole benefits from Landcare through prevention and control of land degradation and restoring Australian landscapes.
- Wherever practicable, Landcare and / or community groups may be engaged to assist with rehabilitation projects on-site.

#### 6.11.6 Monitoring

- Rehabilitation works will require time to establish, during which, monitoring will be required to assess the quality and success of the rehabilitation.

- Periodic visual surveillance of the rehabilitation areas will be undertaken to ensure successful establishment and identify any required remedial actions such as weed removal or damage repairs to ensure long term success of the rehabilitation areas.
- Periodic monitoring of the rehabilitation areas may assist with identification of the following potential issues:
  - wellbeing and overall general health of the plants
  - checking for any signs of pests and disease
  - checking for signs of fire damage
  - ensuring plants receive appropriate nutrient level
  - checking for weed infestations
  - identifying any washout or erosion issues.
- The Quarry Manager or delegate shall conduct regular inspections to plan timely maintenance works of any rehabilitated areas.
- Maintenance works shall be required for fertilising, watering, repairs to barriers, guards and stakes and plant replacement (refer to Table 34 – Maintenance Schedule – Vegetation Works).

*Table 34 – Maintenance Schedule – Vegetation Works*

Item	Activity	Frequency
<u>Weed Control</u> Site Preparation (where necessary) Ongoing Weed Management Supplementary Weeding	Application of herbicide and / or slashing Application of herbicide Application of herbicide	One (1) treatment at least two (2) weeks prior to seeding / planting Biannually As required
<u>Re-vegetation Management</u>	Monitor performance and conduct any necessary maintenance  Replace diseased or dead plants  Fertilise (if applicable)  Apply mulch (if available)	<ul style="list-style-type: none"> <li>• One (1) month after seeding / seedling planting</li> <li>• Three (3) months after seeding / seedling planting</li> <li>• Six (6) months after seeding / seedling planting</li> <li>• 12 months after seeding / seedling planting</li> </ul> OR <ul style="list-style-type: none"> <li>• following significant rainfall events (e.g. &gt;25mm)</li> </ul> As necessary following maintenance inspections  Two (2) months after topsoil spreading or seeding  One-off around tubestock plantings
<u>Pasture Management</u> Grass Height Grass Vigour	Slashing Fertilise	Biannually until established Annually (if necessary)

### 6.11.7 Auditing and Review

- The effectiveness of rehabilitation and land management strategies at the Site shall be reviewed at least once every three (3) years.

### 6.11.8 Reporting and Responsibility

- The Quarry Manager or delegate shall maintain records of any audits conducted as part of the rehabilitation program.
- The Quarry Manager or delegate shall engage a suitably qualified person to assess and report whether:
  - safe access may be gained to the excavation

- access to the general public is suitably restricted.

#### *6.11.9 Identification of Incident or Failure to Comply*

- Rehabilitation works not meeting performance targets including, but not limited to:
  - weed or pest infestation
  - excessive erosion
  - surrounding waterways impacted by sediment
  - destruction of protected vegetated areas or areas under rehabilitation.

#### *6.11.10 Corrective Action*

The following general protocol will be implemented on identification of an incident and / or failure:

- Commence an investigation into the incident and / or failure.
- Notify regulatory authority of the results of the investigation (if required).
- Based on the findings on the investigation, update and revise management plans and procedures for ensuring the same incident and / or failure does not occur again.
- Following completion of any corrective actions, notify the appropriate regulatory authorities
- Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.
- The Quarry Manager or appointed representative shall take appropriate action to rectify problems or any identified deficiencies in the rehabilitation management strategies within the quarry development area.

## 6.12 Bushfire Management

### 6.12.1 Purpose

- While the extractive industry operations area is situated within a pre-cleared area of low bushfire risk, it is bounded by vegetation and is therefore prone to bushfires entering the operational areas during adverse weather conditions. The Site is mapped as Bushfire Zone in accordance with the Lithgow City Council Geographical Information System.

### 6.12.2 Operational Policy

- To prevent and assist in the control of bush fires in the surrounding locality, wherever possible.

### 6.12.3 Development Consent Conditions

#### BUSHFIRE

The Applicant shall:

- (a) ensure that the development is suitably equipped to respond to any fires on site; and
- (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the Site.

### 6.12.4 Performance Targets

- To ensure that potential sources of fire from the quarry activities are properly managed, mitigated or controlled and that a network of tracks and water sources are accessible throughout the Site to help control fire that might occur external to, or within, the extractive industry operations area.
- Quarry operations to comply with legal obligations for the prevention and control of fires.

The Applicant shall:

- (a) ensure that the development is suitably equipped to respond to any fires on site; and
- (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the vicinity of the site.

### 6.12.5 Implementation Strategy / Mitigation Measures

- Management procedures for protection against fire may include, but shall not necessarily be limited to:
  - consulting with landowners and fire services for implementing fire control management on-site with district/area fire control plans
  - maintaining a cleared surrounds and/or manage fuel loads for a minimum 20 m buffer area around the quarry operations
  - ensuring all staff on-site and other personnel are aware of evacuation procedures and the location and the use of fire fighting equipment
  - keeping relevant agencies contact numbers in the event of a fire, namely the NSW Rural Fire Service.
  - ensuring that extinguishers, fire hoses, fire blankets, sand buckets and other such equipment is regularly inspected and maintained in accordance with Australian Standard *AS 1851 Maintenance of Fire Protection Equipment*
  - providing ready access to water storages on-site for use in the fighting of fire
  - providing fire breaks around quarry operations and in particular fuel storages and workshop areas on-site
  - ensuring welding and other hot works is undertaken in controlled areas where potential for starting a fire is minimised.

### 6.12.6 Monitoring

- All employees will be responsible for the identification of and raising the alarm for fires on-site or adjacent bush fires off-site.
- The Quarry Manager to undertake a visual assessment annually to assess adequacy of the bushfire control measures implemented.

#### *6.12.7 Audit and Review*

- The scope and effectiveness of the fire management strategies will be reviewed within 30 days of responding to a fire emergency or at least once every three (3) years.

#### *6.12.8 Reporting and Responsibility*

- All employees will be responsible for notifying the Quarry Manager or delegate of any fire on-site or approaching the Site, or any foreseeable hazard or risk that could contribute to a fire.
- The Quarry Manager or delegate will be responsible for notifying the relevant agencies or emergency services of any bush fires on-site.
- The Quarry Manager or delegate will ensure that a register of all fire control equipment is regularly maintained.
- Quarry management will be responsible for organising and conducting training programs for employees on fire control.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### *6.12.9 Identification of Incident or Failure to Comply*

- Quarry operation not meeting performance target(s).

#### *6.12.10 Corrective Action*

- The Quarry Manager or delegate will take appropriate action to rectify any identified deficiencies in fire fighting Site infrastructure, maintenance or management practices.

## 6.13 Cultural Heritage

### 6.13.1 Purpose

- The *National Parks and Wildlife Act 1974* (NPW Act) is the key piece of legislation in NSW which provides effective recognition, protection and conservation measures for all Aboriginal cultural heritage. The *Heritage Act 1977* provides for the protection of historical heritage in NSW.
- Under the NPW Act it is an offence to harm (destroy, deface, or damage) or desecrate an Aboriginal object or Aboriginal place, or in relation to an object, move the object from the land on which it has been situated.
- In accordance with the NPW Act, Aboriginal objects are defined as physical evidence of the use of an area by Aboriginal people. Aboriginal objects may also be referred to as 'Aboriginal sites', 'relics' or 'cultural material'. Aboriginal objects include:
  - physical objects (e.g. stone tools, Aboriginal-built fences and stockyards, scarred trees, remains of fringe camps)
  - material deposited on the land (e.g. middens)
  - ancestral remains of Aboriginal people.
- The NPW Act also provides protection for areas of land that have no Aboriginal objects even if there is no physical evidence of Aboriginal occupation or use of the land. These areas can be declared to be 'Aboriginal places' and may be declared so by the Minister for the Environment if the Minister believes the place is, or was, of special Aboriginal cultural significance if the area is considered to have any of the following: spiritual, natural resource, historical, social, education or other significance.
- A *Cultural Heritage Assessment* and a *Historical Heritage Assessment* have been undertaken by Niche Environment and Heritage (April 2014) for the Stage 2 Extension. Both assessments identified that there are no cultural or historical heritage constraints for the project area; however, the assessments recommend that ongoing management measures such as strategies for managing unexpected finds of Aboriginal heritage items and induction of employees Aboriginal heritage management obligations be included in site inductions to ensure statutory compliance as a minimum. A copy of the Cultural and Heritage Assessments are included as Appendix C – Indigenous and Cultural Heritage Assessments.

### 6.13.2 Operational Policy

- To identify and manage any potential archaeological relics, artefacts or objects within the Site.

### 6.13.3 Development Consent Conditions

#### ABORIGINAL HERITAGE

If any item or object of Aboriginal heritage significance is identified on site, the Applicant shall ensure that:

- (a) all work in the immediate vicinity of the suspected Aboriginal item or object ceases immediately;
- (b) a 10 m buffer area around the suspected item or object is cordoned off; and
- (c) the OEH is contacted immediately.

Work in the vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974*.

Maintain a complaints management system to appropriately respond to any complaints received through investigation and implementation of corrective treatments.

Include Indigenous heritage protocols and obligations within training and induction processes for the quarry.

Halt all works in the immediate area if cultural objects are found and contact a suitably qualified archaeologist and Aboriginal community representative.

Halt all works in the immediate area if human remains are found and contact NSW Police, Aboriginal community representative and OEH.

Maintain reasonable efforts to avoid impacts to Aboriginal cultural heritage values at all stages of the development works.

Complete an Aboriginal Site Impact Recording Form to submit it to the Aboriginal Heritage Management Information System (AHMIS) Registrar, for each AHMIS site that is harmed through the proposed development.

Halt all works in the immediate area if cultural object(s) are found.

Secure the location, e.g. through the installation of protective fencing, flagging with high visibility tape.

Contact a suitably qualified archaeologist to determine the significance of the object(s).

Report discovery of relic (if advised of validity by archaeologist) in accordance within Section 146 of the *Heritage Act 1977*.

Do not recommence works within the secured area until advised by archaeologist.

Include the commitments of 14.1 to 14.4 within training and induction processes for the Site.

#### 6.13.4 Performance Targets

- To comply with the legal requirements in relation to the NPW Act that may be discovered.

#### 6.13.5 Implementation Strategy / Mitigation Measures

- Specific control measures for the Stage 2 Extension include:
  - ensuring appropriate management processes (e.g., incident reporting) are in place for the discovery and management of Aboriginal objects prior to works commencing, particularly within the Stage 2 Overburden Emplacement Area
  - ensuring all personnel and sub-contractors at the Site undertake a cultural heritage induction prior to commencing works. This induction could form part of the broader induction program for project personnel. The induction should include making personnel aware of the potential for Aboriginal objects, types of objects and places that might be found, and why they are important.
- Reasonable and practicable control measures include but are not limited to:
  - inducting all employees on-site on cultural heritage prior to commencement of any future quarry development
  - ensuring all site personnel are informed about the identification and significance of archaeological items (bone materials, shaped stones etc.)
  - maintaining contact details of relevant agencies / groups in the event of a find or suspected discovery
- In the event of a find (or suspected find) of indigenous heritage, the following actions shall be taken:
  - Stopping work in the vicinity of areas where items of possible cultural heritage significance are found until such time that liaison with OEH and / or the local aboriginal groups has been undertaken.
  - No personnel are to touch, alter, move, etc the find / find site.
  - The Quarry Manager is to be notified immediately and, in turn, the Quarry manager will notify the appropriate authorities / stakeholders - the NSW Police, OEH and the registered cultural heritage body of all finds on the site.
  - With assistance from an appropriate supervisor, a 10 m buffer area around the suspected item or object is cordoned off.
  - In the event materials (e.g. soil, etc) in the vicinity of the find have been excavated, the material is to be stockpiled immediately adjacent to the find site. No material excavated in the vicinity of the find site is to be removed from the site until further notice.
  - Restricting the removal or disturbance of items of possible cultural heritage significance until an approval has been issued.
  - Works will only recommence at the find site following approval from the Quarry Manager and OEH.
  - Complete an Aboriginal Site Impact Recording Form and submit it to the Aboriginal Heritage Management Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through the proposed development.
- In the event of a find (or suspected find) of historic (European) heritage, the following actions shall be taken:
  - Halt all works in the immediate area if cultural object(s) are found.
  - Secure the location, e.g. through the installation of protective fencing, flagging with high visibility tape.



- Contact a suitably qualified archaeologist to determine the significance of the object(s).\
- Report discovery of relic (if advised of validity by archaeologist) in accordance within Section 146 of the *Heritage Act 1977*.
- Do not recommence works within the secured area until advised by archaeologist.
- Include the above commitments within training and induction processes for the Site.

#### 6.13.6 Monitoring

- Ongoing general surveillance of quarry development areas (particularly during vegetation clearing and topsoil stripping, services installation, etc) shall be conducted by all personnel to ensure that Aboriginal cultural heritage items / sites are not damaged and / or disturbed.

#### 6.13.7 Auditing and Review

- The effectiveness of cultural heritage management strategies at the Site shall be reviewed at least once every three (3) years.

#### 6.13.8 Reporting and Responsibility

- In the event of a find of any suspected to be of Aboriginal cultural heritage of historical heritage significance, the Quarry manager or delegate must be immediately notified.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.
- The Quarry Manager must contact OEH on the Environment Line in the event of a find of items suspected to be of Aboriginal cultural heritage significance:

Phone: 131 555

Fax: (02) 9995 5999

Email: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)

Street address: Level 14, 59 Goulburn Street, Sydney

Postal address: PO Box A290, Sydney South NSW 1232

- The Quarry Manager or delegate shall report any discovery of archaeological relics, artefacts or objects to the Aboriginal Heritage Information Management System (AHIMS):

Phone: (02) 9585 6345 or (02) 9585 6471

Fax: (02) 9585 6094

Email: [AHIMS@environment.nsw.gov.au](mailto:AHIMS@environment.nsw.gov.au)

Street address: Level 6, 43 Bridge Street, Hurstville NSW

Postal address: PO Box 1967, Hurstville NSW 1481

- The Quarry Manager or delegate shall report the discovery of historical relics to the NSW Heritage Council in accordance with Section 146 of the *Heritage Act 1977* within a reasonable timeframe:

Phone: (02) 9873 8500

Fax: (02) 9873 8599

Email: [heritage@heritage.nsw.gov.au](mailto:heritage@heritage.nsw.gov.au)

Street address: 3 Marist Place, Parramatta NSW 2150

Postal address: Locked Bag 5020, Parramatta NSW 2124

#### 6.13.9 Identification of Incident or Failure to Comply

- Failure to meet the legal requirements in relation to NPW Act or associated regulations if any archaeological relics, artefacts or objects are discovered.

### *6.13.10 Contingency Plan*

- The Quarry Manager or delegate is to assess management practices to identify any significant changes and if required, modify activities / process.

## 6.14 Community Consultation

### 6.14.1 Purpose

- The local community has an interest in ensuring that sound quarry management is carried out to ensure amenity and environmental values are protected.
- Quarry activities that may be of interest to the local community include:
  - land clearing, and topsoil and overburden stripping (biodiversity, noise, dust and water quality)
  - rock drilling, blasting and quarry bench development (noise, air blast, ground vibration, dust, visual amenity and water quality)
  - raw product handling and haulage (noise, dust and water quality)
  - crushing, screening and blending activities (noise, dust and water quality)
  - product out-loading and haulage (noise, dust, water quality, traffic congestion, loose loads, road safety and indiscriminate use of engine exhaust brakes)
  - vehicle movements on and off site (noise, dust, water quality and public safety)
  - maintenance works (noise and water quality)
  - rehabilitation and enhancement programs (noise, dust, water quality, sequential land use, biodiversity and visual amenity)
  - land management (fire control, weeds / pest species, and water quality).

### 6.14.2 Operational Policy

- To establish and maintain a good relationship and co-operation with the local community.
- Maintain the existing 'open door' policy for community members to approach the management staff of the Austen Quarry.
- Seek local supply and service contractors from within the Lithgow Local Government Area where it is practicable to do so.

### 6.14.3 Development Consent Conditions

Maintain the existing 'open door' policy for community member to approach the management staff of the Austen Quarry.

Maintain the existing community complaints and response system.

Seek local supply and service contractors from within the Lithgow LGA where it is practicable to do so.

### 6.14.4 Performance Targets

- No complaints regarding environmental nuisance or transport matters at or associated with the Site.

### 6.14.5 Implementation Strategy / Mitigation Measures

- Ensuring the complaints, emergencies and incident procedures are implemented for the recording and reporting of, and applying corrective action to, all complaints.
- The quarry shall continue to maintain an 'open door policy' with the local community and welcome community members who wish to visit the quarry and observe activities on the site subject to prior arrangement with the Quarry Manager.
- If monitoring is undertaken to investigate a complaint the Quarry Manager, or the consultant commissioned to undertake the study/survey, shall provide an objective summary of the results of the study/survey to the complainant.
- Hy-Tec shall implement all reasonable and feasible measures to minimise the visual and off - Site lighting impacts of the development to the satisfaction of the DoP&E.

#### *6.14.6 Monitoring*

- The Quarry Manager shall periodically update records of property owners and contact details within one (1) kilometre of quarrying operations.
- The Quarry Manager, upon consideration of a complaint (refer Section 3.8 – Complaint and Incidents Procedure) shall, if possible, personally investigate the issue raised by the complainant.
- The Quarry Manager may commission an investigatory study to determine the cause of the complaint. Environmental monitoring may be initiated if the complaint is in relation to air quality, noise, water quality, etc.

#### *6.14.7 Audit and Review*

- The complaints and incidents register shall be reviewed periodically by the Quarry Manager.
- This community relations management strategy shall be formally reviewed at least once every three (3) years.

#### *6.14.8 Reporting and Responsibility*

- The Quarry Manager or delegate shall maintain a register of all environmental complaints received.
- Upon completing the complaint assessment/ investigation, the Quarry Manager or delegate shall record the actions taken to resolve the complaint in the complaints register.
- All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### *6.14.9 Identification of Incident or Failure to Comply*

- Complaint(s) received.
- Complaint(s) not handled or recorded in accordance with the on-site complaint / incident procedures.
- Complaint(s) not investigated or followed up with corrective measures.
- EPA not notified of a complaint.
- Written notification and / or follow up monitoring results not supplied to EPA within regulatory timeframes.
- Recurrence of similar complaint.

#### *6.14.10 Corrective Action*

- The Quarry Manager or delegate shall ensure that actions to reduce the likelihood of further complaints be undertaken.
- Re-training of staff.

## 6.15 Visual Impact Management

### 6.15.1 Purpose

- The local community has an interest in ensuring that the quarry extraction is managed is carried out in a manner that minimised the visual disturbance and to ensure amenity and environmental values are protected.
- Quarry activities that may impact upon visual amenity include:
  - land clearing, and topsoil and overburden stripping
  - Location of mechanical plant and stockpiles
  - Rehabilitation

### 6.15.2 Operational Policy

- To minimise and mitigate the impact of quarry activities on the visual amenity of the location.
- To establish and maintain a good relationship and co-operation with the local community.

### 6.15.3 Development Consent Conditions

The Applicant shall implement all reasonable and feasible measures to minimise the visual and off—site lighting impacts of the development to the satisfaction of the Secretary.

Implement design and sequencing measures to minimise exposure of the Quarry, namely:

- a) undertake the extraction area and overburden emplacement extensions in accordance with the limits noted on Figure 2.4 of the EIS and sequence generally as presented on Figure 2.6 of the EIS;
- b) retain the primary crusher in its current location within the Stage 1 extraction area;
- c) retain the visual screen provided by the Northern Ridge; and
- d) restrict further extension of the secondary processing area and Yorkeys Creek stockpile area.

Implement management measures to limit impacts to visual amenity including the following.

- a) Complete a trial of short-term visual mitigation measures for the Yorkeys Creek stockpile area.
- b) Implement short-term visual mitigation measures for the Yorkeys Creek stockpile area.
- c) Progressive revegetation or rehabilitation of terminal faces of the extraction area and overburden emplacement and profiled slopes between the administration area and the extraction area.
- d) Maintain existing visual barriers including retained northern face of extraction area and tree-lined visual barriers.
- e) Apply a bituminous film to reduce the contrast between the pale rhyolite and darker background vegetation on completed western facing slopes where necessary.
- f) Minimise dust emissions through suppression measures such as regular watering of areas.
- g) Maintain the Site in a tidy and orderly manner.
- h) Minimise the impacts of lighting by directing lights away from critical receptors (to the south and east) and minimise the 'lume' created by the lights.

*Note: If superseded by more effective measures, or no longer required due to progressive development of the Quarry Site, the above will cease to be implemented.*

Monitor the sequence of visual impacts using a series of annual photographs from vantage points surrounding the Quarry Site. These photos, along with a discussion as to compliance with the impact predicted, would be included in annual reporting.

### 6.15.4 Performance Targets

No visual amenity complaints from surrounding community.

### 6.15.5 Implementation Strategy / Mitigation Measures

The Applicant shall implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development to the satisfaction of the Secretary.

Implement design and sequencing measures to minimise exposure of the Quarry, namely:

- (a) Generally undertake the extraction area and overburden emplacement extensions in accordance with the limits noted on Figure 2.4 of the EIS and sequence generally as presented on Figure 2.6 of the EIS
- (b) Plan to retain the primary crusher in its current location within the Stage 1 extraction area
- (c) Plan to retain the visual screen provided by the Northern Ridge
- (d) Plan to restrict further extension of the secondary processing area and Yorkeys Creek stockpile area.

Implement management measures to limit impacts to visual amenity including the following.

- (a) Complete a trial of short-term visual mitigation measures for the Yorkeys Creek stockpile area prior to November 2016.
- (b) Implement short-term visual mitigation measures for the Yorkeys Creek stockpile area prior to November 2017.
- (c) Progressive revegetation or rehabilitation of terminal faces of the extraction area and overburden emplacement and profiled slopes between the administration area and the extraction area.
- (d) Plan to maintain existing visual barriers including retained northern face of extraction area and tree-lined visual barriers.
- (e) Continue to apply a bituminous film to reduce the contrast between the pale rhyolite and darker background vegetation on completed western facing slopes where necessary and practicable.
- (f) Minimise dust emissions through suppression measures such as regular watering of areas.
- (g) Maintain the Site in a tidy and orderly manner.
- (h) Minimise the impacts of lighting by directing lights away from critical receptors (to the south and east) and minimise the 'lume' created by the lights.

#### *6.15.6 Monitoring*

Monitor annually the sequence of visual impacts using a series of annual photographs from vantage points surrounding the Site. These photos, along with a discussion as to compliance with the impact predicted, would be included in annual reporting.

#### *6.15.7 Audit and Review*

The complaints and incidents register shall be reviewed periodically by the Quarry Manager.

The effectiveness of this management plan shall be reviewed annually.

#### *6.15.8 Reporting and Responsibility*

Monitoring data, including photos, and discussion as to compliance with the impact predicted shall be included in annual reporting.

All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### *6.15.9 Identification of Incident or Failure to Comply*

Compliant about visual amenity that is supported by significant community sentiment.

#### *6.15.10 Corrective Action*

If the Visual Amenity Management Plan is assessed to be deficient by review or negative community feedback then the Plan shall be reviewed and changed accordingly. Corrective measures identified shall be implemented and communicated to the surrounding community.

## 6.16 Traffic Management

For further information and detailed plans on the management of traffic to meet SSD-6084 conditions, refer to Appendix R – Traffic Management Plan.

### 6.16.1 Purpose

- The movement of vehicles and heavy machinery related to extraction activities on-site have the potential to impact upon traffic and the local community.
- The purpose of this plan is to manage the interaction between quarry traffic and local and regional traffic in a manner that causes no detrimental impact on local and regional road users.

### 6.16.2 Operational Policy

To carry out on-site activities so as to prevent or minimise as far as practicable on local and regional road users.

### 6.16.3 Development Consent Conditions

#### TRANSPORT

##### Monitoring of Product Transport

The Applicant shall keep accurate records of all laden truck movements to and from the site (hourly, daily, weekly, monthly and annually) and publish a summary of records on its website every 6 months.

##### Operating Conditions

The Applicant shall ensure that:

- (a) all reasonable measures are taken such that laden trucks have appropriate signage, including a contact phone number, so they can be easily identified by road users;
- (b) all laden trucks entering or exiting the site have their loads covered;
- (c) all laden trucks exiting the site are cleaned of material that may fall on the road, before leaving the site; and
- (d) no trucks queue at the entrance to the quarry access road before 5 am.

##### Transport Management Plan

The Applicant shall prepare and implement a Transport Management Plan for the development to the satisfaction of the Secretary. This plan must:

- (a) be submitted to the Secretary for approval at least 3 months prior to the commencement of quarrying operations under this consent, unless otherwise agreed by the Secretary;
- (b) describe the measures that would be undertaken to monitor the level of service at the Jenolan Caves Road and Great Western Highway intersection and maintain an acceptable level of service at this intersection;
- (c) include a Drivers' Code of Conduct to minimise the impacts of development—related trucks on local residences and road users including measures to minimise use of local roads; and
- (d) describe the measures that would be put in place to ensure compliance with the Drivers' Code of Conduct.

All transport contractors required to complete Hy-Tec Chain of Responsibility: Driver Vehicle Check System.

Monitor the delays for vehicles turning right onto the Great Western Highway at two-yearly intervals from 2022 onwards.

Ensure route selection for delivery of quarry products follows routes designated in the EIS for entry and exit to the Site, transportation through the Blue Mountains and local deliveries of products.

Operate a Traffic Management Plan for all trucks entering and exiting Austen Quarry.

Continue to implement the Chain of Responsibility — Driver Vehicle Check system for all transportation activities undertaken at the Site.

#### *6.16.4 Performance Targets*

No negative impact upon local and regional road users.

#### *6.16.5 Implementation Strategy / Mitigation Measures*

A Traffic Management Plan has been prepared and is provided in Appendix R – Traffic Management Plan.

This Traffic Management Plan shall be read in conjunction with the Hy-Tec Austen Quarry Road Truck Traffic Management Plan. The latter document contains detailed procedures to be followed by truck drivers aimed at managing vehicles in a safe manner on the quarry and on the Quarry approach road and Jenolan Caves Rd between the quarry access road and the Great Western Highway.

Hy-Tec shall ensure that:

- all reasonable measures are taken such that laden trucks have appropriate signage, including a contact phone number, so they can be easily identified by road users
- all laden trucks entering or exiting the site have their loads covered
- all laden trucks exiting the site are cleaned of material that may fall on the road, before leaving the Site
- no trucks queue at the entrance to the quarry access road before 5 am.

#### *6.16.6 Monitoring*

The operator shall, by 2022, develop measures that would be undertaken to monitor the level of service at the Jenolan Caves Rd and Great Western Highway intersection and maintain an acceptable level of service at this intersection.

The monitoring program to shall be undertaken by qualified professionals.

Analysis of monitoring results to shall be undertaken by qualified professionals.

Monitoring reports shall be prepared by appropriately trained professionals.

#### *6.16.7 Auditing and Review*

The effectiveness of the traffic management plan will be reviewed at least once every three (3) years.

#### *6.16.8 Reporting and Responsibility*

The Quarry Manager or delegate shall keep accurate records of all laden truck movements to and from the Site (hourly, daily, and weekly, monthly and annually) and publish a summary of records on its website every 6 months after the SSD consent is activated.

All monitoring results will be included as part of the Annual Review as required under Condition 4 of Schedule 5 of the DC.

#### *6.16.9 Identification of Incident or Failure to Comply*

Any unforeseen impacts identified by monitoring shall be investigated and the outcomes of investigation and corrective action (if any) required shall be reported to the regulator within a reasonable time.

#### *6.16.10 Corrective Action*

Any deficiencies in the monitoring program or this plan shall be reviewed and appropriate changes to the Plan made by the Quarry Manager or appointed representative.



## 7.0 References

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Appendices

# Appendix A

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Environmental Protection Licence

# Appendix B

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Ecological Monitoring Report: Austen Quarry, Hartley

# Appendix C

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Indigenous and Cultural Heritage Assessments

# Appendix D

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Air Quality Assessment

# Appendix E

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Noise and Vibration Impact Assessment



# Appendix F

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Adelaide Brighton Safety, Health and Environment Policy

# Appendix G

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Initial Notification Form

# EMERGENCY AND INCIDENT

## The Environmental Protection Authority Initial Notification Form

*This form is to be completed when notifying the Environmental Protection Authority (EPA) of any emergency or incident, which has or may cause environmental harm. The EPA is to be notified by telephone on the Environment Line (131 555) within 24 hours after becoming aware of the emergency or incident. The EPA must be provided written notification within seven (7) days from the date the event occurred.*

Date of Written Notification: .....

Environmental Protection Licence (Licence) Number: .....

Holder of Licence: .....

Site location .....

Designated contact person (name / number): .....

Name, address and number of every other person who witnessed the event (if applicable): .....

Location of event within site: .....

Time and date of the event: .....

Time and date that operator became aware of the event: .....

The cause and duration of the event: .....

The type, volume and concentration of every pollutant discharged as a result of the event:

Action(s) taken by the licensee in relation to the event, including any follow-up contact with any complainants:

Details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event:

Any other relevant matters

# Appendix H

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Further Notification Form



# Appendix I

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Development Consent SSD-6084

# Appendix J

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Water Management Plan

# Appendix K

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Pollution Incident Response Management Plan



# Appendix L

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Air Quality Management Plan

# Appendix M

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Noise Management Plan

# Appendix N

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Blasting Management Plan

# Appendix O

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Silver-Leaved Mountain Gum Management Plan

# Appendix P

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Biodiversity Offset Management Plan

# Appendix Q

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Landscape and Rehabilitation Management Plan

# Appendix R

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Traffic Management Plan

# Appendix S

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Surface Water Audit and Water Management Improvement Program



# Appendix T

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Safety Management Plan

# Appendix U

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Surface Water Assessment and Water Management Improvement Plan