



**Terrain Park Upgrades &  
Installation of Snowmaking Infrastructure &  
Associated Works**

**Cruiser Area  
Thredbo**

**Detailed Rehabilitation and Monitoring Plan**

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# 1 Introduction

This rehabilitation and monitoring plan has been prepared to detail the rehabilitation required for all areas disturbed by the construction works associated with the development. The rehabilitation activities consist of stabilisation and revegetation works.

## 1.1 Aims and Objectives

The aim of this plan is to achieve successful rehabilitation of all areas disturbed by the works with full vegetation coverage to achieve an erosion resistant state. The objectives of this rehabilitation plan are:

- Detail the rehabilitation works required by the proposal for all disturbed areas;
- Set out the schedule for the rehabilitation activities;
- Provide information on plant species and planting ratios; and
- Dictate the maintenance and monitoring of the disturbed and rehabilitation areas.

# 2 Rehabilitation Program

## 2.1 Rehabilitation Areas

The areas to be rehabilitated consist of all areas disturbed as a component of the works. These areas include the newly constructed and existing jump mounds, laterals, power and dialog trenches, snowmaking pits, material storage areas and any disturbed areas adjacent to the works area. The development areas are shown in Appendix 1.

## 2.2 Rehabilitation and Stabilisation

The rehabilitation and stabilisation works will be consistent with the Rehabilitation Guidelines for the Resort Areas of Kosciuszko National Park (NPWS). The works are to be carried out by Kosciuszko Thredbo Pty Ltd (KT) staff or suitable contractor on KT's behalf. Methods will consist of:

Timing	Procedure	Methods
Pre-construction	Establish construction corridor	<ul style="list-style-type: none"><li>• Mark out construction corridor to limit damage to adjacent areas</li></ul>
	Treatment of weeds	<ul style="list-style-type: none"><li>• Treat weeds within disturbance area to ensure they are not spread further using methods relevant to the weed species being treated</li></ul>
	Identify trees to be removed	<ul style="list-style-type: none"><li>• Clearly identify any trees to be removed with flagging tape and inspect for nests / fauna</li></ul>
	Implement Site Environmental Management Measures	<ul style="list-style-type: none"><li>• Erosion &amp; sediment controls to be put in place prior to construction</li></ul>
	Cleaning of machinery	<ul style="list-style-type: none"><li>• Ensure all machinery to be used on construction site is cleaned at wash down bay to prevent spread of weed species in resort</li></ul>
	Identify "No Go" areas	<ul style="list-style-type: none"><li>• Identify &amp; mark "No Go" areas to clearly delineate sensitive areas to be avoided</li></ul>
	Identify set down areas	<ul style="list-style-type: none"><li>• Identify appropriate plant &amp; equipment set down areas for short term placement of machinery &amp; materials avoiding areas of native vegetation</li></ul>

<b>During Construction</b>	Minimise disturbance & stay within construction corridor	<ul style="list-style-type: none"> <li>Minimise disturbance to adjacent native vegetation</li> <li>Limit movement of construction equipment to construction area and nominated set down areas</li> </ul>
	Regularly maintain site environmental management measures	<ul style="list-style-type: none"> <li>Conduct regular inspections and maintenance of sediment and erosion controls</li> </ul>
	Sod cutting, collection & storage	<ul style="list-style-type: none"> <li>Native forbs and grasses are the most appropriate for sodding</li> <li>Where sod collection is possible, cut sods to a depth of 10-20cm (leaving a layer of intact topsoil underneath) and to a size of 30cm<sup>2</sup></li> <li>Store sods collected on geofabric adjacent to the construction area</li> <li>Sod storage time to be kept to a minimum and sods to be utilised as soon as possible after cutting and storage</li> <li>Monitor sods and environmental conditions and water if necessary</li> </ul>
	Soil removal	<ul style="list-style-type: none"> <li>Place topsoil &amp; subsoil separately</li> <li>Adhere to Soil Stockpile Guidelines for Resort Areas of KNP</li> </ul>
	Soil replacement	<ul style="list-style-type: none"> <li>All excess soil gained from construction works is to be spread over the disturbed areas prior to rehabilitation</li> <li>Ensure subsoil and topsoil are replaced in correct order</li> </ul>
<b>Post Construction</b>	Direct seeding	<ul style="list-style-type: none"> <li>Areas of open ski slope that have been disturbed by the works and are dominated by EXOTIC species are to be seeded using a 1:1 mix of Chewings fescue &amp; <i>Poa fawcettiae</i></li> <li>Areas of open ski slope that have been disturbed by the works and are dominated by NATIVE species are to be seeded using only 100% native <i>Poa</i> endemic to the area</li> <li>Seeding rate: Slope grade &lt;40% use 15-20g/m<sup>2</sup> Slope grade &gt;40% use 20-30g/m<sup>2</sup></li> <li>Broadcast Dynamic Lifter @ 100g/m<sup>2</sup></li> <li>Weed free rice straw mulch to be applied over seed to protect soil and provide a favourable environment for establishment</li> </ul>
	Sod replacement	<ul style="list-style-type: none"> <li>Utilise sod replacement in disturbed areas where possible particularly in areas of native vegetation in accordance with "Rehabilitation Guidelines for the Resort Areas of KNP" – Section C.1.4</li> </ul>
	Stabilise disturbed areas	<ul style="list-style-type: none"> <li>Spread weed free rice straw on slope grades &lt;40% @ 1 bale per 25m<sup>2</sup> and weigh down using native thatch / litter gained from works. Jute mesh may be used if thatch amount insufficient</li> <li>Install Jute mesh (or similar) over straw on batters &amp; embankments &gt;500mm height &amp; with a slope &gt;40% (Grade% = Rise/Run x 100)</li> </ul>

		<ul style="list-style-type: none"> <li>• Direct seed at rates listed above to stabilise disturbed areas including batters &amp; embankments</li> </ul>
	Planting native tube stock	<ul style="list-style-type: none"> <li>• Plant native tube stock in areas of native vegetation</li> <li>• Plant shrubs at 3 plants/m<sup>2</sup></li> <li>• Plant <i>Poa</i> at 5 plants/m<sup>2</sup></li> <li>• Refer to Appendix 2 for suitable rehabilitation species</li> <li>• Water crystals &amp; organic fertiliser may be used at label rates:</li> <li>• <i>Water crystals</i>: 5gm pre-hydrated crystals (crystals must be hydrated for at least 2hrs prior to planting)</li> <li>• <i>Fertiliser</i>: 1 x Typhoon Native fertiliser tablet per plant placed next to or below roots</li> </ul>
	Watering	<ul style="list-style-type: none"> <li>• If required, water rehabilitation areas to assist in seed germination, shrub establishment and straw retention</li> </ul>
	Weed control	<ul style="list-style-type: none"> <li>• Monitor all areas disturbed by the works (including areas adjacent to the works) for signs of weed infestation</li> <li>• Treat weeds with methods appropriate to weed species being treated including low pressure spot spraying and hand removal techniques</li> <li>• Limit off-target damage by only spraying in the appropriate conditions</li> <li>• Weed monitoring &amp; control is to be conducted on an on-going basis and included in annual resort weed control activities</li> </ul>

## 2.3 Monitoring

Weekly inspections of the construction area will be carried out by the Environmental Officer during the construction phase as per the Site Environmental Management Plan (SEMP). These inspections are to ensure that all site environmental management measures are in place and in good working order. On-going monitoring will occur as per the Rehabilitation & Monitoring schedule.

## 2.4 Schedule

Site stabilisation and rehabilitation works shall commence, as soon as possible, following the completion of each section of work to minimise exposed areas. The maintenance works associated with the rehabilitation areas are to be undertaken on an on-going, as required basis throughout each summer season. The schedule for the rehabilitation works is provided in the table below. The appointed Environmental Officer for the project is responsible for ensuring that all preparation, works, monitoring and reporting are carried out to the required standard. The works will be carried out by KT staff or an appointed contractor.

## Rehabilitation and monitoring schedule

AREA	PROCEDURE	TIMING
<b>Earth mounds</b> <b>Laterals trenches</b> <b>Area surrounding pits</b>	Site Preparation	During construction
	Seeding and planting tube stock	During construction and ongoing annually until adequate groundcover has been achieved
	Mulching	During construction and ongoing annually until adequate groundcover has been achieved
	Maintenance (incl. weed control & replacement planting)	Ongoing annually as required (between November and May)
	Monitoring	<b>Weekly</b> during construction as per SEMP <b>Monthly</b> post construction for the first 12 months to monitor for erosion, sediment control and plant establishment <b>Annually</b> once stabilisation has been achieved, between November & May each year up until the date 5 years after the issue of a final occupation certificate with results recorded against photo points identified in Appendix 3 of this plan. At the completion of the 5 years, general monitoring & maintenance will continue. <b>Monitoring</b> will be conducted by way of site inspection with triggers for action detailed in Section 2.5 - Maintenance & Mitigation

## 2.5 Maintenance & Mitigation

In the event that monitoring indicates initial rehabilitation efforts are not effective (minimal grass / shrub establishment or declining coverage), additional management actions may be required. Management actions will be determined following 3 consecutive months of poor establishment or declining survival rates of native species planted. If deemed necessary, this period will be brought forward to implement the additional actions required. The management actions are to consist of one or more of the following:

Area	Maintenance trigger	Action
<b>All areas disturbed by construction works including Mains pipeline trench and Laterals trenches</b>	Poor grass & shrub establishment <75% native species coverage	<ul style="list-style-type: none"> <li>Additional direct seeding in areas of open non-native vegetation</li> <li>In-fill planting of native tube stock</li> <li>Grazing control by use of tree guards where appropriate</li> </ul>
	Presence of weeds	<ul style="list-style-type: none"> <li>Weeds to be controlled annually include, but not limited to, Milfoil, St John's Wort, thistle &amp; Juncus</li> <li>Spot spray using low pressure sprayer</li> </ul>

		<ul style="list-style-type: none"> <li>• Use of hand removal techniques where appropriate</li> </ul>
	Identification of erosion & unstable areas	<ul style="list-style-type: none"> <li>• Installation of Jute mesh, brush matting &amp; mulching</li> <li>• Installation of hay bale and sediment fencing control measures</li> <li>• Maintenance of sediment retention pits, water bars and drains</li> <li>• Carry out additional planting &amp; re-vegetation works as per Rehabilitation table</li> </ul>
	Presence of sediment & debris	<ul style="list-style-type: none"> <li>• Remove build-up of sediment from sediment retention pits and pipe inlets &amp; outlets as required</li> </ul>
Drains Water bars Sediment retention pits	Presence of sediment & debris Identification of damage	<ul style="list-style-type: none"> <li>• Inspection of drains, water bars &amp; sediment retention pits particularly after heavy rainfall</li> <li>• Removal of sediment and debris to prevent blockages / overflow and limit sedimentation of vegetation</li> <li>• Regular inspection to identify damage to system and maintenance</li> </ul>

Additional planting & re-vegetation works are to be carried out as per the Rehabilitation table. If it is found that after 12 months of monitoring the rehabilitation efforts are not effective, KT will liaise with NPWS to determine the most appropriate action. The 12-month period will allow time for the rehabilitation area to establish prior to any further intervention.

### 3 Exotic Species

All areas disturbed by the works are to be monitored on an ongoing basis for the occurrence of any exotic flora and evidence of exotic fauna (scats and tracks). In the event of the detection of exotic species, appropriate control works are to be scheduled as required as set out below.

#### Exotic flora

The control of exotic flora is to be undertaken using either spot spraying or hand removal techniques. The spraying activities are to be undertaken using appropriate herbicide for the species being treated and techniques for the conditions on the day. All control activities are to be undertaken prior to plant seed set.

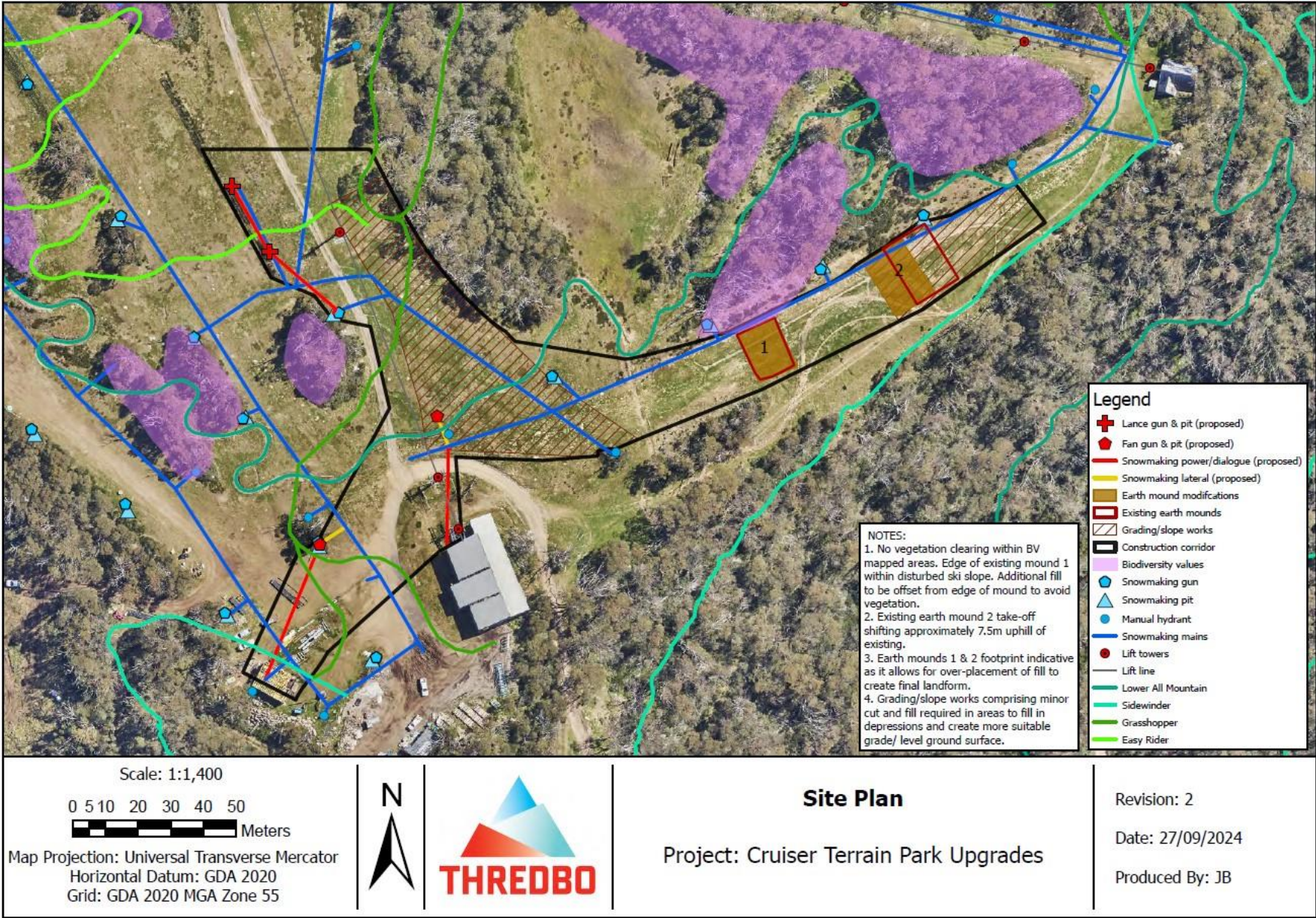
#### Exotic fauna

The control of exotic fauna is to be undertaken in cooperation with NPWS as a resort wide program targeting the control of cats, foxes and rabbits. The cat and fox trapping program is undertaken by KT during the winter months in the village and on the lower slopes of the resort. Rabbit control programs are conducted in autumn and spring by KT staff also targeting these areas. Feral deer, cat, fox and dog control is undertaken by NPWS outside of the KT lease area.



## **4 Appendices**

4.1 Appendix 1 - Development Area Map



## 4.2 Appendix 2 – Rehabilitation Species

The following species have been selected from the publication “Rehabilitation Guidelines for the Resort Areas of Kosciuszko National Park (NPWS 2007)” and also known to be present in the development area. The table represents some of the recommended species for revegetation activities within Thredbo at the development site altitude.

### Rehabilitation Species – Thredbo Cruiser Area (1620m – 1870m)

Form	Species	Common Name
<b>Forbs</b>		
	<i>Acaena novae-zelandia</i>	Bidgee-widgee
	<i>Asperula gunnii</i>	Mountain Woodruff
	<i>Celmisia pugioniformis</i>	Dagger-leaf Celmisia
	<i>Leptorhynchos squamatus</i>	Scaly Buttons
	<i>Microseris lanceolata</i>	Native Dandelion
	<i>Senecio gunnii</i>	Gunn’s Groundsel
	<i>Stellaria pungens</i>	Starwort
<b>Grasses</b>		
	<i>Poa ensiformis</i>	Purple-sheathed Tussock-grass
	<i>Poa fawcettiae</i>	Smooth-blue Snow-grass
<b>Shrubs</b>		
	<i>Baeckea gunniana</i>	Alpine Baeckea
	<i>Bossiaea foliosa</i>	Small Leaved Bossiaea
	<i>Grevillea australis</i>	Alpine Grevillea
	<i>Hovea montana</i>	Alpine Hovea
	<i>Olearia phlogopappa</i>	Dusty Daisy-bush
	<i>Ozothamnus secundifloris</i>	Cascade Everlasting
	<i>Ozothamnus hookeri</i>	Kerosene Bush
	<i>Podocarpus lawrencei</i>	Mountain Plum-pine
	<i>Prostanthera cuneata</i>	Alpine Mint-bush
	<i>Tasmannia xerophila</i>	Alpine Pepper
<b>Trees</b>		
	<i>Eucalyptus pauciflora</i>	Snow Gum



### 4.3 Appendix 3 – Photo Monitoring Points




Photo Point	Description	Coordinates	Photo
PH1  Date: 3/4/24	Looking at proposed fan gun location	617,092 5,960,779	 A photograph of a grassy slope under a clear blue sky. In the foreground, there's a line of orange safety flags. In the background, a fan gun structure is visible, and further back, a ski lift can be seen against the sky.
PH2  Date: 3/4/24	Looking downslope at proposed grading/slope works	617,085 5,960,936	 A photograph of a grassy slope with a ski lift in the foreground. The lift has a green cabin. In the background, there are mountains and some trees. The sky is blue with a few clouds.
PH3  Date: 3/4/24	Looking downslope at proposed grading/slope works	617,105 5,960,890	 A photograph of a grassy slope with a ski lift in the foreground. The lift has a green cabin. In the background, there are mountains and some trees. The sky is blue with a few clouds.





Photo Point	Description	Coordinates	Photo
PH4  Date: 27/9/24	Looking uphill at proposed location for manual replacement with lance guns	617,093 5,960,869	
PH5  Date: 3/4/24	Looking downslope at proposed fan gun location	617,126 5,960,834	



Photo Point	Description	Coordinates	Photo
PH6  Date: 3/4/24	Looking downslope at proposed earth mound	617,124 5,960,830	
PH7  Date: 3/4/24	Looking downslope towards existing earth mounds	617,148 5,960,833	
PH8  Date: 3/4/24	Looking downslope at existing earth mound	617,210 5,960,846	

Photo Point	Description	Coordinates	Photo
PH9  Date: 3/4/24	Looking downslope at existing earth mound	617,259 5,960,878	