

## **APPENDIX S**

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### **REHABILITATION STRATEGY**

# SITE REHABILITATION STRATEGY



For  
**Lot 72 DP1199484**  
**Dalswinton Quarry**

Prepared for  
**Rosebrook Sand and Gravel Pty Ltd**

**November 2021**  
Report 19047 Revision E

Prepared by



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**Project Manager**
**Date 12 November 2021**

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# 1.0 INTRODUCTION

## 1.1 BACKGROUND

This Site Rehabilitation Strategy has been prepared by HDB Town Planning and Design to support an Environmental Impact Statement (EIS) for the expansion of Dalswinton Quarry and its ongoing operations beyond the current consent period.

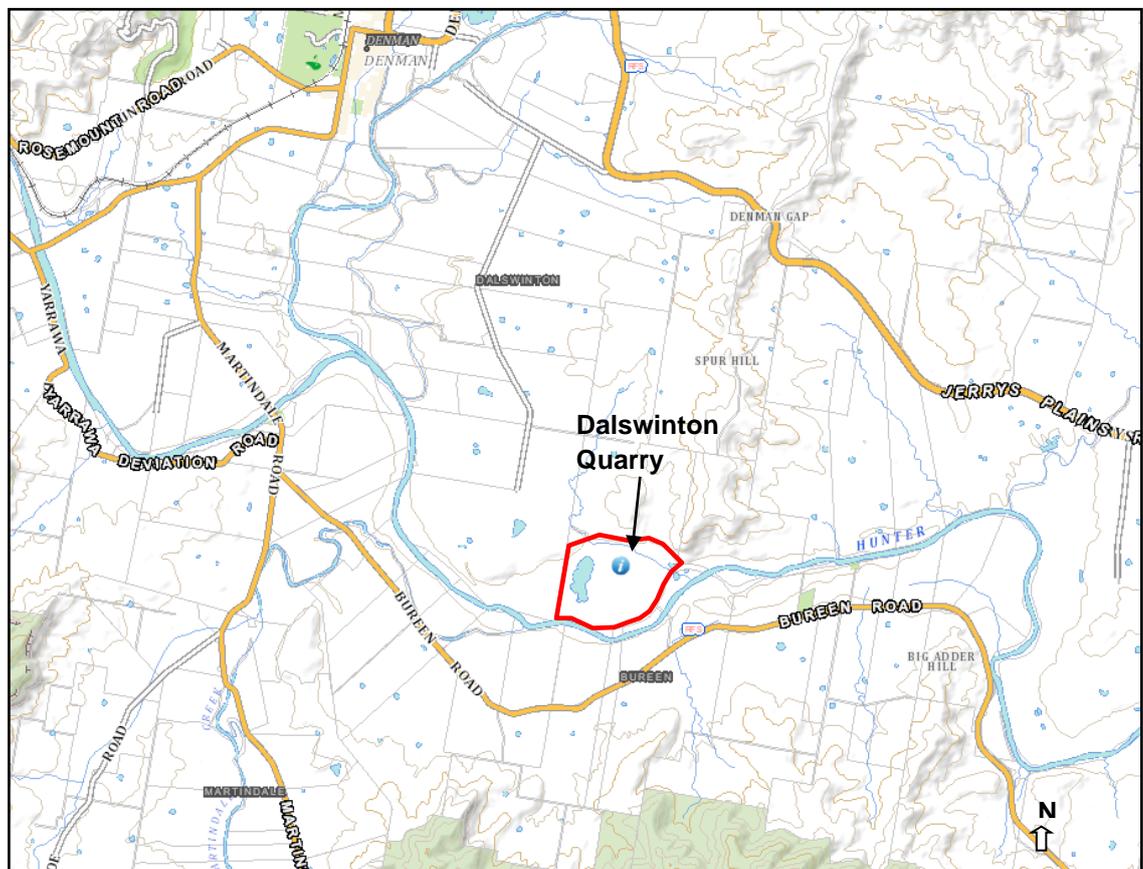
Dalswinton Quarry is situated on Lot 72 DP1199484 and operates under DA 410/1995 which allows sand and gravel extraction on the site until 13<sup>th</sup> November 2022. The owners, Rosebrook Sand and Gravel Pty Ltd (Rosebrook), are seeking to vary the footprint and continue the extraction operation post 2022 for twenty-five years until 13<sup>th</sup> November 2047.

At present the quarrying activities are confined to the western part of the site and extraction occurs at an average production rate of 80,000 tonnes per annum. Sand and gravel extracted from the site are marketed in Sydney and Hunter Valley Regions for a range of uses including road base, stemming material, aggregates for concrete mix and decorative gravel for landscaping.

## 1.2 APPLICATION DETAILS

### 1.2.1 PROPOSED DEVELOPMENT SITE DESCRIPTION

Dalswinton Quarry is located approximately 7 km to the south-east of Denman in a cut off meander on the broad River Terrace at the Hunter River within Lot 72 DP1199484. Refer to *Figure 1* for the location of Dalswinton Quarry.



**Figure 1: Location Plan**

Source: Six Maps, Accessed September 2020

## 1.2.2 APPLICANT DETAILS

Rosebrook Sand and Gravel Pty Ltd  
C/- HDB Town Planning & Design  
PO Box 40  
MAITLAND NSW 2320

## 1.2.3 CONTACT DETAILS

Mathew Egan  
HDB Town Planning & Design  
PO Box 40  
MAITLAND, NSW 2320

PH: 02 4933 6682  
E: mathew@hdb.com.au

## 1.2.4 OWNERSHIP DETAILS

Rosebrook Sand and Gravel Pty Ltd

## 1.2.5 OVERVIEW AND OPERATION

The existing quarry operation being carried out on Lot 72 is in accordance with Development Consent 410/1994 and subsequent amendments. The quarry started operation in the early 1990s where extraction and processing operations occurred in the south-eastern part of the site and was subsequently relocated further away from the Hunter River under the current consent.

The approval for DA 410/1994 was granted in November 1995 to extract up to 1.87 million tons of material over 23 years at an average extraction rate of 80,000 tonnes per annum. The quarry has had several tenancies before being purchased by Rosebrook Sand and Gravel Pty Ltd in 2010.

Through subsequent s96 modifications in 2001, 2006, 2009, 2014 and 2019, the extraction areas were re-aligned and the life of the quarry was extended to 13 November 2022.

Generally, material is won via an excavator and processed through a screening plant then held in stockpiles for transport by road. The sand and crushed aggregates are supplied to the local construction industries and landscaping supply markets in the Hunter Valley region, primarily to the east. Some extraction on-site is up to 8m - 9.5m in depth. Extracted materials undergo primary screening before they are transported to the processing area for secondary screening and crushing to produce a full range of decorative aggregates, crushed aggregates, and road base material. Undersized material is returned to the excavation area.

### 1.3 PURPOSE OF SITE REHABILITATION STRATEGY

The purpose of this Site Rehabilitation Strategy is to satisfy the requirements outlined in the revised Planning Secretary's Requirements on 14 August 2018

**Rehabilitation** – including the proposed rehabilitation strategy for the site having regard to the principles in the Strategic Framework for Mine Closure, including:

- Rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria;
- Nominated final land use, having regard to any relevant strategic land use planning or resource management plans or policies; and
- The potential for integrating this strategy with any other rehabilitation and/or offset strategies in the region.

### 1.4 DOCUMENT STRUCTURE

A modification to DA 410/1995 was approved in August 2019 which extended the life of the quarry until 13 November 2022. This separate State Significant Development Application has been prepared, which will include the existing site and planned expansions to surrounding areas within Lot 72. If approved the State Significant Development will supersede the existing DA 410/1995.

If, for whatever reason, the State Significant Development for the expansion of the current operation is not approved within this timeframe then the provisions of DA 410/1995 would prevail, and the site rehabilitation would need to occur in accordance with the approved Site Rehabilitation Strategy.

This document deals with the extent of works outlined under the proposed State Significant Development Application, as if the quarry would extend its timeframe and expand the scope of resource extraction.

This document has been structured to specifically deal with the requirements of the revised SEAR's.



**Figure 2: Aerial photo of site**  
*Source: Six Maps, Accessed January 2020*

## 2.0 REHABILITATION PLAN

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### 2.1 REHABILITATION OBJECTIVES

The objectives of this strategy are to address the key aspects of the quarry rehabilitation, so they meet Council, the community and the company's expectations. The quarry rehabilitation strategy has the following broad objectives:

- **Reinstating post disturbance land suitability and capability** - Rehabilitation will create a stable landform and vegetation capabilities for agriculture similar to that prior to disturbance.
- **Creation of stable post disturbance landform** - disturbed land be rehabilitated to conditions that are self-sustaining and not subject to erosion.
- **Minimise long-term erosion through effective regeneration** - the area should be carefully managed for a number of years after the initial rehabilitation works, with intensive management over the first few months.
- **Preservation of downstream water quality** - water leaving the site shall be to a standard that is suitable for discharge into the river system.

### 2.2 NSW PLANNING & ENVIRONMENT SECRETARY'S REQUIREMENTS (SEARS)

In August 2018 the revised SEARs were issued for the proposed expansion of Dalswinton Quarry outlining the requirements for rehabilitation:

**Rehabilitation** – including the proposed rehabilitation strategy for the site having regard to the principles in the Strategic Framework for Mine Closure, including:

- *Rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria;*
- *Nominated final land use, having regard to any relevant strategic land use planning or resource management plans or policies; and*
- *The potential for integrating this strategy with any other rehabilitation and/or offset strategies in the region.*

These are addressed more fully in the following sections.

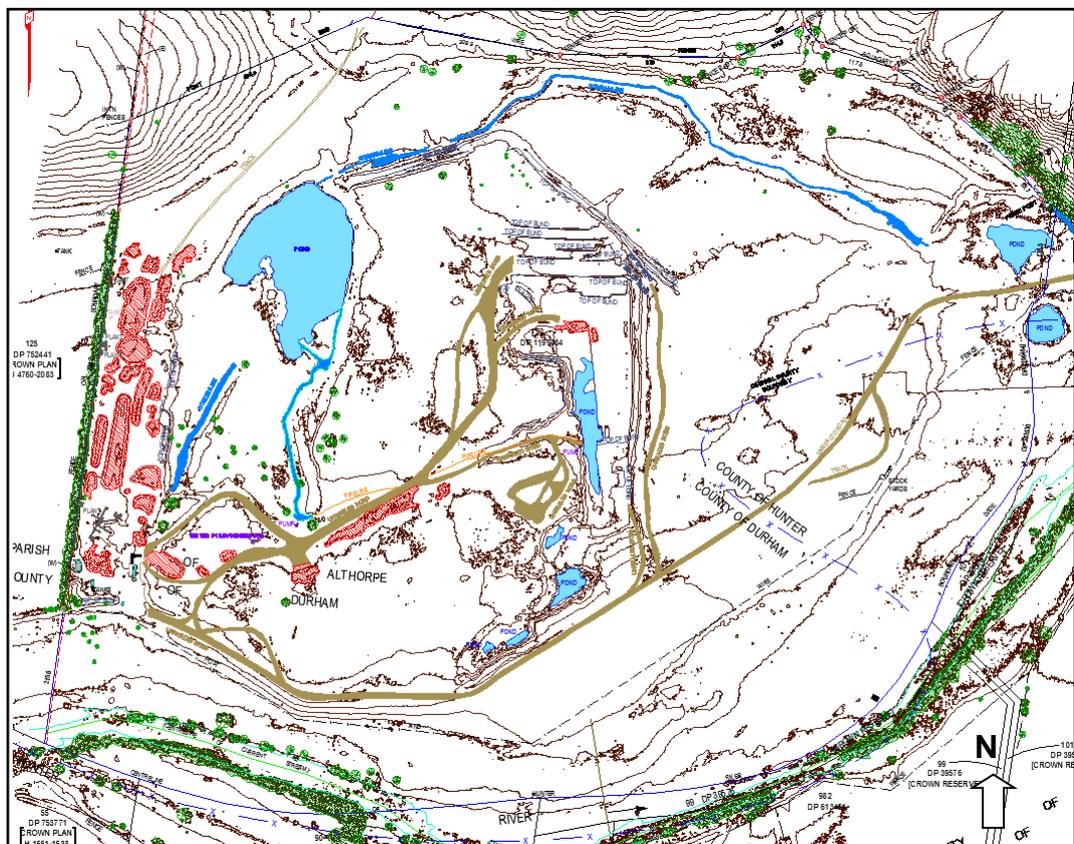
As shown in **Image 1** the land adjoining is typical of that present on this site previous to this operation being undertaken. It is appropriate that the land be returned to this standard and therefore the adjoining land can be used as reference sites.



**Image 1: Adjoining land**  
 Source: HDB Town Planning & Design

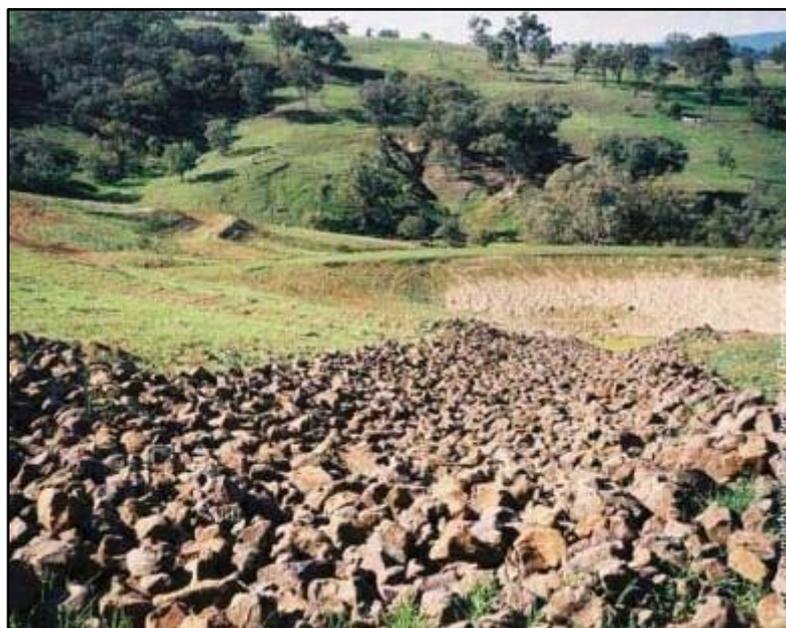
### 2.3 CONCEPTUAL FINAL LANDFORM

Grades within the extraction area are extremely flat and the land is not subject to erosion except within major flood events where the site is subject to flooding. Excavation of material is from a void which is progressively backfilled during the extraction process. The base of the extraction is below the water table and extends to the bottom of the gravel layer 6m - 9m, in accordance with the original consent. Refer to *Figure 3*, below.



**Figure 3: Topographic survey of site**  
 Source: FYFE

Final landform will consist of grades no greater than 5% either towards the Hunter River or for the predominant area of disturbance towards a final void. An outlet will be cut in the final void and rock lined (rip-rap) at no more than 1% grade to discharge overflow to the existing drainage line at the rear of the site which flows through a natural depression to the Hunter River.



**Figure 4: Rip-rap rock waterways conveying runoff to a sediment basin**

*Source: Managing urban stormwater – Volume 2E Mines and quarries*

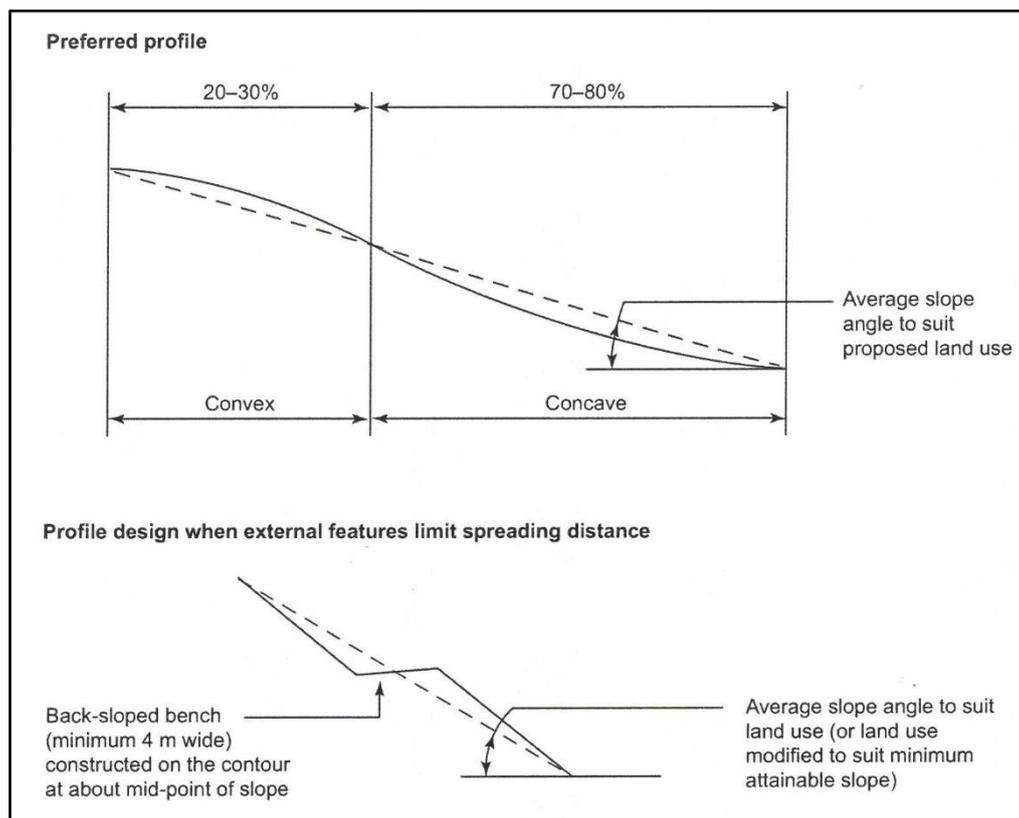
The final void will be used for water storage and the slopes leading into the void will be in accordance with the Department of Environment and Climate Change New South Wales stormwater management criteria.

For instance, the top part of any slope will be convex in nature for 20% - 30% of its length and concave in nature towards the bottom of the slope for 70% - 80%. For every slab level less than 6% no benching is required while slab levels between 6% - 8% benching will be required at a maximum spacing of 110m.

Slope angle	Recommended spacing between benches (m)
< 6°	Not necessary
6-8°	110
8-10°	100
10-12°	80
12-14°	60
14-18°	40
18-20°	30
> 20°	Use specialised erosion control measures (e.g. hydromulch, straw mulching)

**Table 1: Bench spacing guide**

*Source: Hannan 1995*



**Figure 5: Typical slope profile**

*Source: Hannan 1995*

## 2.4 REHABILITATION AND REVEGETATION

The site is highly disturbed, however, where possible, topsoil will be stripped to a depth of 100 mm and stockpiled for future use. The purpose of the stripping is not to capture topsoil, as the site was practically denuded of topsoil, but to capture the existing seed bank held within the top layer which will provide the basis for further regeneration of the disturbed areas.

On a progressive basis those areas not being utilised in future extraction will be reshaped to the final landform and top dressed using this material. This will be monitored on an ongoing basis and where necessary additional seeding with native grass species will be undertaken. Due to the site's exposure to flooding it is not proposed to plant large trees due to their propensity to cause erosion if washed out in flood events.

## 2.5 MANAGEMENT OF STOCK ON SITE

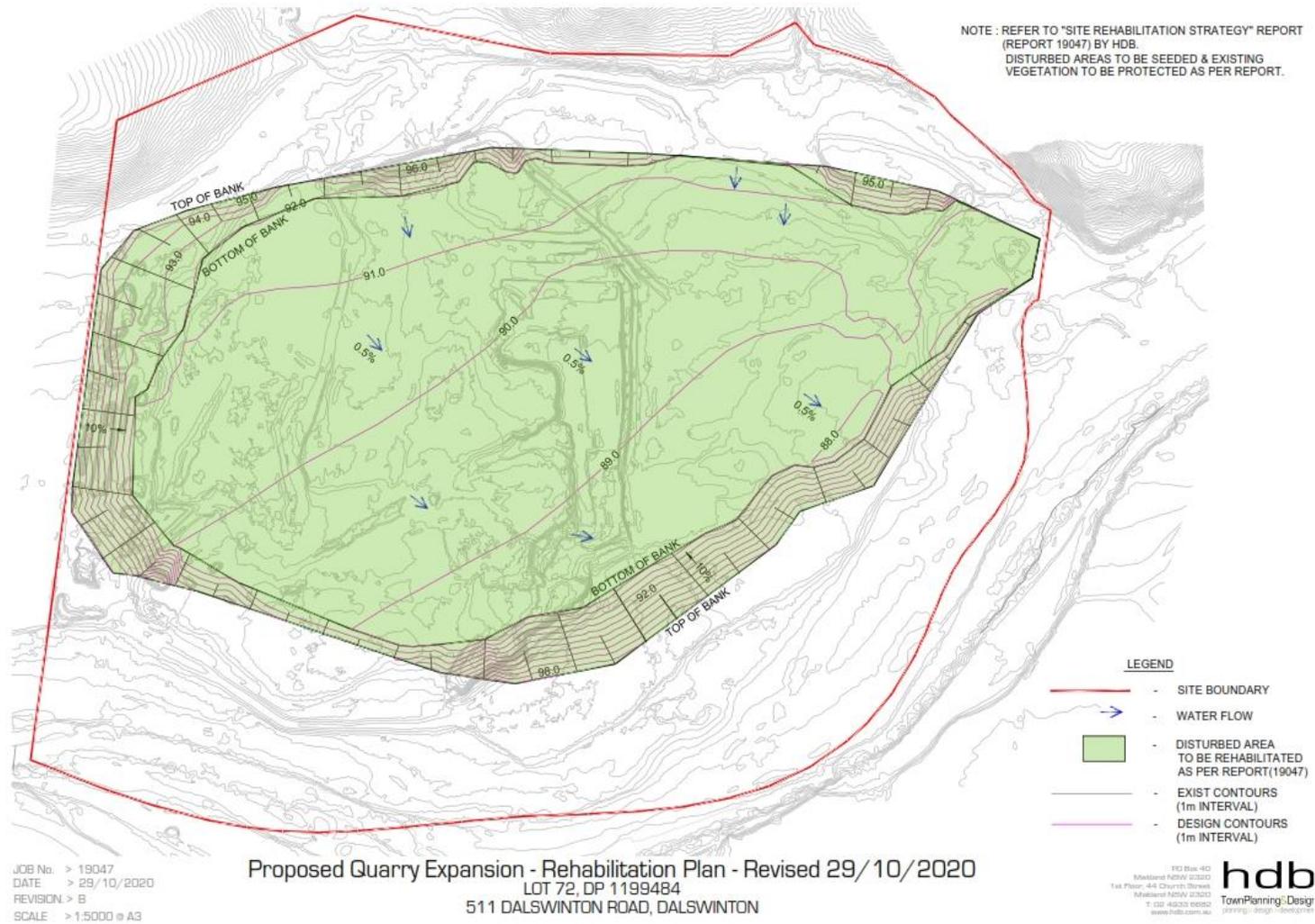
In the initial phases after rehabilitation, and for a minimum period of three years, stock will be withheld from the site to enable regeneration to occur. An assessment will be made at the end of the three-year period to determine whether regeneration has been successful to a standard that would allow reintroduction of stock on a limited basis, as occurs on the reference sites.

## 2.6 STAGING AND REHABILITATION

When extraction is complete the following works will take place in this general order:

- remove stockpiled material, either by transport offsite or placement in the final void.
- Remove all fixtures, fittings, buildings, tanks, electrical etc from the site.
- Any concrete footings, plinths etc. to be removed and buried onsite to a depth of 3m.

- All hardstand areas to be ripped and regraded, generally in accordance with *Figure 6*.
- Final void and dam to be reshaped in accordance with *Figure 5*.
- All bunding onsite to be removed and spread as topsoil onsite.
- Site area within the area of disturbance to be reshaped at a maximum 5% grade either to the Hunter River or into dam or final void.
- Contour drains are to be constructed where required to direct surface flows into the inlet channels to the dam and void.
- Spillways are to be formed from the dam and final void to the natural drainage system, generally as shown in *Figure 4*.
- Where available the soil / sandy loam is to be spread back over the surface to propagate natural seed growth.



**Figure 6: Rehabilitation Plan**  
 Source: HDB Town Planning & Design

## 2.7 LANDSCAPING AND SEEDING

The reshaped topsoil will be seeded with native pasture species, including the following works:

- The following pasture species should be appropriately mixed with N-P-K fertiliser and sown onto the reshaped areas of the point bar, at the given rates. Area within 40m from the riverbank (refer to concept plan) will be excluded from sowing or application of fertiliser.

Pasture species	Sowing rate
Couch ( <i>Cynodon dactylon var. Aridus</i> )	6 - 10 kg / ha
Kangaroo grass ( <i>Themeda australis. Triandra</i> )	1 - 2 kg / ha
Wallaby grass ( <i>Austrodanthonia spp.</i> )	Palletised seed at 5kg / ha
Weeping grass ( <i>Microlaena stipoides</i> )	5 - 8 kg / ha

- Identified tree planting locations will be ripped and planted with *Casuarina glauca* tube stock to achieve required planting density.
- Seeded and planted areas will be watered as required to facilitate vegetation establishment.

### TREE PROTECTION

A 2m buffer area surrounding the River Red Gum trees shall be roped off during the rehabilitation works. These areas will also be monitored and treated as required throughout the maintenance period.

## 2.8 ONGOING WORKS AND MAINTENANCE

### LANDSCAPE MANAGEMENT

Ongoing works and maintenance shall be carried out over a minimum of one (1) year period or until works and vegetation cover are to the satisfaction of the Council and the landholder, from the date of completion of the rehabilitation works. This includes the following:

#### I. Vegetation establishment period

Seeded areas shall be monitored and watered as required until established, up to a maximum period of 60 days from the date of sowing.

#### II. Post-establishment monitoring/ maintenance

After seed establishment, all planting and rehabilitated areas shall be inspected monthly throughout the maintenance period, to ascertain progress, surface stabilisation, weed growth, and assess any maintenance requirements.

Upon identification, unsuccessful seeding shall be replaced with the same, as immediately as practical. At the conclusion of rehabilitation works, a minimum of 80% vegetated cover shall be present; and no bare ground surface at a single location shall exceed 20m<sup>2</sup> in area or 10m continuous linear stretch.

Seeded areas shall be monitored throughout the maintenance period and treated appropriately to ensure that:

- Established native species survive and/or regenerate after a potentially disruptive event; and

- Weeds or pests do not dominate seeded areas to cause visible disturbance on the development of native plant species.

## 2.9 FINAL LAND USE

Due to potential risk of further flooding and erosion on the point bar, no particular land use or activity is proposed. The site will remain fenced-off with no public access.

In the future event that public access is granted to the site, for agricultural or other permitted uses, fencing around the River Red Gums and *Casuarina* planting shall be provided to minimise risk of exposure to grazing or vehicular/machinery damages.

### 3.0 QUARRY CLOSURE

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The quarry closure will occur at the end of this State Significant Development, being 13 November 2047. Extraction onsite would cease first and the material still sitting in the stockpiles would be transported from the site or, if not suitable for sale, returned to the void. All roads and tracks onsite will be ripped and top dressed to final landform. All buildings and structures, fixtures, and fittings will be removed from the site. Concrete footings and inert material can be buried onsite provided final landform is followed and they are at a depth no shallower than 3 m.

To ensure optimum regeneration, maintenance of the quarry will be undertaken on a regular basis for a period of three years. During this period no cattle or hooved animals will be allowed onsite. At the end of the three-year period inspection of the site will be carried out to assess completion of the rehabilitation.

## **APPENDIX A**

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### **STATE SIGNIFICANT DEVELOPMENT – REVISED PLANNING SECRETARY’S REQUIREMENTS**



Ms Julie Mc Kimm  
Town Planner  
PO BOX 40  
MAITLAND NSW 2320

Our ref: SSD-9094  
Your ref: 19/047

Dear Ms McKimm

**Dalswinton Quarry Project (SSD 9094)  
Extension of Time to Submit Environmental Impact Statement**

I refer to your letter dated 19 February 2020 requesting an extension of six months to submit the Environmental Impact Statement (EIS) for the Dalswinton Quarry Project (SSD 9094), which is due by 14 August 2020.

After careful consideration, the Department accepts the request for the extension of time. Accordingly, the Secretary agrees to a new deadline of 14 February 2021 to submit the EIS. If you are unable to submit the EIS prior to this date, you must consult further with the Department.

If you have any queries regarding this matter, please contact Anthony Barnes on 8289 6709 or at [anthony.barnes@planning.nsw.gov.au](mailto:anthony.barnes@planning.nsw.gov.au).

Yours sincerely,

A handwritten signature in black ink, appearing to read 'MS', with a horizontal line drawn through it.

10/03/2020

Matthew Sprott

**Director Resource Assessments**  
as the Secretary's nominee



Mr Colin Jackson  
C/o HDB Town Planning and Design  
PO Box 40  
MAITLAND NSW 2320

Dear Mr Jackson

**State Significant Development - Revised Planning Secretary's Requirements  
Dalswinton Quarry Project (SSD 9094)**

I refer to your letter dated 26 July 2018 requesting revised Planning Secretary's Environmental Assessment Requirements (SEARs) and the removal of the requirement for establishing a Community Consultative Committee (CCC).

I have enclosed the Planning Secretary's revised requirements for the preparation of the Environmental Impact Statement (EIS) for Dalswinton Quarry (see Attachment A). The Department has considered your request based on information you have provided to date and has agreed to delete the requirement to establish a CCC. The attached SEARs replace those previously advised to you and dated 2 March 2018.

Nevertheless, the Department wishes to emphasise the importance of continued effective and genuine community consultation during preparation of the EIS. This process should provide the local community with a clear understanding of the proposal and its potential impacts and include active engagement regarding any key issues of concern.

If you have any enquiries about these requirements, please contact Philip Nevill on the details listed above.

Yours sincerely

Howard Reed *14. 8. 18*  
**Director**  
**Resource Assessments**  
as delegate for the Planning Secretary

# Planning Secretary's Environmental Assessment Requirements

## State Significant Development

Section 4.12(8) of the *Environmental Planning and Assessment Act 1979*  
 Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSD 9094
<b>Proposal</b>	<p>The Dalswinton Quarry Project, which involves:</p> <ul style="list-style-type: none"> <li>• continuing and expanding an existing sand and gravel quarry;</li> <li>• extracting and processing up to 500,000 tonnes of sand and gravel per annum for up to 25 years;</li> <li>• constructing associated site infrastructure and amenities;</li> <li>• transporting material off-site via public roads; and</li> <li>• progressively rehabilitating the site.</li> </ul>
<b>Location</b>	511 Dalswinton Road, Dalswinton (Lot 72 DP 1199484)
<b>Applicant</b>	Colin Jackson
<b>Date of Issue</b>	14 August 2018
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>.</p> <p>In particular, the EIS must include:</p> <ul style="list-style-type: none"> <li>• a stand-alone executive summary;</li> <li>• a full description of the development, including:           <ul style="list-style-type: none"> <li>– the resource to be extracted, including the amount, type and composition;</li> <li>– the site layout and extraction plan, including cross-sectional plans;</li> <li>– the production process and processing activities, including the in-flow and out-flow of materials and points of discharge to the environment;</li> <li>– surface infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process);</li> <li>– a waste (overburden, rejects, tailings etc) management strategy;</li> <li>– a water management strategy;</li> <li>– a rehabilitation strategy to apply during, and after completion of, extraction operations, and proposed final use of site; and</li> <li>– the likely interactions between the development and any existing, approved or proposed development in the vicinity of the site;</li> </ul> </li> <li>• a strategic justification of the development focusing on site selection and the suitability of the proposed site;</li> <li>• a list of any approvals that must be obtained before the development may commence;</li> <li>• an assessment of the likely impacts of the development on the environment, focussing on the key issues identified below, including:           <ul style="list-style-type: none"> <li>– a description of the existing environment likely to be affected by the development, using sufficient baseline data;</li> <li>– an assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments, guidelines, policies, plans and industry codes of practice;</li> <li>– a description of the measures that would be implemented to avoid, minimise, mitigate and/or offset the likely impacts of the development, and an assessment of:               <ul style="list-style-type: none"> <li>○ whether these measures are consistent with industry best practice,</li> </ul> </li> </ul> </li> </ul>

	<p>and represent the full range of reasonable and feasible mitigation measures that could be implemented;</p> <ul style="list-style-type: none"> <li>○ the likely effectiveness of these measures; and</li> <li>○ whether contingency measures would be necessary to manage any residual risks; and</li> </ul> <ul style="list-style-type: none"> <li>- a description of the measures that would be implemented to monitor and report on the environmental performance of the development;</li> </ul> <ul style="list-style-type: none"> <li>• a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS;</li> <li>• consideration of the development against all relevant environmental planning instruments (including Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>);</li> <li>• the reasons why the development should be approved, having regard to: <ul style="list-style-type: none"> <li>- relevant matters for consideration under the <i>Environmental Planning and Assessment Act 1979</i>, including the objects of the Act;</li> <li>- the biophysical, economic and social impacts of the project, including the principles of ecologically sustainable development;</li> <li>- the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; and</li> <li>- feasible alternatives to the development (and its key components), including the consequences of not carrying out the development;</li> </ul> </li> <li>• a signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading.</li> </ul> <p>While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</p> <p>In addition to the matters set out in Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>, the development application must be accompanied by a signed report from a suitably qualified expert that includes an accurate estimate of the capital investment value (as defined in Clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the development, including details of all the assumptions and components from which the capital investment value calculation is derived.</p>
<p><b>Key Issues</b></p>	<p>The EIS must address the following key issues:</p> <ul style="list-style-type: none"> <li>• <b>Water</b> – including: <ul style="list-style-type: none"> <li>- a detailed site water balance, including a description of site water demands, water disposal methods (inclusive of volume and frequency of any water discharges), water supply infrastructure and water storage structures;</li> <li>- identification of any licensing requirements or other approvals under the <i>Water Act 1912</i> and/or <i>Water Management Act 2000</i>;</li> <li>- demonstration that water for the construction and operation of the development can be obtained from an appropriately authorised and reliable supply in accordance with the operating rules of any relevant Water Sharing Plan (WSP);</li> <li>- a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant WSP or water source embargo;</li> <li>- an assessment of any likely flooding impacts of the development;</li> <li>- a detailed assessment of any need to maintain an adequate buffer between excavations and the highest predicted or recorded regional groundwater table;</li> <li>- an assessment of the likely impacts on the quality and quantity of existing surface and ground water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives;</li> <li>- an assessment of the likely impacts of the development on aquifers, watercourses, riparian land, water-related infrastructure, and other water users; and</li> <li>- a detailed description of the proposed water management system (including sewage), water monitoring program and other measures to</li> </ul> </li> </ul>

mitigate surface and groundwater impacts;

- **Noise** – including:
  - a detailed assessment of the likely construction, operational and off-site transport noise impacts of the development in accordance with the *Interim Construction Noise Guideline*, *NSW Noise Policy for Industry* and the *NSW Road Noise Policy* respectively, and having regard to the *Voluntary Land Acquisition and Mitigation Policy*;
  - if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the *Interim Construction Noise Guideline*;
  - reasonable and feasible mitigation measures to minimise noise emissions; and
  - monitoring and management measures, in particular real-time and attended noise monitoring;
- **Air Quality** – including:
  - a detailed assessment of potential construction and operational impacts, in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, and with a particular focus on dust emissions including PM<sub>2.5</sub> and PM<sub>10</sub>, and having regard to the *Voluntary Land Acquisition and Mitigation Policy*;
  - an assessment of potential dust and other emissions generated from processing, operational activities and transportation of quarry products;
  - reasonable and feasible mitigation measures to minimise dust and emissions; and
  - monitoring and management measures, in particular, real-time air quality monitoring;
- **Biodiversity** – including:
  - accurate predictions of any vegetation to be cleared on site;
  - a detailed assessment of the likely biodiversity impacts of the development, paying particular attention to threatened species, populations and ecological communities and groundwater dependent ecosystems, undertaken in accordance with the *Biodiversity Assessment Method* and documented in a Biodiversity Development Assessment Report; and
  - a strategy to offset any residual impacts of the development in accordance with the offset rules under the *Biodiversity Offsets Scheme*;
- **Heritage** – including:
  - an assessment of the potential impacts on Aboriginal heritage (cultural and archaeological), including evidence of appropriate consultation with relevant Aboriginal communities/parties and documentation of the views of these stakeholders regarding the likely impact of the development on their cultural heritage; and
  - identification of historic heritage in the vicinity of the development and an assessment of the likelihood and significance of impacts on heritage items, having regard to the relevant policies and guidelines listed in Attachment 1;
- **Traffic & Transport** – including:
  - accurate predictions of the road traffic generated by the construction and operation of the development, including a description of the types of vehicles likely to be used for transportation of quarry products;
  - a detailed assessment of potential traffic impacts on the capacity, condition, safety and efficiency of the local and State road network (as identified above), including a road safety audit; and
  - a description of the measures that would be implemented to mitigate any impacts, including concept plans of any proposed upgrades, developed in consultation with the relevant road and rail authorities (if required);
- **Land Resources** – including a detailed assessment of:
  - potential impacts on soils and land capability (including potential erosion and land contamination) and the proposed mitigation, management and remedial measures (as appropriate);
  - potential impacts on landforms (topography), paying particular attention to the long term geotechnical stability of any new landforms (such as

	<p>overburden dumps, bunds etc); and</p> <ul style="list-style-type: none"> <li>- the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements in Clause 12 of <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>, paying particular attention to the agricultural land use in the region;</li> <li>• <b>Waste</b> – including estimates of the quantity and nature of the waste streams that would be generated or received by the development and any measures that would be implemented to minimise, manage or dispose of these waste streams;</li> <li>• <b>Hazards</b> – including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, handling and use of any hazardous or dangerous goods;</li> <li>• <b>Visual</b> – including a detailed assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to any new landforms, and to minimising the lighting impacts of the development;</li> <li>• <b>Social &amp; Economic</b> – including: <ul style="list-style-type: none"> <li>- a detailed assessment of the likely social impacts of the development on the local and regional community in accordance with the <i>Social impact assessment guideline for State significant mining, petroleum production and extractive industry development</i>; and</li> <li>- a detailed assessment of the likely economic impacts of the development, paying particular attention to: <ul style="list-style-type: none"> <li>○ the significance of the resource;</li> <li>○ the costs and benefits of the project; identifying whether the development as a whole would result in a net benefit to NSW, including consideration of fluctuation in commodity markets and exchange rates; and</li> <li>○ the demand for the provision of local infrastructure and services;</li> </ul> </li> </ul> </li> <li>• <b>Rehabilitation</b> – including the proposed rehabilitation strategy for the site having regard to the key principles in the <i>Strategic Framework for Mine Closure</i>, including: <ul style="list-style-type: none"> <li>- rehabilitation objectives, methodology, monitoring programs, performance standards and proposed completion criteria;</li> <li>- nominated final land use, having regard to any relevant strategic land use planning or resource management plans or policies; and</li> <li>- the potential for integrating this strategy with any other rehabilitation and/or offset strategies in the region.</li> </ul> </li> </ul>
<p><b>Consultation</b></p>	<p>During the preparation of the EIS, you must consult with relevant local, State and Commonwealth Government authorities, service providers, Aboriginal stakeholders, community groups and affected landowners.</p> <p>You must:</p> <ul style="list-style-type: none"> <li>• consult with: <ul style="list-style-type: none"> <li>- affected landowners;</li> <li>- community groups;</li> <li>- Muswellbrook Shire Council;</li> <li>- Office of Environment and Heritage (including the Heritage Branch);</li> <li>- Environment Protection Authority;</li> <li>- Division of Resources and Geoscience within the Department;</li> <li>- Department of Primary Industries (including NSW Forestry, Agriculture and Fisheries);</li> <li>- Department of Industry (including the Crown Lands and Water Division);</li> <li>- Hunter Local Land Services;</li> <li>- Roads and Maritime Services;</li> <li>- NSW Rural Fire Service; and</li> <li>- NSW Health.</li> </ul> </li> </ul> <p>The EIS must:</p> <ul style="list-style-type: none"> <li>• describe the consultation process used and demonstrate that effective consultation has occurred;</li> </ul>

	<ul style="list-style-type: none"> <li>• describe the issues raised by public authorities, service providers, community groups and landowners;</li> <li>• identify where the design of the development has been amended in response to issues raised; and</li> <li>• otherwise demonstrate that issues raised have been appropriately addressed in the assessment.</li> </ul>
<b>Further consultation after 2 years</b>	If you do not lodge a development application and EIS for the development within 2 years of the issue date of these requirements, you must consult further with the Planning Secretary in relation to the preparation of the EIS.

## ATTACHMENT 1

### Environmental Planning Instruments, Policies, Guidelines & Plans

<b>Air</b>	
	Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments (DP&E)
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the 'Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia'
	National Greenhouse Accounts Factors (Commonwealth)
<b>Noise</b>	
	Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments (DP&E)
	NSW Noise Policy for Industry (EPA)
	Interim Construction Noise Guideline (DECC)
	NSW Road Noise Policy (EPA)
<b>Water</b>	
Groundwater	NSW State Groundwater Policy Framework Document (NOW)
	NSW State Groundwater Quality Protection Policy (NOW)
	NSW State Groundwater Quantity Management Policy (NOW)
	NSW Aquifer Interference Policy 2012 (NOW)
	Office of Water Guidelines for Controlled Activities (2012)
	Groundwater Monitoring and Modelling Plans – Information for prospective mining and petroleum exploration activities (NOW)
	Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
	NSW Government Water Quality and River Flow Objectives (EPA)
Surface Water	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	NSW Water Conservation Strategy (2000)
	State Water Management Outcomes Plan
	NSW State Rivers and Estuary Policy (1993)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (EPA)
	Managing Urban Stormwater: Treatment Techniques (EPA)
Managing Urban Stormwater: Source Control (EPA)	
Technical Guidelines: Bunding & Spill Management (EPA)	
Environmental Guidelines: Use of Effluent by Irrigation (EPA)	
A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)	
NSW Guidelines for Controlled Activities on Waterfront Land (NOW)	
<b>Land</b>	

	Soil and Landscape Issues in Environmental Impact Assessment (NOW)
	Agfact AC.25: Agricultural Land Classification (NSW Agriculture)
	Agricultural Issues for Extractive Industries (DPI)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	Land Use Conflict Risk Assessment Guide (DPI)
<b>Traffic</b>	
	Guide to Traffic Generating Development (RMS)
	Road Design Guide (RMS) & relevant Austroads Standards
<b>Biodiversity</b>	
	Biodiversity Assessment Method (OEH)
	Fisheries NSW policies and guidelines
	Guidelines for developments adjoining Department of Environment, Climate Change and Water (DECCW, 2010)
	Guidelines for Threatened Species Assessment (DP&E)
	Guidance to assist a decision-maker to determine a serious and irreversible impact (OEH)
	NSW State Groundwater Dependent Ecosystem Policy (NOW)
	Revocation, recategorisation and road adjustment policy (OEH, 2012)
	Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
<b>Heritage</b>	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH)
	Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH)
	NSW Heritage Manual (OEH)
	Statements of Heritage Impact (OEH)
<b>Hazards</b>	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
	Planning for Bush Fire Protection 2006 (RFS)
<b>Waste</b>	
	Waste Classification Guidelines (EPA)
<b>Rehabilitation</b>	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)
<b>Social &amp; Economic</b>	
	Social impact assessment guideline for State significant mining, petroleum production and extractive industry development (DP&E)
<b>Environmental Planning Instruments - General</b>	
	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	Muswellbrook Local Environmental Plan 2009