

# Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

2019 Results and Commentary

REPORT BY Maxwell Infrastructure  
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## Final and Temporary Rehabilitation Principles and Commitments

### Introduction

The nine coal producers of the Upper Hunter, through the Upper Hunter Mining Dialogue have agreed to this set of principles and commitments with regard to final and temporary rehabilitation. The Principles and Commitments have been developed with advice and guidance from the UHMD Joint Working Group – Land Management which is a stakeholder and industry group.

The Upper Hunter Mining Dialogue has two goals with regard to land management:

- *Goal 1 - To decrease the time that disturbed areas are left without final or temporary cover, recognising that different mining operations are at different points in rehabilitation.*
- *Goal 2 - Provide transparent and reliable information through the Rehabilitation Reporting Principles, and*
- *Goal 3 - To achieve a consistent level of best practice, quality, integrated rehabilitation – both within the industry and with future land uses - across the Upper Hunter and to be a responsible steward of the land.*

The primary focus of the Rehabilitation Principles and Commitments is to contribute to Goal 1. A number of other projects are underway to progress Goal 1. The industry participants in the UHMD acknowledge the importance of clear goals for rehabilitation developed through consultation with community and regulators, continuing to improve rehabilitation techniques and sharing innovative and successful rehabilitation techniques within the industry. Projects under Goal 3 focus on continuous improvement of rehabilitation practices.

### Principles and Commitments

The Upper Hunter coal producers will publicly report against the Principles and Commitments on an annual basis. The reporting will be aggregated by the NSW Minerals Council and shared with the community. Table 1 sets out the six principles and provides a description of how each will be reported against. Contextual information is also sought from industry regarding variations in their annual reporting, as well as an opportunity to provide commentary on their future rehabilitation targets for the years ahead.

**Table 1 – Principles and Commitments**

Principle	Reporting
<p><b>Principle 1 – Include rehabilitation planning in mine planning</b></p>	<p><i>Narrative</i> – how has this been done in the last period</p>
<p><i>Planning for rehabilitation should be integrated into the mine planning process and should include allocating adequate and dedicated resources to achieve the planned rehabilitation outcomes.</i></p>	<p>Maxwell Ventures (Management) Pty Ltd, a wholly owned subsidiary of Malabar Coal Ltd (Malabar), owns and operates the Maxwell Infrastructure site (formally Drayton Mine) located on Thomas Mitchell Drive, Muswellbrook. Malabar purchased the site in 2018 from Anglo American and formally took control on 26 February 2018.</p> <p>The Maxwell Infrastructure site is currently in the closure phase of the mine operations with rehabilitation activities along with ancillary activities including upkeep of roads and maintenance of equipment progressing.</p> <p>Rehabilitation at the Maxwell Infrastructure site is managed in accordance with the Mining Operations Plan (MOP) and Rehabilitation and Offset Management Plan.</p> <p>The key objectives for post rehabilitation land use are:</p> <ul style="list-style-type: none"> <li>• To establish as much of the original floristic diversity as possible;</li> <li>• To create a stable, free-draining post-mining landform that is compatible with the surrounding landscape and capable of a productive land use; and</li> <li>• To create a post-mining landform which enhances the local and regional habitat corridors.</li> </ul>
<p><b>Principle 2 – Undertake progressive rehabilitation</b></p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>
<p><i>Companies should undertake rehabilitation progressively, with the objective of ensuring that rehabilitation is as close as possible to active mining.</i></p>	<p>During the reporting period, final landform development and growth medium development were the focus of operations at the Maxwell Infrastructure site.</p>
<p><b>Principle 3 – Minimise time that disturbed areas are left without vegetation</b></p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>

Principle	Reporting
<p><i>Companies should actively seek to minimise the time that land is left without cover during mining. This should include:</i></p> <ul style="list-style-type: none"> <li>▪ <i>Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation</i></li> <li>▪ <i>Utilising methods of temporary rehabilitation<sup>1</sup>, such as aerial seeding of over burden and other disturbed areas where permanent rehabilitation has not commenced.</i></li> </ul>	<p>During the reporting period, reshaping activities of overburden and exposed areas were undertaken by D11 dozers. Where possible, landform designs were modified to more natural landscapes, incorporating dams and natural drainage lines.</p> <p>Up to two metres of inert material was then placed on the reshaped areas that were prone to spontaneous combustion. Approximately 61 ha of land was capped with inert material prior to the application of soil ameliorants and seeding. Soil ameliorants were used to increase soil organic matter, improve soil nutrient levels and promote vegetation growth.</p> <p>Biosolids, which are a by-product of the wastewater treatment process, were used as a soil ameliorant in pasture areas. Compost made up of garden organics and biosolids was used as a soil ameliorant in some woodland areas where topsoil was limited.</p> <p>Gypsum was applied to all areas at a rate of 7 tonnes per hectare using a fine and coarse grade recycled gypsum product.</p> <p>Both woodland and pasture seed mixes and rates were revised during the previous reporting period in consultation with an agronomist and an ecologist and were continually reviewed during the reporting period.</p> <p>During the reporting period, some remedial works were undertaken on two areas of existing pasture rehabilitation. Works included capping of minor spontaneous combustion outbreaks, cleaning out of contours, deep ripping and reseeded of areas.</p> <p>Two tree planting programs were undertaken during the reporting period. The programs targeted a total of 21 hectares of existing mine rehabilitation within the conceptual woodland corridor.</p> <p>The culling of kangaroos was undertaken during the reporting period to reduce grazing pressure and minimise the impacts to native groundcover species from the digging of day beds under trees and shrubs in rehabilitation areas.</p> <p>Weed control activities during the reporting period occurred on the Southern and Eastern Tip</p>

<sup>1</sup> Temporary rehabilitation describes reshaping, revegetation and other rehabilitation techniques that are used for purposes other than final rehabilitation. This includes such initiatives as seeding overburden emplacement areas to reduce erosion, which are only temporary.

Principle	Reporting
	rehabilitation areas with a focus on Prickly Pear, Galenia, Golden Wreath Wattle and Coolatai Grass.
<p><b>Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts</b></p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>
<p><i>Companies should prioritise rehabilitation and temporary cover in those areas where leaving land exposed will have the most impact. The following areas should be considered to have priority:</i></p> <ul style="list-style-type: none"> <li>▪ <i>Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway</i></li> <li>▪ <i>Areas that have the potential to generate dust leaving the site</i></li> <li>▪ <i>Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.</i></li> </ul>	<p>As above.</p>
<p><b>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</b></p>	<p><i>Quantitative</i> – report MOP target and actual rehabilitation</p> <p><i>Narrative</i> – explanation of performance</p>
<p><i>Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.</i></p>	<p>The 2016 MOP approved by Department of Industry – Resources and Energy (now Department of Planning and Environment - Resource Regulator) required 166 hectares of rehabilitation to be completed during the reporting period. This assumed that the site would go into a closure phase and did not take into consideration the proposed Maxwell Underground Project and utilisation of substantial existing facilities at Maxwell Infrastructure.</p> <p>As stated in the 2019 AEMR, the revised rehabilitation figure for the reporting period was 86 hectares. A reconciliation of the 2018 Annual Review identified an additional 9 hectares of completed rehabilitation area that was not previously included. Therefore, the revised total of rehabilitation for 2019 has included the 9 hectares from 2018, resulting in a total of 95 hectares of rehabilitation.</p> <p>During the reporting period, Maxwell Infrastructure completed 86 hectares of rehabilitation across eleven areas of the site. Of the 86 hectares, 17 hectares were seeded to woodland rehabilitation and 72 hectares were seeded to pasture rehabilitation.</p>

Principle	Reporting
<p><b>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</b></p>	<p><i>Narrative</i> – summary of quality targets for the various rehabilitation types; and summary of monitoring program scope and status.</p>
<p><i>Each company should include quality targets for the various types of rehabilitation in the Mining Operations Plan for each of its mines. A monitoring program to measure the performance of rehabilitation areas against the quality targets should be implemented at each of its mines.</i></p>	<p>Biodiversity at the Maxwell Infrastructure site and its offset areas is managed in accordance with the Flora and Fauna Management Plan and the Rehabilitation and Offset Management Plan. Routine ecological monitoring is conducted across Maxwell Infrastructure’s offset areas and rehabilitated lands.</p> <p>Pasture rehabilitation sites were monitored during the reporting period. The species listed in the MOP are being naturally supplemented by non-target perennial grass species.</p> <p>Ecological monitoring identified a good cover of perennial grass species in the North and South rehabilitation areas. The East rehabilitation area, which is a westerly facing slope, showed a poor cover of perennial grasses and was likely impacted by hot and dry conditions.</p> <p>Some pasture rehabilitation sites recorded a dominance of a single species, resulting in reduced diversity. A grazing trial was commenced on the Southern Tip in November 2018, which is expected to reduce the single species dominance in this area. The trial continued during the reporting period and cattle were strategically rotated between three paddocks of which two were located on mine rehabilitation. The cattle will be sold to market during the next reporting period and the paddocks will be rested and monitored for new vegetation growth and diversity. Results so far are demonstrating that Maxwell Infrastructure can create a post mining landscape that is compatible with the surrounding landscape and capable of sustaining a productive land use.</p> <p>Monitoring results for woodland rehabilitation sites indicate that the ground cover was generally trending towards the reference sites. All reference sites are located on natural ground and have not been impacted by mining operations.</p>

**Contextual information**

<p><i>This section provides an opportunity for each company to provide some commentary or contextual information regarding their reported results. Such information could include advice on:</i></p> <ul style="list-style-type: none"> <li>- <i>Any material changes to the site (i.e. expansions, acquisitions, or divested assets); or</i></li> <li>- <i>Why any figures may have changed since the last reporting period?</i></li> </ul>	<p>A reconciliation of the rehabilitation status for the Maxwell Infrastructure site identified some historic reporting inaccuracies. These inaccuracies have been addressed and corrected in the 2019 AEMR.</p>
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### Future rehabilitation priorities

<p><i>This section provides an opportunity for each company to provide details on rehabilitation activities at their site/s for the upcoming year.</i></p>	<p>As per the 2019 AEMR, it is anticipated that 30 hectares of rehabilitation will be completed during the next reporting period.</p> <p>The following activities will also occur during the next reporting period:</p> <ul style="list-style-type: none"> <li>• Two tree planting programs covering 50 hectares of existing mine rehabilitation within the conceptual woodland corridor;</li> <li>• Continued installation of rock structures to assist in appropriate water management;</li> <li>• Remedial works to address areas of poor performing rehabilitation; and</li> <li>• A weed control program targeted at Galenia, Prickly Pear and Golden Wreath Wattle.</li> </ul>
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