Department of Planning, Housing and Infrastructure

Our ref: SSI-9687-PA-317

Nicola Fraser
Post Approvals
Snowy Hydro Limited
By email

23 January 2026

Subject: Tantangara Fish Weir Rehabilitation Plan

Dear Ms Fraser

I refer to your submission dated 17 November 2025, requesting approval of the Tantangara Fish Weir Site Specific Rehabilitation Plan (Revision 3, 13 November 2025). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Tantangara Fish Weir Rehabilitation Plan:

- has been prepared in consultation with NSW National Parks and Wildlife Services; and
- contains the information required by the conditions of approval.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of condition 10, Schedule 3 in approval (SSI-9687).

You are reminded that if there are any inconsistencies between the Tantangara Fish Weir Rehabilitation Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Anthony Ko on (02) 8217 2022 or at anthony.ko@planning.nsw.gov.au.

Yours sincerely

Gabrielle Allan
A/Director Energy Assessments

As nominee of the Planning Secretary

Snowy 2.0 –

Tantangara Fish Weir

Site Specific Rehabilitation Plan

Document Control

Title	Tantangara Fish Weir Rehabilitation Plan	
Document Number	S2-SHL-ENV-PLN-0013 Rev 3	
	Name	**Position**
Originator	Ben Croome	Senior Environment Advisor
Approval	Peter Cowper	Environmental and Planning Manager

Date of Issue:

Title	Snowy 2.0 – Tantangara Fish Weir Rehabilitation Plan	
Document Number	S2-SHL-ENV-PLN-0013 Rev 3	
	Name	**Title**
Prepared by	Ben Croome	Senior Environmental Advisor Snowy Hydro Pty Ltd
Approved by	Peter Cowper	Environmental and Planning Manager

Document Revision Table

Revision	Date	Description	Record of Review (Names)
0	26/03/2025	Draft Plan - Issued for review to NPWS, EPA & TfNSW	Barrie Titulaer Connor Russell
1	5/05/2025	Updated to incorporate NPWS, EPA, and TfNSW comments	Elizabeth Holly Ben Croome Peter Cowper
2	26/6/2025	Internal final review	Peter Cowper Ben Croome
3	13/11/2025	Revised to incorporate DPHI comments	Amelia Wilson Nicola Fraser

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Acronym	Details
CESCP	Construction Erosion and Sediment Control Plan
HDD	Horizontal Directional Drilling
KNP	Kosciuszko National Park
LTRS	Long Term Road Strategy
NEM	National Electricity Market
PCT	Plant Community Type
RMP	Rehabilitation Management Plan
SHL	Snowy Hydro Limited

1. Background

1.1 Overview

Snowy Hydro Limited (SHL) is constructing an expansion to the existing Snowy Mountains hydro-electric scheme called the Snowy 2.0 Project. Snowy 2.0 increases the generation capacity of the Snowy Mountains by up to 2,200 MW and provides approximately 350,000 MWh of energy storage for the National Electricity Market (NEM).

Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the Project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs.

Snowy 2.0 will increase the generation capacity of the Snowy Scheme by an additional 2,200 MW, and at full capacity will provide approximately 350,000 MWh of large-scale energy storage to the NEM.

1.2 Project Approval

On 7 March 2018, the NSW Minister for Planning declared Snowy 2.0 to be State Significant Infrastructure (SSI) and Critical State Significant Infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979 (EP&A Act)* on the basis that is critical to the State for environmental, economic or social reasons.

An environmental impact statement for the first stage of Snowy 2.0, the Exploratory Works for Snowy 2.0 (Exploratory Work EIS) was submitted to the then Department of Planning and Environment in July 2018 and publicly exhibited between 23 July 2018 and 20 August 2018. Approval for the first stage of Snowy 2.0 was granted for Exploratory Works by the Minister for Planning on 7 February 2019. In accordance with section 5.25 of the EP&A Act, the infrastructure approval for the Exploratory Works was modified on 2 December 2019 and 27 March 2020.

An environmental impact statement for the second stage of Snowy 2.0, the Main Works for Snowy 2.0 (Main Works EIS) was submitted to the Department of Planning and Environment (DPE) in September 2019 and was publicly exhibited between 26 September 2019 and 7 November 2019. In February 2020, the response to submissions (RTS or Submissions Report) was issued to DPE to address the public and agency submissions (Snowy 2.0 Main Works - Preferred Infrastructure Report and Submissions, February 2020).

Following consideration of the Main Works EIS and RTS, approval was granted by the Minister for Planning and Public Spaces on 20 May 2020, through issue of the Infrastructure Approval SSI 9687.

On 27 January 2022, a modification to CSSI-9687 was granted under Section 2.22 and clause 20 of Schedule 1 of the EP&A Act (CSSI-9687-Mod 1) for the horizontal directional drilling (HDD) to establish water and electricity services between Lobs Hole and Marica sections of the Project.

On 29 November 2023, a second modification to CSSI-9687 was granted under Section 5.25 of the EP&A Act (CSSI-9687-Mod 2) for undertaking a sinkhole rectification works near the adit portal at Tantangara, inclusive of geotechnical investigations and remediation.

On 16 December 2024, a third modification to CSSI-9687 was granted to permit the construction of an additional adit at Marica west to facilitate excavation of a section of the headrace tunnel (HRT) through the long plain fault zone (LPFZ).

A referral (EPBC 2018/8322) was prepared and lodged with the Commonwealth Department of Agriculture, Water and the Environment (DAWE) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Commonwealth Minister's delegate determined on 5 December 2018 that Snowy 2.0 Main Works was a 'controlled action' under the EPBC Act. The EPBC Act referral decision determined that the project is assessed by accredited assessment under Part 5, Division 5.2 of the NSW Environmental Planning and Assessment Act 1979. Approval of Snowy 2.0 under the EPBC Act was granted on 29 June 2020.

1.3 Purpose of Plan

The purpose of this Plan is to address the rehabilitation requirements relevant to the fish weir at Tantangara Creek as detailed in the:

- Infrastructure Approval (SSI 9687) for Snowy 2.0 Main Works
- Infrastructure Approval (SSI 9208) Modification 1 Assessment Report
- Infrastructure Approval (SSI 9208) Modification 2 Assessment Report
- Infrastructure Approval (SSI 9208) Modification 3 Assessment Report
- Main Works Snowy 2.0 - Environmental Impact Statement
- Revised Environmental Management Measures within the Main Works Response to Submissions
- Main Works - Rehabilitation Management Plan

1.4 Consultation Summary

In accordance with Condition 10, this Plan must be prepared by a suitably qualified and experienced person in consultation with NPWS, BCD, EPA, NSW DPI and TfNSW. Table 1-1 summaries the consultation undertaken as part of developing this Plan.

Table 1-1 Agency consultation undertaken for this Plan

Date	Consultation	Detail
14 April 2025	SHL request to comment on Revision 1	Revision 1 issued to NPWS, BCS, EPA, NSW DPI and TfNSW for review and comment
2 May 2025	NPWS site visit	Following site inspection, NPWS requested a minor amendment to the Management Plan

Date	Consultation	Detail
7 May 2025	NPWS site visit	Site Inspection
14 May 2025	Update document	Update Management Plan to include agency comments and NPWS amendment request
13 November 2025	Update document	Update Management Plan to include DPHI comments.

1.5 Conditions of Approval

The specific conditions relevant to the Tantangara fish weir rehabilitation are presented in Table 1-2.

Table 1-2 Conditions of Approval applicable to the fish weir rehabilitation

Condition	Requirement	Where addressed
Schedule 3, Condition 9 (a)	**Rehabilitation Requirements** The Proponent must: (a) rehabilitate all parts of the site within Kosciuszko National Park to comply with the rehabilitation objectives in Table 3 and the ecological rehabilitation objectives in Table 4.	This Plan, Table 1-3 and Table 1-4 of this Plan including Appendix A - Interim 1
Schedule 3, Condition 10 (g)	**Rehabilitation Plan** Within 18 months of the commencement of construction, the Proponent must prepare a Rehabilitation Management Plan for the development to the satisfaction of the Planning Secretary. The Plan must (a) to (g) … include detailed for the rehabilitation of the disturbance area at each of the following sites, describing the measures that would be implemented to comply with the rehabilitation objectives in Table 3 or 5: ● Talbingo Reservoir ● Lobs Hole ● Marica ● Plateau ● Tantangara Reservoir ● Rock Forest	This Plan

The rehabilitation objectives for Kosciuszko National Park as defined as Table 3 in the Main Works Project Approval are listed in Table 1-3 below.

Table 1-3 - Rehabilitation Objectives - Kosciuszko National Park

Feature	Objective
Land Use	• Enhance the recreational use of the site in accordance with the approved Recreation Management Plan
Land	• Safe, stable and non-polluting • Ensure the creation of all new landforms complies with the design criteria in Table 2 in the Main Works Approval - *Design objectives for permanent spoil emplacement areas* • Minimise surface disturbance of site during construction • Progressively rehabilitate the site as soon as possible following disturbance • Employ interim rehabilitation strategies to areas that can be permanently rehabilitated yet to minimise dust generation, erosion, uncontrolled discharges of sediment, and the spread of weeds to other parts of the Kosciuszko National Park
Infrastructure	• Decommission and remove infrastructure, unless NPWS agrees otherwise • Restore all roads on site in accordance with the Long Term Road Strategy
Community	• Ensure public safety

The rehabilitation objectives, including indicative completion criteria and performance indicators as defined as Table 4 in the Main Works Project Approval are listed in Table 1-4 below.

Table 1-4 Ecological rehabilitation objectives, including indicative completion criteria and performance indicators

Ecological rehabilitation objective	Completion criteria	Performance indicators
Objective 1: The vegetation composition of the rehabilitation is recognisable as a plant community (PCT) contained within the BioNet Vegetation Classification and which was present on site prior to the projects temporary disturbance	(a) Native plant species composition is characteristic of the target PCT based on suitable analysis against a reference data set using the PCT Assignment Tool. (b) The target PCT BAM composition score is within or greater than the inter-quartile range of local reference site valves for the assigned PCT.	All native vascular plant species are monitored to species level from 0.04 ha monitoring plots in accordance with the BAM, transect intercept method, and/or other method approved by the Planning Secretary. Monitoring should include appropriate reference sites outside the disturbance area, ideally capturing the range of variation of the 2003 and 2019/20 fires.
Objective 2: The vegetation structure of the rehabilitation is recognisable as, or shows a substantial trend towards, a PCT contained within the BioNet Vegetation Classification and which was present on site prior to the project's temporary disturbance.	Cover, abundance and height range of native plant growth forms are characteristic of the target PCTs and within or greater than the inter-quartile range of local reference site values for the assigned PCT.	The cover, abundance and height range of all native vascular plant species are monitored from fixed 0.04 monitoring plots in accordance with the BAM, transect intercept method, and/or other method approved by the Planning Secretary.
Objective 3: Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable or shows a substantial trend towards a self-sustaining state.	Growth medium, including topsoil, is suitable for target PCT's establishment, and indicators of nutrient cycling are suitable for sustaining the target PCT's. All priority attributes of nutrient cycling, soil processes and both subsoil and topsoil properties should be within or greater than the interquartile range of local reference site values for the assigned PCT.	Growth medium, covering both subsoil and topsoil properties, and soil processes are monitored using methods approved by the Planning Secretary.
	Rehabilitation vegetation communities are maturing, and natural recruitment is occurring for species within each growth form at rates within or greater than the interquartile range of local reference site values for the assigned PCT.	All species are monitored for establishment of second-generation juveniles/immatures and capacity for recruitment from fixed 0.04 ha monitoring plots in accordance with the BAM, transit intercept method, and/or other method approved by the Planning Secretary.

Ecological rehabilitation objective	Completion criteria	Performance indicators
	The number and ground cover of weed species is comparable to, or less than, the interquartile range of local reference site values for the assigned PCT.	Number and ground cover of weed species are monitored from fixed 0.04 ha monitoring plots in accordance with BAM, transect intercept method, and/or other method approved by the Planning Secretary.
	Fauna habitat features and resources (food and shelter characteristic) within the rehabilitation vegetation communities are present and within or greater than the interquartile range of local reference site values for the assigned PCT.	Presence/absence of some fauna habitat features (e.g. flowering plant, decorticating bark, stags with hollows and/or nest boxes) and quantitative assessment of other features (e.g. leaf litter cover, bare ground, wood debris) are monitored from fixed 0.04 ha monitoring plots in accordance with the BAM, transect intercept method and/or other method approved by the Planning Secretary.

1.6 Revised Environmental Management Measures

The specific Revised Environmental Management Measures (REMMs) applicable to the works are listed in Table 1-5.

Table 1-5 Revised Environmental Management Measures applicable to the Fish Weir Rehabilitation works

Impact	ID#	Revised Measure	Where addressed
Spread of Weeds	EC02	A weed and pathogen monitoring program will be implemented if weeds are identified along road verges. This may include wash-down stations to be constructed at a suitable location, with wash down for weeds as well as *P. cinnamomi.*	This Plan
Soil capability	SOIL04	The Rehabilitation Management Plan will be implemented and will include measures to: ● loss of soil ● loss of organic matter and nutrient decline ● soil structural decline ● compaction Regular rehabilitation monitoring will be undertaken to identify any defects, such as slumping, erosion, or poor vegetation establishment. Identified defects will be rectified.	This Plan

2. Scope of rehabilitation works

2.1 Site Description

The fish weir site is situated on the plateau between Kiandra (Snowy Mountains Highway and Link Road intersection) and Tantangara with the site located near the junction of Nungar Creek and Alpine Creek Trails. Access to the site is via the existing Nungar Creek Trail with heavy vehicle upgrades along the 8.4 km access. Figure 2-1 illustrates the locality of the fish weir regionally and Figure 2-2 illustrates its proximity to Alpine Creek trail and its position in Tantangara creek.

Topsoil has been stripped from the existing track and spread beside the track, other areas disturbed during construction have had the topsoil stripped and stockpiled for use in rehabilitation. Drainage features such as rollovers were altered for access and will be re-established upon completion.

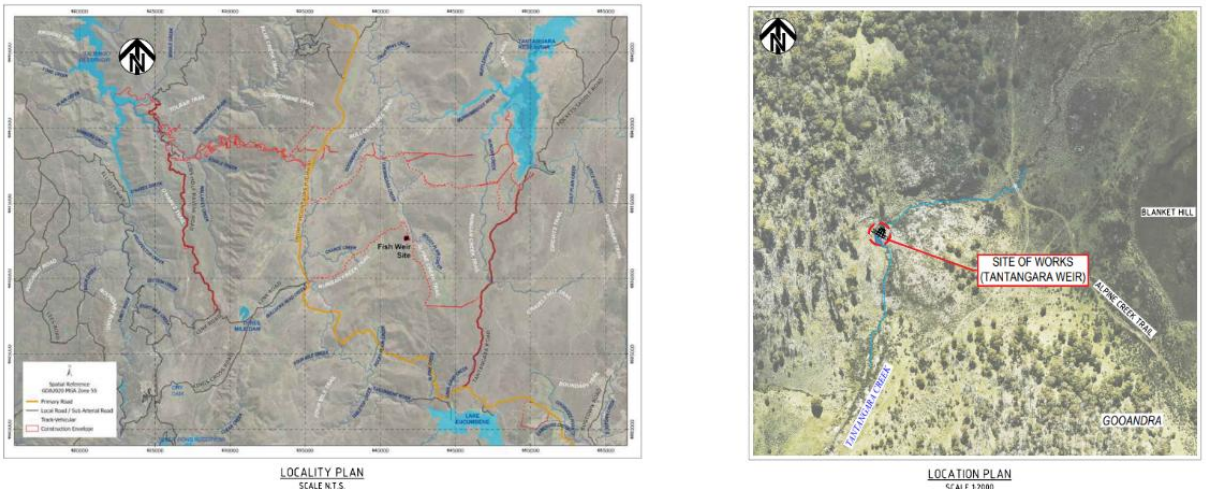


Figure 2-1 Regional locality plan

Figure 2-2 Site locality plan

To support construction, a laydown area with a site office has been established in close vicinity of the Tantangara Creek fish weir work area (Figure 2-3). The Tantangara Creek fish weir laydown and work area is approximately 0.8ha with approximately 0.5ha of temporary access track and passing bays. All the disturbed areas are to be revegetated. Appendix B provides further detail of individual sites to be rehabilitated inclusive of the 8 passing bays, weir site and associated laydown and section of track to be removed between the SMH and Eucumbene River. There are three (3) main areas to be rehabilitated as part of the fish weir works:

1. Nungar Creek Trail verge and passing bay 1
2. Fish weir site and laydown
3. Tantangara Creek weir disturbance area.

Below are the components of the three (3) areas of rehabilitation to be undertaken:

- Reinstatement of natural surface levels and compaction relief in preparation for growth medium placement, mulching and revegetation of passing bay 1, laydown pads, and areas adjacent to fire trails.
- Topsoil/growth medium placement all disturbed areas – refer to Section 3.4.
- Native grass seed applied across all disturbed and then topsoiled areas - refer Section 4.2
- Installation of temporary and long-term erosion control measures including reinstatement of rollovers were identified as being required and as determined by the site erosion and sediment control plan and the Snowy 2.0 Long Term Road Strategy (LTRS), refer to Section 3.1 and Appendix C of this Plan.
- Removal of all temporary access to the weir site, refer to Section 3.5
- Placement of thatch to assist native vegetation recovery, boost organic matter and provide microhabitats for plants and animals in appropriate PCTs.
- Ongoing weed control within the project boundary.

- Tube stock planting on pads , laydown and around Eucumbene River and weir site, refer to Section 4 and Appendix C.
- Ongoing monitoring in accordance with Main Works Rehabilitation Management Plan (RMP), refer Section 7.
- Continue maintenance of Nungar Creek Trail from Snowy Mountains Highway and Alpine Creek Trail to the fish weir until handed back to NPWS in accordance with the Long Term Roads Strategy, refer to Section 3.5 and Appendix C of this Plan.
- Passing bays 2-8 will not be fully rehabilitated, instead a focus on minimising their current footprint will be implemented through a smaller hard stand area which can still be utilised as a passing bay when needed.

Figure 2-3 Fish Weir and Laydown (March 2025)

3. Earthworks

3.1 Erosion and sediment control materials

Temporary erosion and sediment controls which do not impede reinstatement of natural surface flows will be retained until appropriate cover is obtained. Sediment fences and other non-organic materials will be removed when no longer required.

Materials used during construction in disturbed areas, including gravel or geofabric will be removed.

Riprap (gabion rock) to be retained for the entry and exit of the Eucumbene River crossing and in the shoulders of other waterways. Erosion and sediment controls are left in place until the area is stabilised as per CESCP where these waterways are listed in Section 4.3 and shown in Appendices B and C of this Plan.

For bogs and fens, additional erosion measures including construction of straw-bale dams in flowlines and placement of coir and straw filled jute mesh logs as surface water spreaders will be employed where necessary to prevent the formation of incisions (noting none have occurred at time of development of this plan). In addition to other methods outlined in Section H.2.5 of *The Australian Alps rehabilitation manual 2006*, all interventions will be directed by a qualified alpine rehabilitation specialist. Appendix C provides details of the location of bogs and fens on the access track.

The CESCP will be updated following completion of construction activities and provided to NPWS.

3.2 Drainage

Nungar Creek Trail

Surface water flow has not been inherently impacted during construction with culverts undisturbed, and rollovers and other drainage related features largely left in place or only temporarily altered.

Following completion of works, surface water drainage features are to be reinstated or removed as agreed with the NPWS Field Officer prior to being handed back to NPWS and in accordance with the Stage 2 of the LTRS.

During construction, no adverse impacts to the integrity of bogs and fens in proximity to the work have been observed.

Fish Weir – Tantangara Creek

Prior to and during construction of the weir structure, a temporary stream diversion is required to enable works, this will be achieved through implementation of a temporary coffer dam and pipework to divert the creek around the site (refer Figure 3-1). All materials used for the diversion will be removed at the completion of the weir.

Figure 3-1 Temporary creek diversion

3.3 Landform reshaping

No major landform reshaping is required for the majority of Nungar Creek Trail and the fish weir, only reinstatement of the original surface levels.

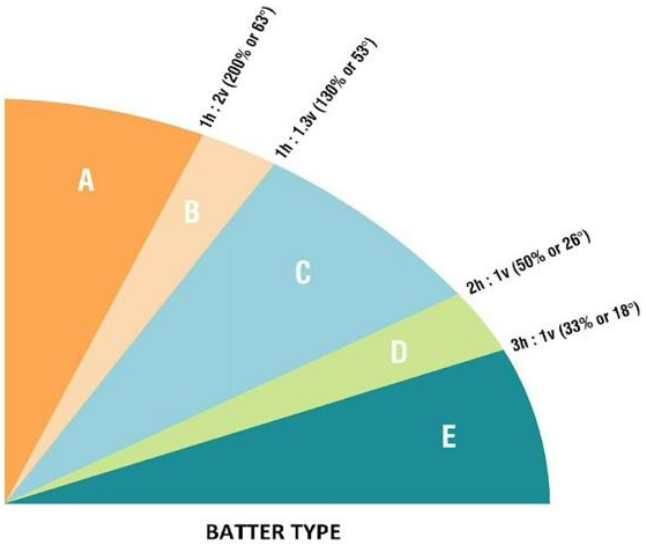
Where site cuts have been made for the purpose of creating a level surface for access, reinstatement of batters are to be returned to the natural surface. The only batter to be left in cut is located between Passing bay 8 and the weir site on Nungar creek trail. This batter will be treated as per Figure 3-2.

Compaction of the passing bays and laydown will be addressed by ripping / scarification to approximately 200mm depth. Fill material (for reinstatement of batter cuts) will be sourced from the material removed when constructing the road and temporary access to the fish weir during construction. The outer layer will be topsoiled with native seed applied to provide cover.

Excess material removed from the section of track between the Snowy Mountains Highway and Eucumbene River and areas such as passing bays will be used to sheet Nungar Creek and Alpine Creek trails.

Figure 3-2 Batter to be retained between passing bay 8 and the weir site

Figure 3-3 demonstrates the revegetation decision making process for determining stabilisation techniques, materials, and vegetation depending on the gradient of the area to be rehabilitated. The majority of the areas to be rehabilitated have a gradient of under 33 % (class E batter) with seeding and mulching the preferred treatment.



Snowy 2.0 Revegetation Decision Making Tool			
Batter Type	Temporary Revegetation Options *	Permanent Revegetation	Permanent Revegetation Description
A	N/A	Structural reinforcement	Reinforcement measures may include terramesh, gabion walls, shotcreting, rock bolting and soil nails
B	N/A	Geo mesh and grassing	Geo mat is required to provide rock dowels to retain soil containing grass seed
C	• Soil binder	Jute mesh + planting & hydromulching	Jute mesh is required to hold soil while vegetation is established
D	• Soil binder • Hydromulching	Planting & hydromulching	Tubestock planting density (1 plant / 2m²) with hydromulch applied to the remainder of the area
E	• Direct seeding • Mulched timber • Soil binder • Hydroseeding • Hydromulching • Straw mulching	Planting & hydromulching Direct seeding	Tubestock planting density (1 plant / 2m²) with hydromulch applied to the remainder of the area
*temporary revegetation method depends on temporal span and / or proximity to sensitive receptors			

Figure 3-3 Revegetation decision making tool

3.4 Topsoil/growth medium amendment and placement

As topsoil was won in the original construction works it was stockpiled at numerous locations across the site. This material has and will continue to be directly re-applied over the site at the depth it was stripped (between 50mm and 100-mm depth) as part of the rehabilitation works.

Topsoil has been won during the initial Nungar Creek Trail upgrade with material windrowed immediately adjacent to the area where it was stripped. Topsoil has also been stockpiled in laydown areas and passing bays where it will be directly applied to following construction. If in the unlikely event there is not sufficient topsoil available for a particular area or it becomes evident that the reinstated growth medium is not sufficient, a proprietary compost blanket will be utilised in addition

to hydromulch to provide a suitable growth medium. The compost blanket is applied similar to hydromulch and contains additional organic matter to foster plant growth.

3.5 Access control

Provision of suitable access for vehicles and/or all-terrain vehicles for rehabilitation, weed control and firefighting will be required in the medium term with access for monitoring and maintenance of the weir structure also required.

Access will be via the upgraded Nungar Creek Trail terminating at the laydown / weir site off Alpine Creek Trail. It is proposed that a pedestrian access track (no shrubs or trees) will be maintained to facilitate scheduled inspections during operations

The access from Snowy Mountains Highway (SMH) to the temporary bridge at Eucumbene River will be removed and rehabilitated following construction to limit the likelihood of unauthorised access. Large rocks to be reinstated off SMH.

Public vehicle access will also be managed via the locked gate dual access NPWS / SHL gate at the trail head. The large boulders which were removed prior to these works will be reinstated to manage public interference during the rehab stages.

4. Revegetation

The site will be vegetated using a combination of tube stock planting and direct seeding. The major challenges for rehabilitation of the site will be competition from weeds and the short growing seasons in the sub-alpine environment. which has shaped the method outlined in Table 4-1 Revegetation timing.

Table 4-1 Revegetation timing

Sequence	Task	Indicative Timing (subject to change)
1	1. Access track verge reinstatement and topsoil spreading 2. Obsolete passing bays reshaped, mulched, and seeded 3. Thatch applied at passing bays 4. Watering of reinstated passing bays	**March 2025** **April / May 2025**
2	**Weir site and laydown rehabilitation** 1. Diversion removal 2. (Reshaping, topsoil placement seed and straw application). 3. Thatch applied **SMH to Eucumbene River rehabilitation** 1. Removal of road pavement and stockpiling of material for NPWS use 2. (Reshaping, topsoil placement seed and straw application). 3. Access control – Reinstatement of rocks	**April /May 2025**
3	Weed control of all areas Spring and summer prior to planting	**Ongoing (November – April)**
4	**Primary revegetation** - (Tube stock planting for drainage line, passing bay 1 and laydowns pending weed load and monitoring results.	**2025-2026 (November – April)**
5	**Secondary revegetation** based on monitoring results	**2026 – 2027 (November – April)**

4.1 Planting design

Tube stock will be purposely planted at a density guided by the monitoring program data for relevant PCTs described in Table 4-2. Initial planting around drainage lines was at a density of 4 plants per m^2. This section will be updated following completion of monitoring when target stems per ha are determined for each PCT. The initial mid and overstorey density will be approximately 1 plant per $4m^2$.

4.2 Species use and type

This site will be rehabilitated with locally occurring native species. Table 4-2 provides for PCT composition that guides species selection for rehabilitation. The species to be used are provided in

Appendix J PCT Target Species List of the Main Works RMP with the final composition of the planting design prepared following completion of the first round of reference site monitoring data. Until the interquartile range for each species is established an interim completion criteria using the local reference site data will also be used (see Appendix B). Key species and planting densities (number for site) are nominated in Appendix C. Section 4.2 and Appendix B & C will be updated with a full species list following agreement on the ecological completion criteria indicators with NPWS.

The Completion Criteria indicators will be updated following the completion of baseline monitoring and consultation with NPWS. It is anticipated that monitoring, analysis and consultation and update of the plan will be completed by June 2026.

Table 4-2 PCT Composition of potential disturbance area

PCT	PCT Name	Area (Ha)
1196	PCT 1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South-eastern Highlands Bioregion and Australian Alps Bioregion	0.04
1224	PCT 1224 - Sub-alpine dry grasslands and heathlands of valley slopes, southern South Eastern Highlands Bioregion and Australian Alps Bioregion	1.2
1225	PCT 1225 - Sub-alpine grasslands of valley floors, southern South Eastern Highlands Bioregion and Australian Alps Bioregion	0.1
303	PCT 303 - Black Sally grassy low woodland in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion and western South Eastern Highlands Bioregion	0.4
637	CT 637 - Alpine and sub-alpine peatlands, damp herb fields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion	0.7
644	PCT 644 - Alpine Snow Gum - Snow Gum shrubby woodland at intermediate altitudes in northern Kosciuszko NP, South Eastern Highlands Bioregion and Australian Alps Bioregion	0.4

The species to be used are provided in Appendix B and C and Appendix J of the RMP (PCT Target Species List) with the final composition of the planting design prepared following completion of the first-round monitoring of reference sites. Initial seeding of native grass will be undertaken on Nungar Creek Trail (refer Table 4-3 for mix). Shrubs and trees will be utilised for revegetation of the laydown / weir construction site consistent with reference sites of the applicable PCT.

Table 4-3 Native seed mix

Species (PCT 1224 ,644,303 637)	KG per Ha
Anthosachne scabra	6
Poa labillardierei	0.5
Poa sieberiana	4
Rytidosperma pilosum	1
Rytidosperma caespitosum	0.5
Themeda triandra	1
Total	**13**

4.3 Waterways

Nungar Creek Trail crosses several waterways, including the Eucumbene River, Hayes Gully, Chance Creek, Kiandra Creek, Tantangara Creek and several unnamed waterways. All waterways have culverts installed that will remain after works are completed except for the Eucumbene River, where the temporary bridge has now been removed since completion of works.

4.4 Water requirements

Planting will occur during times where soil moisture content is present with the utilisation of water crystals during planting. Due to access constraints watering will be limited to watering in during planting and if drought conditions occur (no rainfall in 6 weeks).

5. Resource specification

5.1 Compost/topsoil/growth medium

Compost will only be used in planting holes for tube stock. One litre of compost per planting hole will be used.

Site-won topsoil that was stripped and either windrowed or stockpiled on the various laydowns being applied over the site at approximately 50 mm depth / in accordance with the Rehabilitation Inspection Test Plan (ITP).

5.2 Mulch

Hydromulch

Application of hydromulch is not likely given the timing of rehabilitation with straw mulch prioritised. If required for stabilisation later the rates in Table 5-1 below will be used.

Table 5-1: Hydromulch mix

Seed Application	Erosion Protection	Topsoil depth	Application Rate	Comments
Native Seed	Straw	approx. 50 mm	6 t/ha	Guar Gum tackifier to be applied @ 125 kg/ha if straw mulch has no tackifier included in each bale Binder applied @ 300 litres/ha Native seed/mix applied as per ITP Roughened/ripped surface on the contour compaction relief

Note: No Hydromulching to be undertaken after April (increased risk of failed germination because average temperature below 15 degrees)

Straw mulch

Weed free straw mulch will be used for cover of the following sections at a rate of 6 tonnes per hectare.

- Snowy Mountains Highway to Eucumbene River – 1,900m^2 (refer Figure 5-1)
- Fish Weir and Laydown Area - 8000 m^2 (refer Figure 5-2)
- Passing Bays 1300 m^2 – For passing bays that have been reshaped and topsoiled in March 2025, a thinner coverage of 2 tonnes per hectare is to be applied following seeding. If vegetative cover is poor prior to demobilsation, additional straw to be applied at the same time as the remainder of the passing bays.

Figure 5-1 Snowy Mountains Highway – Eucumbene rehabilitation

Figure 5-2 Fish Weir and Laydown Area

5.3 Tube stock

Tubestock will be supplied by Snowy Hydro Limited (SHL) as part of the tubestock propagation program grown from seed collected as part of the Snowy 2.0 seed collection program or from local nurseries that support revegetation in Kosciuszko National Park (KNP). Tube stock will be planted between November and April.

5.4 Seed

Only native seed will be sown after treatment of weeds. Seed will be sourced from the Snowy 2.0 seed collection program. Seed will be applied evenly to a roughened surface – for smaller areas such as the passing bays a rake may be utilised to ensure contact with topsoil.

5.5 Fencing/tree guards

No fencing or tree guards will be used initially unless monitoring indicates grazing species are having an impact. It is anticipated that fencing of the larger rehabbed laydowns area may be required, fencing design will include mitigations to exclude feral animals and will be designed as required by NPWS.

5.6 Fertilisers

A small handful of slow-release phosphorus organic fertiliser will be added to all planting holes in the planting process. Once native species have germinated and begun to grow, additional slow-release organic fertiliser may be used in the maintenance process to augment the growth of the sown species. No fertiliser will be used for direct seeding or in close proximity to drainage lines.

5.7 Signage and safety

Rehabilitation signage with a Snowy 2.0 logo will be erected with relevant site-specific information provided and requesting people remain off the area.

6. Post rehabilitation

6.1 Final land use

It is envisaged that the future use of this site is a combination of native vegetation, access road and permanent infrastructure (refer Figure 6-1).

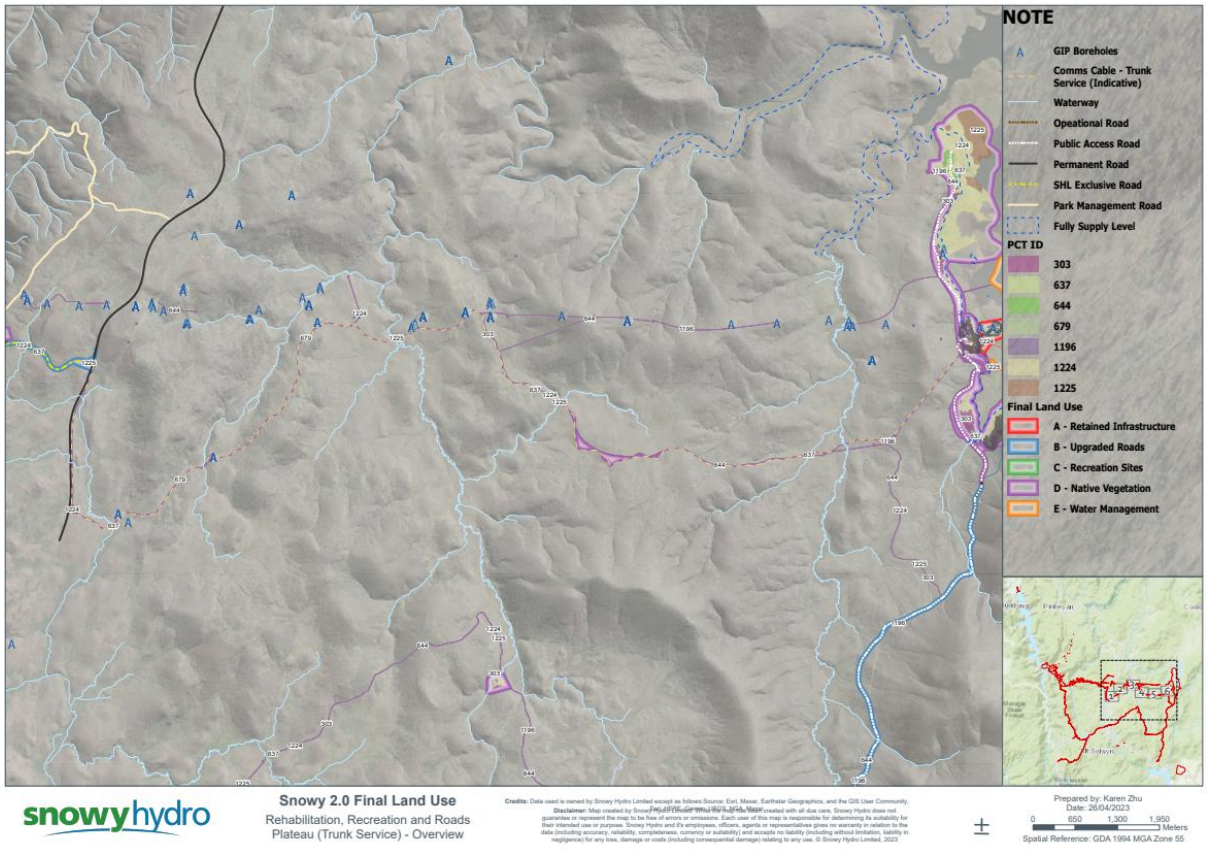


Figure 6-1 Final land use mapping for Plateau (inclusive of the Tantangara Fish Weir)

6.2 Short-term maintenance

A number of short-term maintenance activities (3 weeks to 6 months) will be guided by quarterly monitoring and may include activities such as:

- Access track maintenance
- Sediment and erosion control
- Weed control

6.3 Watering

If a prolonged dry period occurs after the planting, additional watering will be required 6 weeks after planting. Watering will be conducted using light vehicles.

6.4 Long-term maintenance

Long-term maintenance activities (+6 months ongoing) such as erosion control and replanting will be undertaken. Maintenance will be guided by monitoring described in Section 7 of this plan and the trigger action response plan outlined in Table 10.2 of the Main Works RMP.

6.5 Weed control

All weed species will be sprayed at the appropriate time to prevent seed set with the appropriate herbicide. Weeds that are close to newly germinated seedlings or tube stock will be weeded by hand.

Annual weed monitoring will be scheduled with weed control programs occurring on a biannual basis as per the Biodiversity Management Plan Appendix F (Weed, Pest and Pathogen Management Plan) Section 5.1.2.1 – Chemical Weed Control. Weeds identified at the site and in the surrounding area during the pre-clearance survey included:

- *Anthoxanthum odoratum* (sweet vernal grass)
- *Hypochaeris radicata* (cats' ear)
- *Rumex acetosella* (sheep sorrel)
- *Cirsium vulgare* (Spear Thistle)

6.6 Fertiliser augmentation

Additional slow-release fertiliser (N, P, K) may be applied to established seedlings if seedlings show any signs of nutrient deficiencies.

6.7 Re-mulching

To be undertaken if required for seedlings planted in the revegetation process until they are sufficiently grown to provide their own biomass. Additional straw mulching of areas that are showing signs of erosion to be utilised where appropriate.

7. Rehabilitation monitoring

Monitoring will be undertaken of the main disturbance area to provide information on the success of the rehabilitation regarding tubestock growth and mortality, seed germination and establishment, weed invasion, erosion, natural recruitment, and disturbance from grazing animals.

Hydrological integrity and function of bogs and fens will be monitored, and interventions conducted as per *The Australian Alps Rehabilitation Manual 2006* if required, guided on ground by a suitable Alpine rehabilitation specialist. At this point in time there has been no drying of bogs and fens, or incisions caused by construction activities in bogs and fens (PCT 637). All nearby bogs and fens are identified in Appendix C.

Monitoring will be carried out in accordance with Section 8.2 of the Main Works RMP. This will include observational monitoring (quarterly), unmanned aerial vehicle (UAV) (annually) and ecological monitoring (three yearly), refer Table 7-1.

Table 7-1 Extract from Rehabilitation Management Plan

Monitoring Type		Frequency	Timing
1	Observational / Event based	After 100mm rainfall event (within 48 hours)	As required
2	Observational Routine	Quarterly	March, June, September December
3	UAV	Annually	November/December
4	Ecological (reference and rehabilitation)	Every 3 years	November/ December/January 2024, 2027, 2030 etc

Quarterly observational monitoring

Quarterly observation checks of rehabilitation sites to be undertaken (4 times per year). A checklist will be used to evaluate performance and detect any failures and will generate maintenance programs and further rehabilitation works (if measures are failing). This checklist will include the measures linked to the Trigger Action Response Plan (TARP) outlined in Section 10.2 of the Main Works RMP. Refer to Appendix E for the Quarterly Observation Monitoring Form template. Photo points will be established as part of the quarterly monitoring.

Annual monitoring

Annual monitoring (UAV) will occur as described in Table 7-2 below and in accordance with Section 8.2 of RMP:

Table 7-2: Annual rehab monitoring - UAV

Monitoring parameter	Description
PCT variation	(1 digital 20m x 20 quadrat per Ha) 5 PCT characteristic species and weeds with species added over time
Weeds	Weed abundance and species
Native species	Species composition, cover, structure, and health

Bare ground	% Area and location
Erosion	Depth, width, length, change over time
Habitat features	Logs and rock
Pest species	Track and individual at time of survey
Human disturbance	Wheel tracks, waste
Legacy Items	Infrastructure for removal

Conducted using UAV and ecologist for species ground truthing. Will primarily be used to provide whole site monitoring of elements such as erosion, bare ground, plant growth and weed cover that enable accurate tracking of rehabilitation trajectory year on year.

Three yearly monitoring

Ecological recovery will be measured every 3 years during the same monitoring period as the reference sites. This monitoring will consist of on the ground assessment of species, composition and abundance as described in Table 7-3 below.

Table 7-3 PCT Ecological Monitoring – on ground monitoring

Method number	Monitoring method
1	Permanent, full floristic plots (i.e., 20x20m; cover and abundance estimate for all species present): ● Sites will have a GPS point recorded and 2 permanent corner posts for plots. ● Data to be collected is: full scientific name, estimated % foliage cover. If less than 1% cover, then decimals to be used (0.1, 0.2, 0.3…). ● Estimated abundance of each species to be recorded from 1 to 10, 10 to 100 with intervals of 10 and 100 to 1000 in intervals of 100 and so on. ● Species type, i.e., native, exotic, or high threat exotic to be recorded. ● Threatened species will be recorded per plot.
2	Permanent 50m midline transect located through the middle of the 20m x 20m plot. A waypoint recorded at 0m and 50m and posts used to mark the points.
3	Measurement of all trees for Diameter at Breast Height (DBH) per plot.
4	Recording of all hollow bearing trees per plot.
5	Habitat resources (coarse woody debris, ponds, rocks) per plot. Type and size of coarse woody debris to be recorded.
6	Evidence of vertebrate pests and native species (scats, digging, chewing) per plot to be recorded.
7	Soil surface characteristics will be recorded along the 50m line transect at 5m intervals. Characteristics recorded will be: native vascular plant (living), exotic vascular plant (living), litter (type, depth, and origin), cryptograms, logs (standing or dead), rock, water, bare ground.
8	Soil characteristics - field tests - pH, EC, texture (samples taken in accordance with steps 1-6 of Section 5.4.1 of Biodiversity Conservation Trust Ecological Monitoring Module Operational Manual | February 2022)
9	Soil characteristics - laboratory tests - nitrogen, total carbon, available phosphorus, pH, EC. (Samples taken in accordance with steps 1-6 of Section 5.4.1 of Biodiversity Conservation Trust Ecological Monitoring Module Operational Manual | February 2022)

Reporting will be undertaken as per Section 8.3 of the Main Works RMP. This requires an annual public report and a separate annual report to NPWS and Biodiversity Conservation Division (BCS).

7.1 Local reference sites

Until set metrics are confirmed following implementation of the monitoring program the following sites will be used in combination with the pre- clearance survey report to provide initial species type and numbers for initial revegetation in addition to tracking progress of vegetation cover and abundance, refer Table 7-4 for reference sites.

Table 7-4: PCT Local Reference sites

PCT	BDAR Plot – Reference Site	PCT condition
1196	157	High
1224	*308	High
1225	*123	High
303	321	High
637	204	High
644	212	High

*Denotes plot within 500 metres of site

Maps of these sites included in Appendix B and Appendix I of the Main Works RMP.

Appendix A – Tantangara Creek Fish Weir - Interim Completion Criteria

(Based on Ecological rehabilitation objectives (Table 4) Main Works CoA)

Table A1: Interim Completion Criteria

Rehab Objective/Characteristic	**Indicator – Specific attribute associated with the objective**	**Rehabilitation Completion Criteria Benchmark for Indicator**	**Measure** *(note interim measures taken from BDAR plots & field sheets where possible)*
The vegetation composition of the rehabilitation is recognisable as the target vegetation community contained within the BioNet Vegetation Classification and which was present on site prior to the project's temporary disturbance.	All native vascular plant species are monitored to species level from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 7-3.	(a) Native plant species composition is characteristic of the target PCT based on suitable analysis against a reference data set. (b) The target PCT composition score is within or greater than the inter-quartile range of local reference site values for the assigned PCT.	1. Rehabilitation monitoring reports. 2. Final Independent ecological reports that validate rehabilitation completion criteria have been met. 3. See Table 4-2 for species composition from BDAR floristics for specific measures.
The vegetation structure of the rehabilitation is recognisable as, or shows a substantial trend towards, a PCT contained within the BioNet Vegetation Classification, and which was present on site prior to the project's temporary disturbance.	The cover, abundance and height range of all native vascular plant species are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 7-3.	Cover, abundance, and height range of native plant growth forms are characteristic of the target PCTs and within or greater than the inter-quartile range of local reference site values for the assigned PCT.	1. Rehabilitation monitoring reports. 2. Final Independent ecological reports that validate rehabilitation completion criteria have been met. 3. See Table 4-2 for species cover and abundance of growth forms data from BDAR floristics. 4. Height range to be included after the first round of monitoring as described in Section 7 Table 7-3.

Rehab Objective/Characteristic	**Indicator – Specific attribute associated with the objective**	**Rehabilitation Completion Criteria Benchmark for Indicator**	**Measure** *(note interim measures taken from BDAR plots & field sheets where possible)*
Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable or shows a substantial trend towards a self-sustaining state.	Growth medium, covering both subsoil and topsoil properties, and soil processes are monitored using methods specified in Section 7 Table 7-3	Growth medium, including topsoil, is suitable for target PCTs establishment, and indicators of nutrient cycling are suitable for sustaining the target PCTs. All priority attributes of nutrient cycling, soil processes and both subsoil and topsoil properties should be within or greater than the interquartile range of local reference site values for the assigned PCT. Attributes include depth of leaf litter, cryptograms total carbon and total nitrogen.	1. See Table 4-2 for ecosystem function measure where available from BDAR field sheets. 2. Measure to be updated after first round of monitoring as majority of nutrient cycling processes were not captured at time of BDAR. 3. Rehabilitation monitoring reports. 4. Final Independent ecological reports that validate rehabilitation completion criteria have been met.
	All species are monitored for establishment of second-generation juveniles/immatures and capacity for recruitment from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 7-3.	Rehabilitation vegetation communities are maturing, and natural recruitment is occurring for species within each growth form at rates within or greater than the interquartile range of local reference site values for the assigned PCT.	1. Measure to be updated after the first round of monitoring as it was not captured at the time of BDAR.
	Number and ground cover of weed species are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 7-3 with input from annual UAV monitoring outlined in Table 7-2.	The number and ground cover of weed species is comparable to, or less than, the interquartile range of local reference site values for the assigned PCT. Monitoring program to feed into the annual weed control program.	1. See tables B5-B10 for cover and abundance of individual species for different PCTs/reference sites from initial BDAR floristics. 2. Measure to be updated after the first round of monitoring described in Section 7 Table 7-3.

Rehab Objective/Characteristic	Indicator – Specific attribute associated with the objective	Rehabilitation Completion Criteria Benchmark for Indicator	Measure *(note interim measures taken from BDAR plots & field sheets where possible)*
	Presence/absence of some fauna habitat features (e.g. flowering plant, decorticating bark, stags with hollows and/or nest boxes) and quantitative assessment of other features (e.g. leaf litter cover, bare ground, wood debris) are monitored from fixed 0.04 ha monitoring plots in accordance with Section 7 Table 7-3.	Fauna habitat features and resources (food and shelter characteristics) within the rehabilitation vegetation communities are present and within or greater than the interquartile range of local reference site values for the assigned PCT.	1. Rehabilitation monitoring reports. 2. Final Independent ecological reports that validate rehabilitation completion criteria have been met. 3. Measure to be updated after the first round of monitoring described in Section 7.

Table A2: Native Richness by growth form

PCT	BAM Plot	Trees	Shrubs	Grasses	Forbs	Ferns	Other
1196	157	1	6	3	17	0	0
1224	308	0	2	5	21	0	0
1225	123	0	3	11	16	0	0
303	321	1	1	4	13	0	0
637	204	0	2	3	8	0	0
644	212	3	8	2	24	0	0

Table A3: Sum of Cover of Native vascular plant by growth form

PCT	BAM Plot	Trees	Shrubs	Grasses	Forbs	Ferns	Other
1196	157	40	16.6	30.3	5.9	0	0
1224	308	0	12.1	45.9	7.1	0	0
1225	123	0	0.3	97.9	1.9	0	0
303	321	25	0.1	8.1	3.4	0	0
637	204	0	0.2	90.4	1.4	0	0
644	212	2.8	2.2	20.2	9.8	0	0

Table A4: Ecosystem Function - BDAR

PCT	Litter cover %	Bare ground cover %	Cryptogram cover %	Rock cover %	Stems with Hollows
1196	NA	NA	NA	NA	NA
1224	NA	NA	NA	NA	NA
1225	NA	NA	NA	NA	NA
303					
637	NA	NA	NA	NA	NA
644	64	28	9	0	0

Table A5: Species cover and abundance PCT 1196 - Plot 157 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus pauciflora	Tree	40	20
Daviesia ulicifolia	Shrub	3	20
Hakea microcarpa	Shrub	0.3	4
Mirbelia oxylobioides	Shrub	3	20
Anthoxanthum odoratum	Introduced	50	1000
Asperula conferta	Forb	3	500
Poa sieberiana	Tussock Grass	30	200
Ranunculus lappaceus	Forb	0.5	100
Poranthera microphylla	Forb	0.1	50
DIchondra repens	Forb	0.3	200
Lomandra filiformis subsp. *coriacea*	Rush	0.1	10
Veronica subtilis	Forb	0.2	500
Senecio gunnii	Forb	0.2	50
Ajuga australis	Forb	0.4	100
Medicago lupulina	Introduced	0.1	10
Cirsium vulgare	Introduced	0.5	20
Sonchus oleraceus	Introduced	0.1	10
Acrothamnus hookeri	Heath shrub	10	50
Xerochrysum bracteatum	Forb	0.1	20
Hypochaeris radicata	Introduced	1	200
Cymbonotus preissianus	Forb	0.1	20
Acaena novae-zelandiae	Forb	0.2	100
Veronica derwentiana subsp. *maideniana*	Forb	0.1	3
Themeda triandra	Tussock Grass	0.2	10
Hovea heterophylla	Forb	0.1	5
Geranium solanderi	Forb	0.2	50
Stellaria pungens	Forb	0.1	5
Pimelea pauciflora	Shrub	0.1	2
Centaurium erythraea	Introduced	0.1	20
Acaena agnipila	Forb	0.1	10
Oreomyrrhis eriopoda	Forb	0.1	10
Myosotis discolor	Introduced	0.1	20
Chrysocephalum semipapposum	Forb	0.1	10
Grevillea lanigera	Shrub	0.2	5

Note - Green and yellow highlights indicate primary rehabilitation species

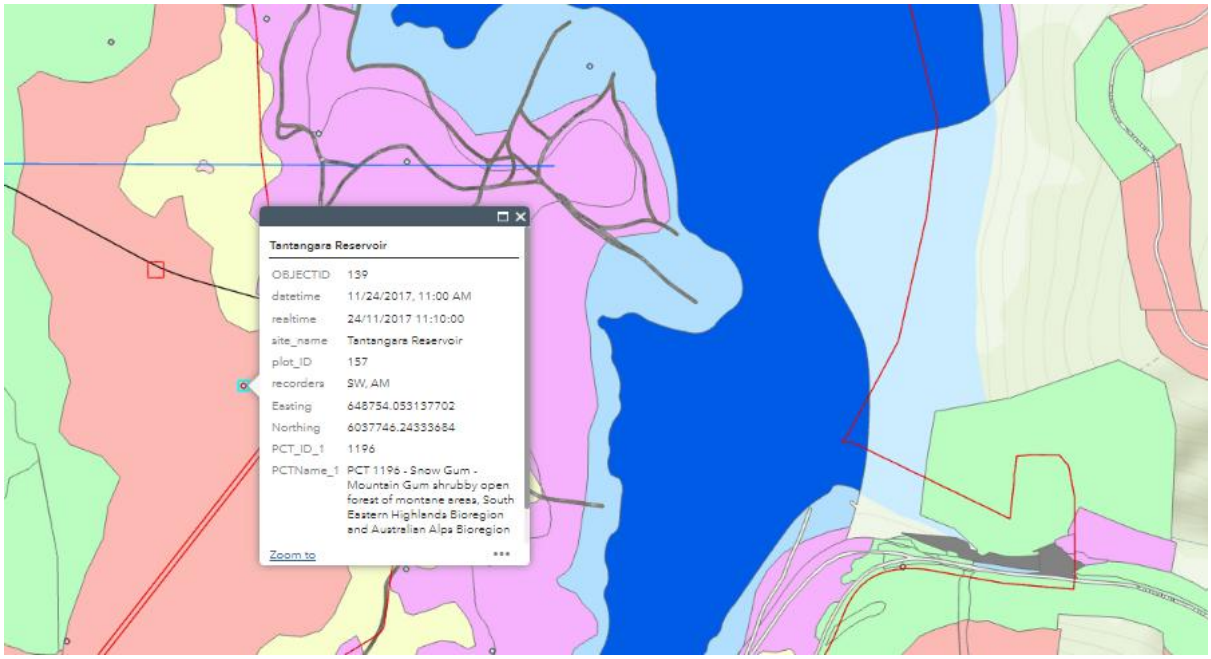


Figure A1 - PCT 1196 local reference site location

Table A6: Species cover and abundance PCT 1224 - Plot 308 - BDAR

Species	Growth form	Cover%	Abundance
Hovea montana	Shrub	12	100
Brachyscome decipiens Field Daisy	Forb	1	400
Scleranthus brockiei	Forb	0.2	100
Craspedia coolaminica	Forb	3	1000
Poa clivicola Fine leaved Snowgrass	Tussock Grass	20	1000
Plantago varia	Forb	0.6	300
Poa phillipsiana	Tussock Grass	25	600
Galium gaudichaudii Rough Bedstraw	Forb	0.1	10
Luzula densiflora Woodrush	Rush	0.4	300
Oreomyrrhis eriopoda Australian Carraway	Forb	0.1	40
Wahlenbergia densifolia Fairy Bluebell	Forb	0.1	100
Carex appressa Tall Sedge	Sedge	0.1	20
Solenogyne gunnii Solengyne	Forb	0.1	30
Cymbonotus sp.	Forb	0.2	60
Acaena sp. Hairy Sheeps Burr	Forb	0.2	200
Gingidia harveyana Slender Gingidia	Forb	0.1	10
Craspedia costiniana	Forb	0.1	10
Diuris monticola	Forb	0.1	10

Podolepis sp.	Forb	0.4	80
Hypericum gramineum Small St Johns Wort	Forb	0.1	20
Erigeron bellidioides	Forb	0.1	40
Oxalis perennans	Forb	0.1	50
Pimelea linifolia subsp. *linifolia*	Shrub	0.1	20
Picris angustifolia subsp. *merxmuelleri*	Forb	0.1	10
Euchiton involucratus Star Cudweed	Forb	0.1	40
Taraxacum aristum	Forb	0.2	40
Themeda triandra	Tussock Grass	0.4	80
Bunochilus sp.	Forb	0.1	4

Note - Green and yellow highlights indicate primary rehabilitation species

Figure A2 - PCT 1224 local reference site location

Table A7: Species cover and abundance PCT 1225 - Plot 123 - BDAR

Species	Growth form	Cover%	Abundance
Poa labillardierei	Tussock Grass	50	200
Poa clivicola	Tussock Grass	45	500
Trifolium repens	Introduced	2	500
Carex breviculmis	Sedge	0.1	20
Acrothamnus hookeri	Heath shrub	0.1	5
Cassinia monticola	Shrub	0.1	3
Taraxacum officinale	Introduced	0.1	30
Acetosella vulgaris	Introduced	0.1	50
Myosotis discolor	Introduced	0.1	30
Senecio gunnii	Forb	0.1	20
Cerastium glomeratum	Introduced	0.1	20
Juncus sp.	Rush	0.1	10
Cardamine astoniae	Forb	0.1	30
Hydrocotyle algida	Forb	0.2	300
Hypericum japonicum	Forb	0.1	50
Gonocarpus micranthus	Forb	0.1	100
Acaena novae-zelandiae	Forb	0.1	30
Luzula modesta	Rush	0.1	100
Senecio pinnatifolius var. *alpinus*	Forb	0.1	2
Carex gaudichaudiana	Sedge	0.1	30
Ranunculus graniticola	Forb	0.2	100
Aciphylla simplicifolia	Forb	0.1	30
Agrostis venusta	Tussock Grass	0.1	10
Carex appressa	Sedge	0.2	30
Carex inversa	Sedge	0.1	50
Viola betonicifolia	Forb	0.1	20
Oxalis perennans	Forb	0.1	10
Empodisma minus	Rush	2	50
Epilobium billardiereanum subsp. *hydrophilum*	Forb	0.1	20
Cymbonotus preissianus	Forb	0.1	2
Baloskion australe	Rush	0.1	10
Geranium antrorsum	Forb	0.1	40
Epacris microphylla	Heath shrub	0.1	1
Myosotis australis	Forb	0.1	10
**Leucochrysum albicans*	Forb	0.2	100

** Listed species - (EPBC Act - Endangered, BC Act - Endangered)*

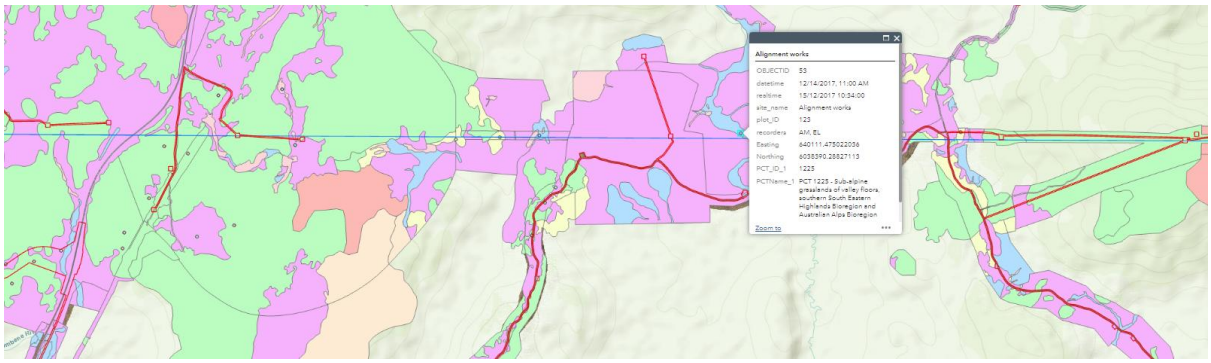


Figure A3 - PCT 1225 local reference site location

Table A8: Species cover and abundance PCT 303 - Plot 321 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus stellulata Black Sallee	Tree	25	6
Luzula densiflora Woodrush	Rush	0.1	60
Geranium potentilloides	Forb	0.2	100
Cirsium sp. Perennial Thistle	Introduced	0.1	20
Craspedia coolaminica	Forb	1	800
Galium gaudichaudii Rough Bedstraw	Forb	0.1	400
Poa clivicola Fine leaved Snowgrass	Tussock Grass	5	1000
Hypericum gramineum Small St Johns Wort	Forb	0.1	10
Themeda triandra	Tussock Grass	2	100
Cynoglossum australe	Forb	0.5	200
Collomia grandiflora	Introduced	0.1	10
Dichondra sp.	Forb	0.1	100
Scleranthus sp.	Forb	0.1	50
Tragopogon sp. Goatsbeard	Introduced	0.1	4
Plantago euryphylla	Forb	0.2	100
Cymbonotus sp.	Forb	0.2	20
Pimelea linifolia Slender Rice Flower	Shrub	0.1	20
Podolepis jaceoides Showy Copperwire Daisy	Forb	0.6	100
Trifolium dubium Yellow Suckling Clover	Introduced	0.1	50
Ajuga australis Austral Bugle	Forb	0.1	10
Asperula conferta Common Woodruff	Forb	0.1	10
Stellaria pungens Prickly Starwort	Forb	0.1	10
Poa sieberiana var. *cyanophylla*	Tussock Grass	1	200

Note - Green and yellow highlights indicate primary rehabilitation species

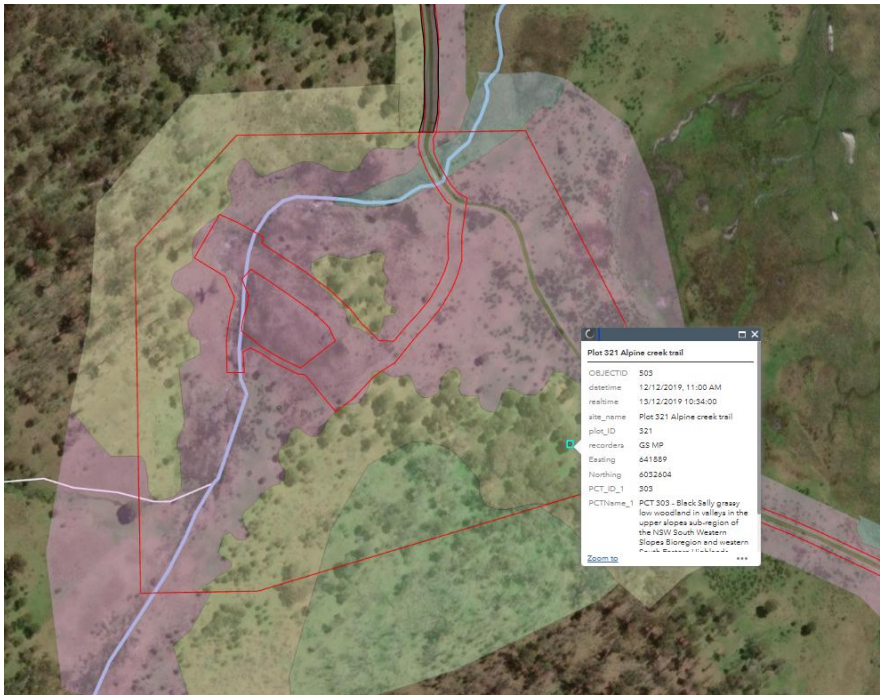


Figure A4 - PCT 303 local reference site location

Table A9 Species cover and abundance PCT 637 - Plot 204 – BDAR

Species	Growth form	Cover%	Abundance
Poa labillardieri	Tussock Grass	90	1000
Geranium sp.	Forb	0.2	80
Epacris glacialis	Heath shrub	0.1	1
Epilobium gunnianum	Forb	0.2	50
Myriophyllum pedunculatum	Forb	0.3	100
Sonchus sp.	Forb	0.1	20
Veronica subtilis	Forb	0.1	10
Oreomyrrhis eriopoda	Forb	0.1	20
Senecio gunnii	Forb	0.1	10
Juncus australis	Rush	0.2	10
Anthoxanthum odoratum	Introduced	0.2	30
Cerastium glomeratum	Introduced	0.1	10

Ozothamnus secundiflorus	Shrub	0.1	1
Holcus lanatus	Introduced	0.1	10
Ranunculus millanii	Forb	0.3	100
Poa costiniana	Tussock Grass	0.2	50

Note - Green and yellow highlights indicate primary rehabilitation species

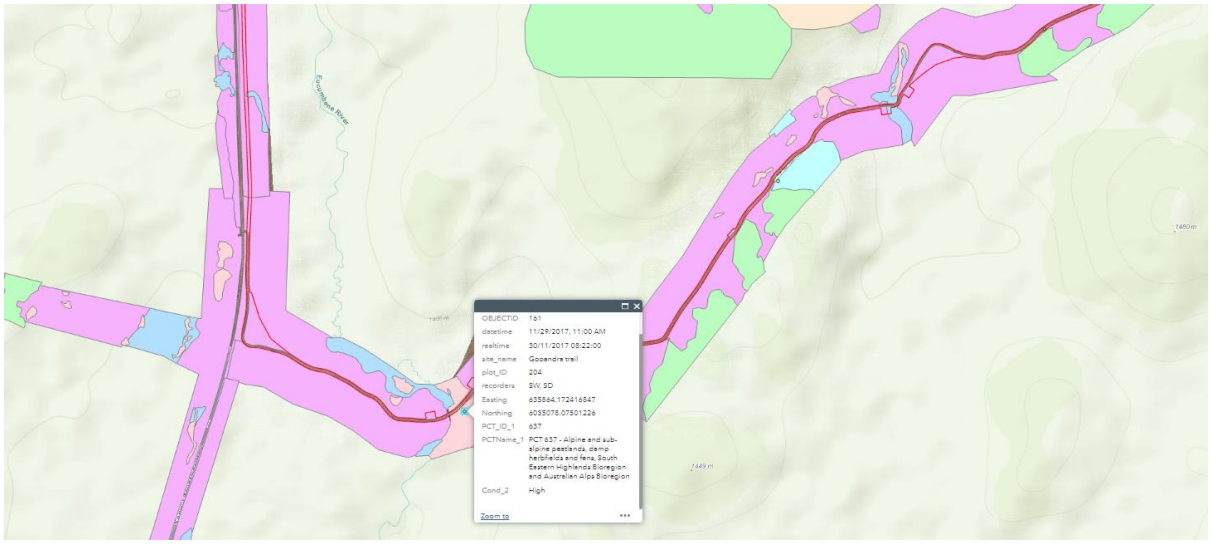


Figure A5 - PCT 637 local reference site location

Table A10 Species cover and abundance PCT 644 Plot 212 - BDAR

Species	Growth form	Cover%	Abundance
Eucalyptus pauciflora	Tree	2	30
Anthoxanthum odoratum	Introduced	5	1000
Poa sieberiana var. *sieberiana*	Tussock Grass	20	1000
Arthropodium milleflorum	Forb	1	300
Scleranthus biflorus	Forb	0.5	50
Chrysocephalum semipapposum	Forb	5	500
Acrothamnus hookeri	Heath shrub	0.1	10
Wahlenbergia gloriosa	Forb	0.1	50
Trifolium repens	Introduced	0.1	10
Hypericum gramineum	Forb	0.1	1
Acetosella vulgaris	Introduced	0.6	100
Centaurium erythraea	Introduced	0.1	10
Grevillea lanigera	Shrub	1	30
Epilobium billardiereanum subsp. *cinereum*	Forb	0.1	40
Solenogyne gunnii	Forb	0.4	50
Geranium antrorsum	Forb	0.1	20
Dichondra repens	Forb	0.1	50
Medicago lupulina	Introduced	0.1	20
Holcus lanatus	Introduced	0.2	40
Oreomyrrhis eriopoda	Forb	0.1	10
Taraxacum officinale	Introduced	0.6	500
Asperula scoparia	Forb	0.5	100
Acaena novae-zelandiae	Forb	0.5	100
Geranium solanderi	Forb	0.2	40
Cirsium vulgare	Introduced	0.1	5
Themeda triandra	Tussock Grass	0.2	50
Stylidium graminifolium	Forb	0.1	10
Coronidium scorpioides	Forb	0.1	10
Daviesia ulicifolia	Shrub	0.2	10
Cassinia aculeata	Shrub	0.3	1
Eucalyptus rubida	Tree	0.3	1
Xerochrysum subundulatum	Forb	0.1	10
Plantago gaudichaudii	Forb	0.1	3
Mirbelia oxylobioides	Shrub	0.2	10
Hakea microcarpa	Shrub	0.2	2

Cymbonotus lawsonianus	Forb	0.1	20
Senecio gunnii	Forb	0.1	20
Cerastium vulgare	Introduced	0.1	1
Myosotis australis	Forb	0.1	1
Eucalyptus stellulata	Tree	0.5	3
Bulbine bulbosa	Forb	0.1	20
Stellaria pungens	Forb	0.1	20
**Calotis glandulosa*	Forb	0.1	1
Olearia myrsinoides	Shrub	0.1	1
Discaria pubescens	Shrub	0.1	1
Calotis scabiosifolia var. *integrifolia*	Forb	0.1	1

**Listed Species - (EPBC Act - VU , BC Act - V)*

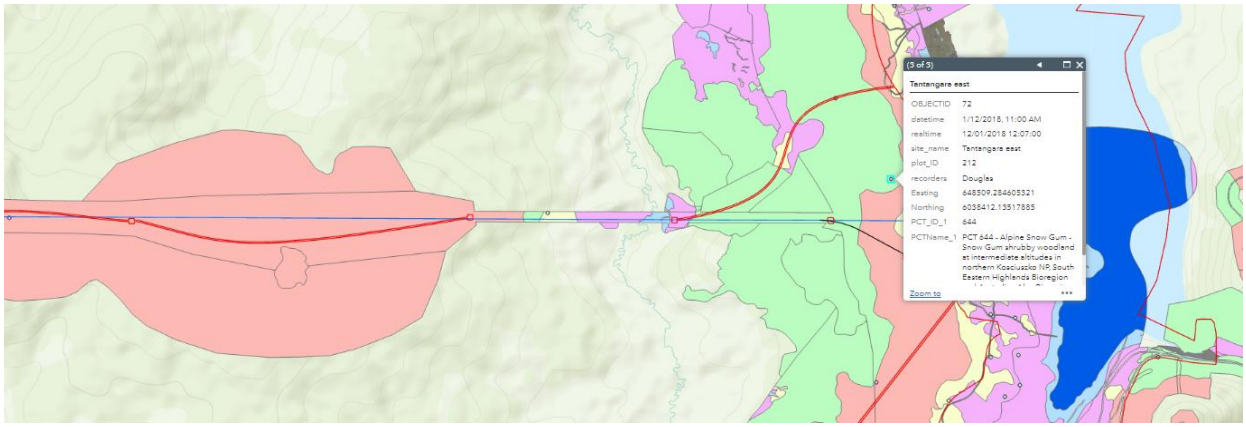


Figure A6 - PCT 644 local reference site location

Appendix B – Individual Rehabilitation areas

SMH to Ecumbene River

Pre Construction Aerial

Figure B1 - SMH to Eucumbene River – Area – 1900m2

Earthworks –

- Bridge removed – Gabion to be retained on both sides – geofabric material removed
- Formed track approximately 750m3 of gravel and weed wash to be removed – Stockpile made available for NPWS
- Surplus topsoil from local stockpiles to be applied and surface compaction relieved
- Large boulders which were removed prior to works commencing, be reinstalled to address public access

Figure B2 - Pre-rehabilitation aerial - SMH to Eucumbene River

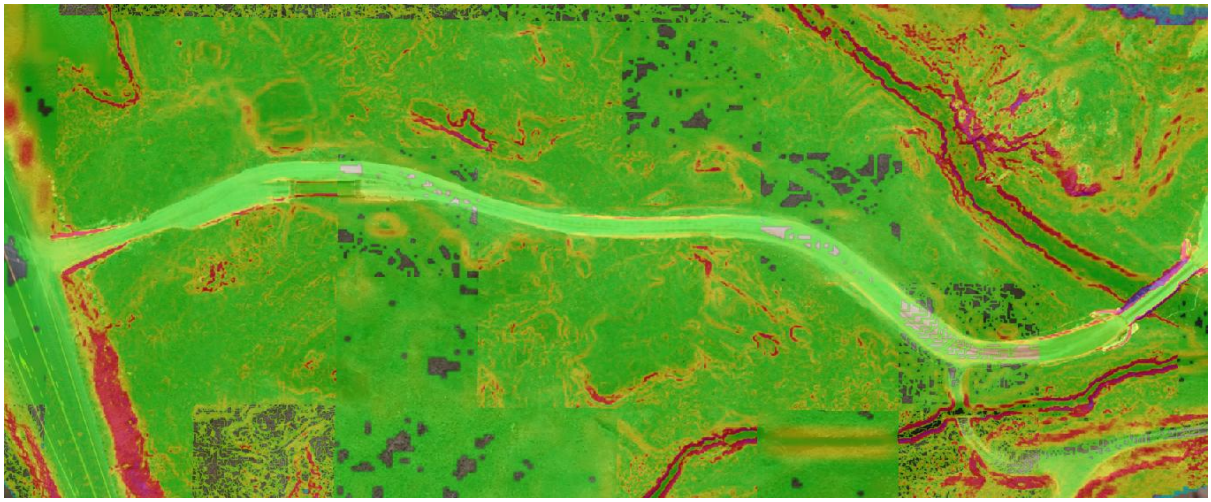


Figure B3 - Gradient Mapping - SMH to Eucumbene River Less than 33% - No additional erosion features required

Less than 33% - No additional erosion features required

Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 Table B4)

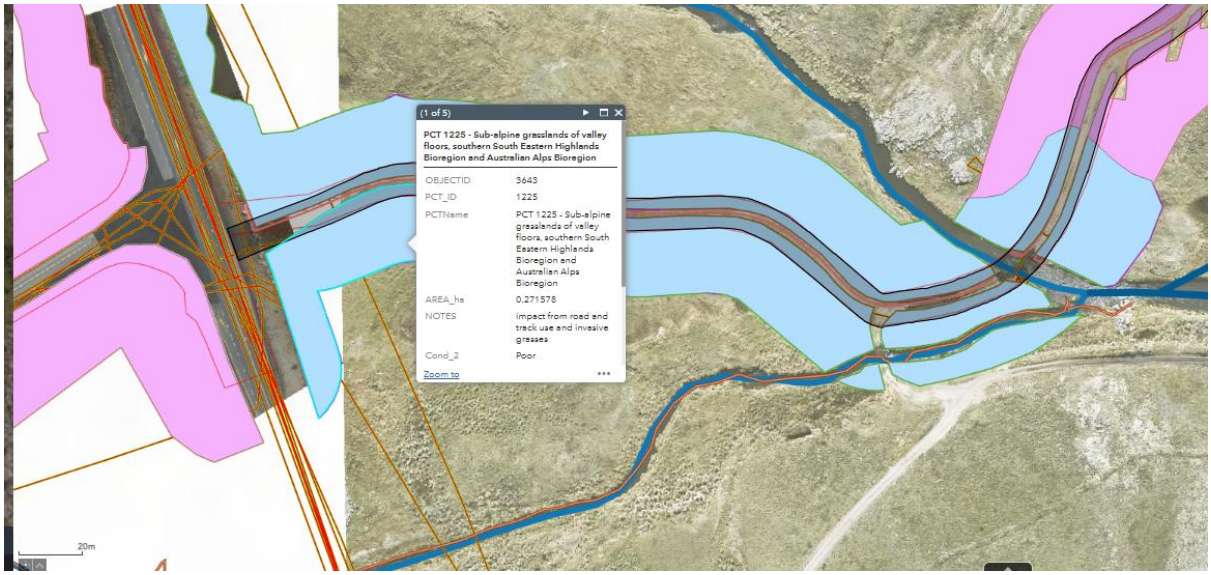


Figure B4 - PCT Mapping - PCT 1225

Table B1: Tube stock species SMH to Eucumbene River

PCT	Priority Species	Number for site
1225	*Poa clivicola*	500
1225	*Poa labillardierei*	200

Figure B5 - Eucumbene River PCT 637 (Alpine bogs and fens)/1225 (>40m^2)

This site will be sown and planted with primary species on the batters and in the disturbed areas of the waterway zone. All species selected for the first pass of rehabilitation are considered primary species for this PCT. This site will be monitored, and additional planting and sowing will be done with secondary species as part of the rehabilitation and maintenance program. This site will use a mix of primary species from PCT's 637 , 1225 and 1224 in the rehabilitation.

Alpine bogs and fens will be rehabilitated using techniques described in The Australian Alps Rehabilitation Manual 2006 and guided on ground by a suitable Alpine rehabilitation specialist.

Table B2 outlines the primary species to be planted around the waterway as tubestock. Trees are to be planted approximately 3 metres apart with shrubs planted 1-2 metres apart

Table B2: Tube stock species - Eucumbene River

Botanical Name	Common Name	Number of tubestock	Notes
Carex appressa	Tall Saw Sedge	20	Sow in riparian zone
Carex Gaudichaudiana	Fen Sedge	10	Sow in riparian zone
Poa labillardierei	Tall Tussock Grass	30	Sow in riparian zone
Poa costiniana	Prickly Snow Grass	20	Sow in riparian zone

Passing Bay 1- Area - 207 m^2

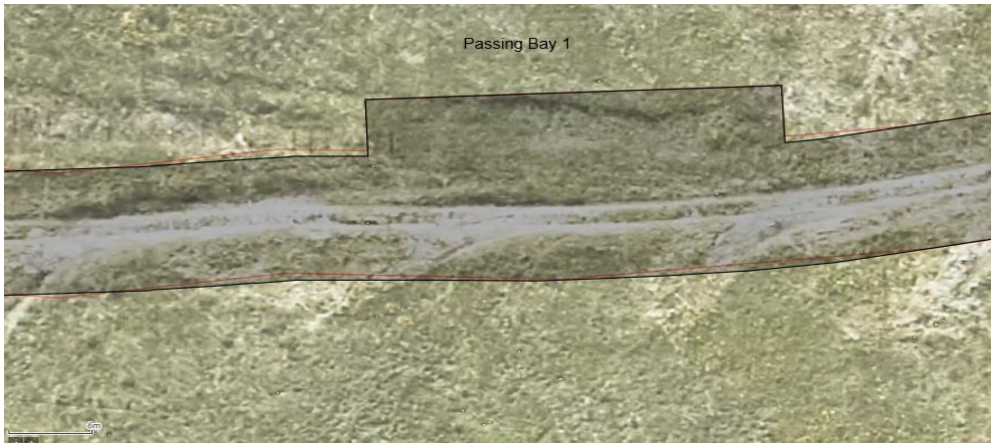


Figure B6 - Pre construction aerial

Earthworks status –

- Surplus topsoil from local stockpiles to be applied and surface & compaction relieved

Figure B7 - Pre-rehabilitation aerial

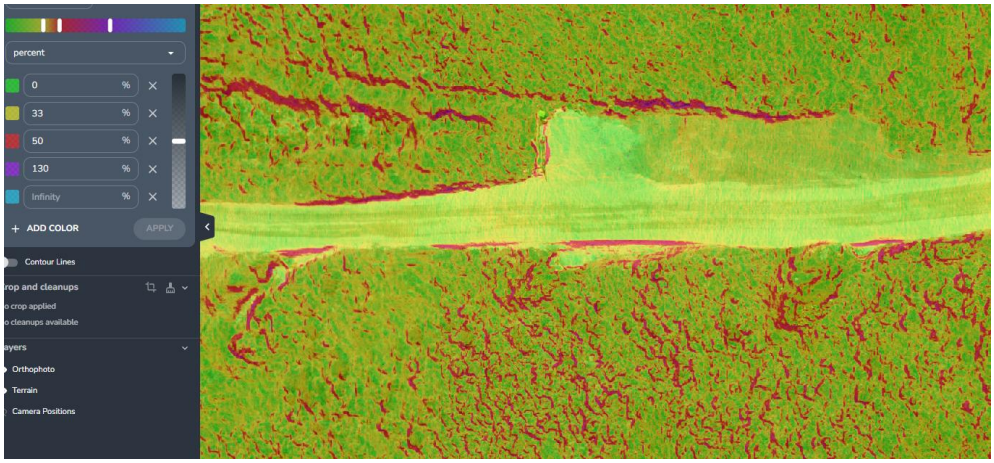


Figure B8 - Gradient Mapping

Gradient less than 33% - Class E slope – No additional slope breaks required

Cover–Straw mulched with native seed (see Section 5.2)

Vegetation – Native seed and tube stock - see Table B3

Table B3: Tube stock species - Passing Bay 1

PCT	Priority Species	Number for site
1224	*Poa clivicola*	25
1224	*Poa labillardierei*	10
1224	*Hovea montana*	5

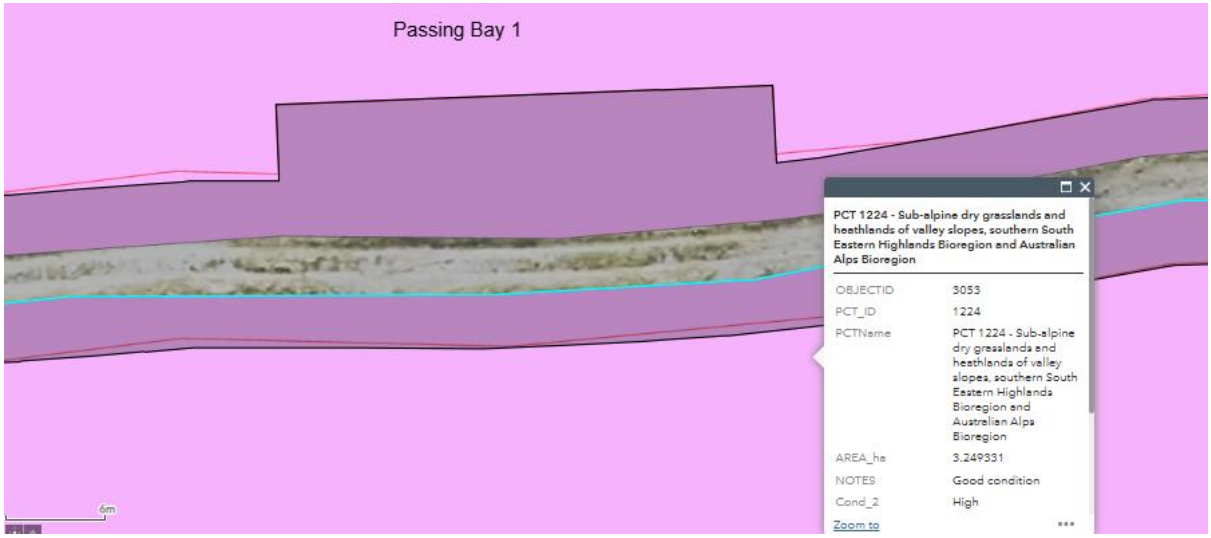


Figure B9 - PCT Mapping - 1224

Passing Bay 2 - Area – 496 m^2

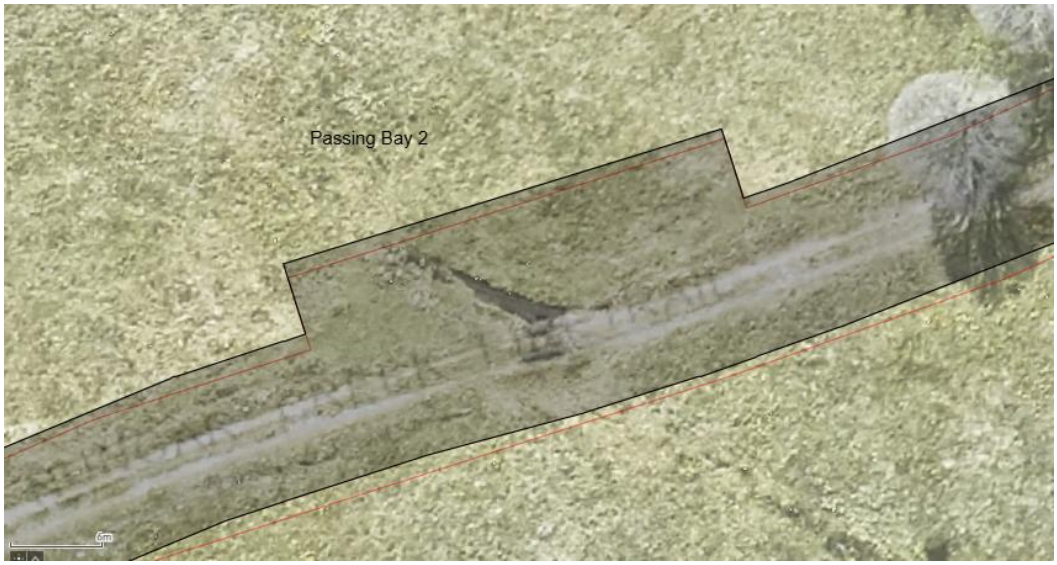


Figure B10 - Pre-Construction Aerial

Earthworks status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

Figure B11 - Pre-rehabilitation aerial

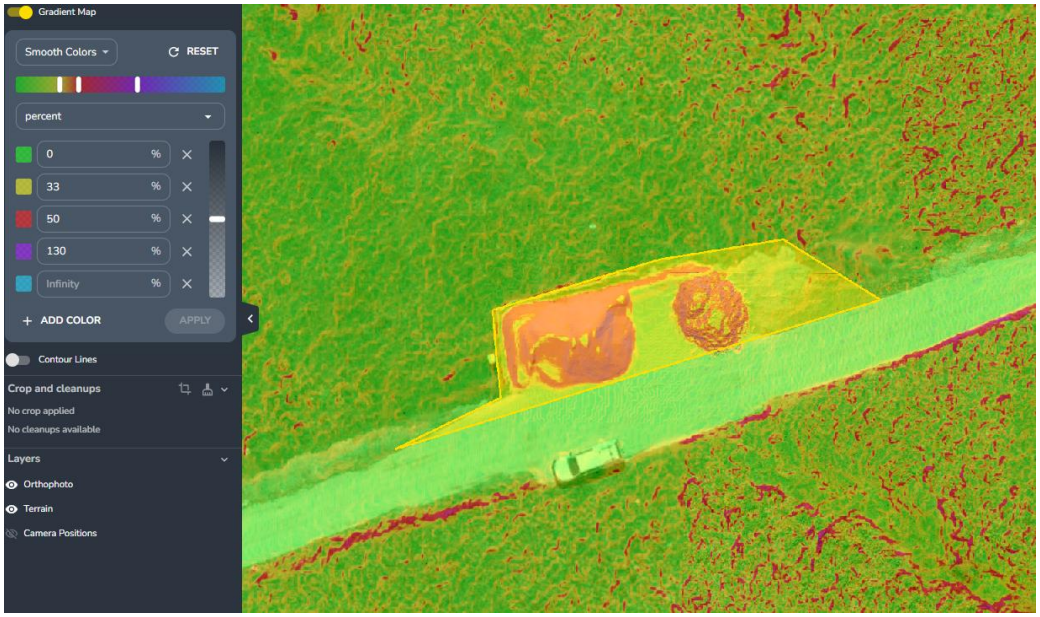


Figure B12 - Gradient Mapping

Gradient Less than 3% - Class E slope excluding stockpile to be removed

Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 and Table B4)

Table B4: Tube Stock Species - Passing Bay 2

PCT	Priority Species	Number for site
1224	*Poa clivicola*	50
1224	*Poa labillardierei*	20
1224	*Hovea montana*	10

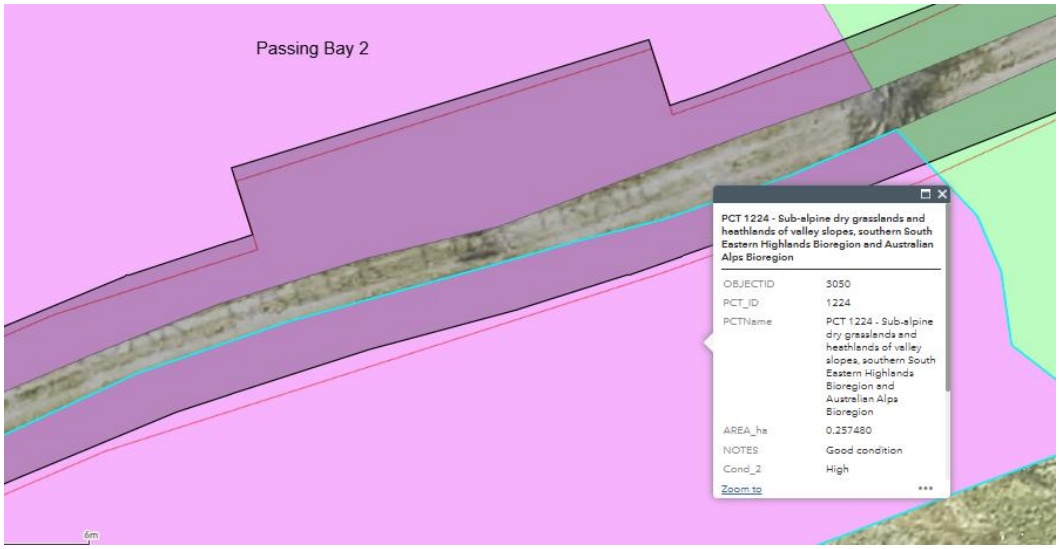


Figure B13 - PCT Mapping - 1224

Passing Bay 3 - Area – 266 m^2

Figure B14 - Pre construction aerial for Passing Bay 3

Earthworks status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

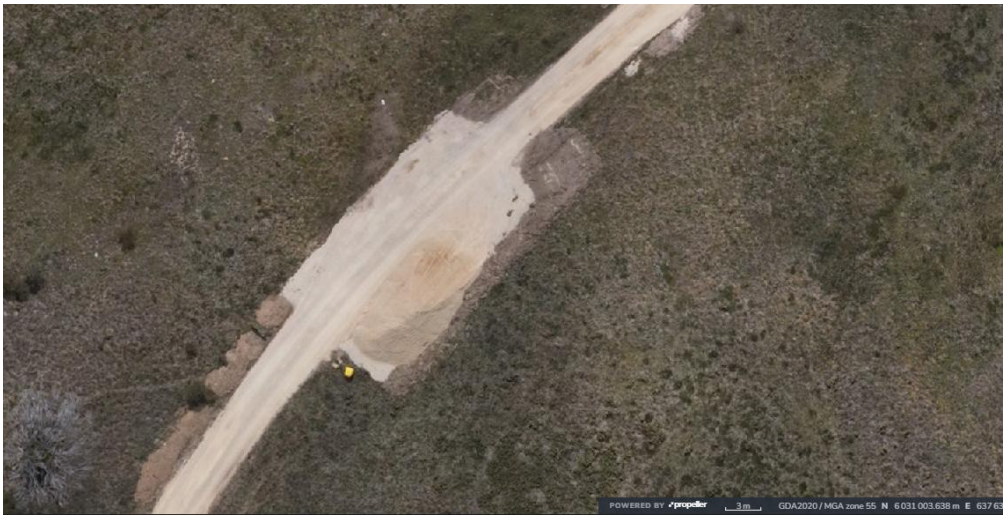


Figure B15 - Pre-rehabilitation aerial for Passing Bay 3

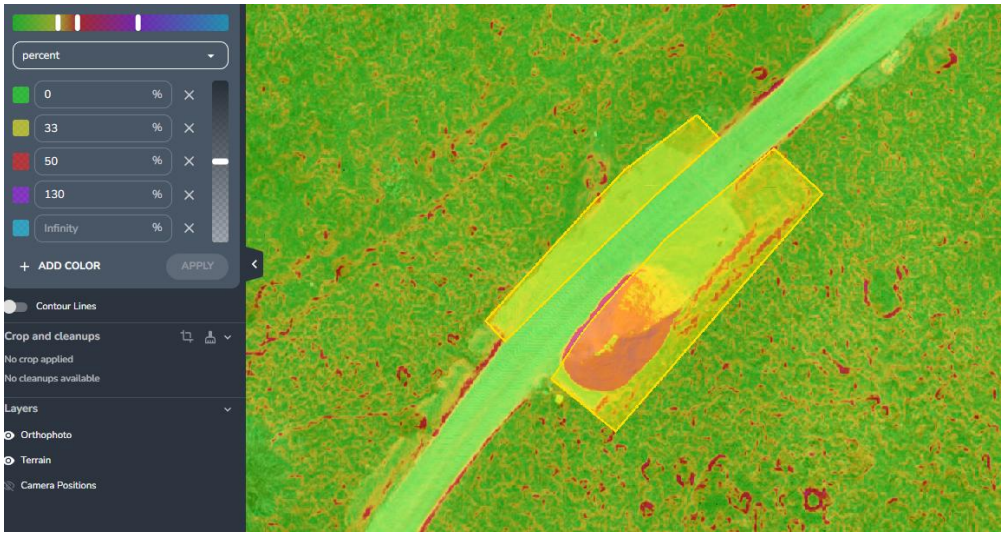


Figure B16 - Gradient Mapping

Gradient less than 33% no additional controls required

Cover – Straw mulched with native seed (see Section 5.2)

Vegetation – Initial tubestock planting **–** see Table B5

Table B5: Tube Stock Species - Passing Bay 3

PCT	Priority Species	Number for site
1224	*Poa clivicola*	25
1224	*Poa labillardierei*	10
1224	*Carex appressa*	2
1224	*Hovea montana*	5
644	*Eucalyptus pauciflora*	2
644	*Hakea microcarpa*	2

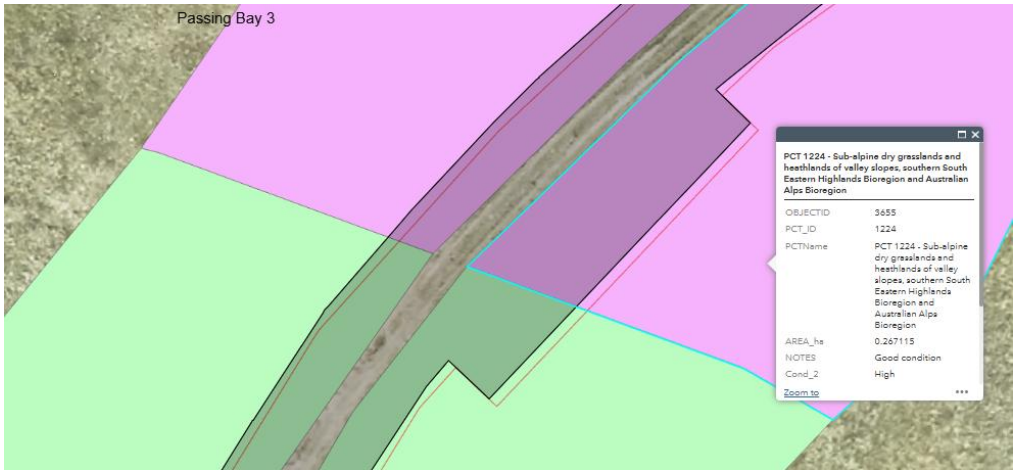


Figure B17 - PCT Mapping - 1224 & 644

Passing Bay 4 - Area – 500 m^2

Earthworks status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

Figure B18 - Pre construction aerial

Figure B19 - Pre-rehabilitation aerial

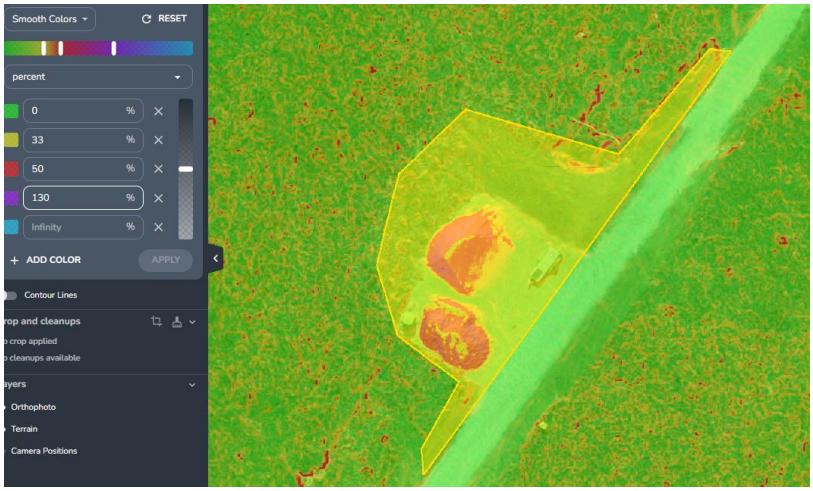


Figure B20 - Gradient Mapping

Gradient less than 33% no further treatment

Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 and Table B6)

Table B6: Tube Stock Species - Passing Bay 4

PCT	Priority Species	Number for site
1224	*Poa clivicola*	25
1224	*Poa labillardierei*	10
1224	*Carex appressa*	2
1224	*Hovea montana*	5

Figure B21 - PCT Mapping - 1224

Passing Bay 5 - Area – 220 m^2

Earthworks status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

Figure B22 - Pre construction aerial

Figure B23 - Pre-rehabilitation aerial

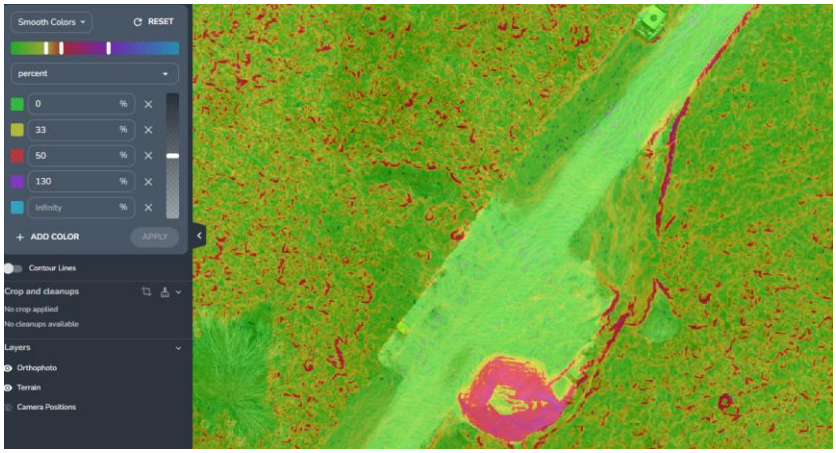


Figure B24 - Gradient Mapping

Gradient less than 33% no additional treatment

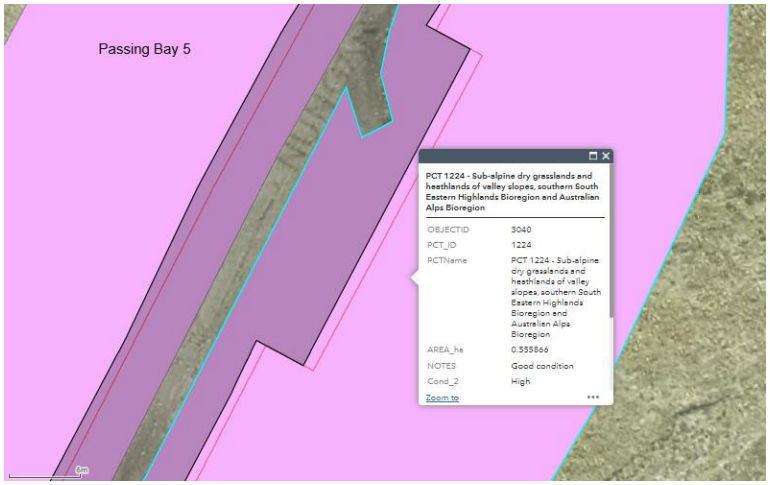
Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 Table B7)

Table B7: Tube Stock Species - Passing Bay 5

PCT	Priority Species	Number for site
1224	*Poa clivicola*	25
1224	*Poa labillardierei*	10
1224	*Carex appressa*	2
1224	*Hovea montana*	5

Figure B24 - PCT Mapping - 1224



Passing Bay 6 - Area – 210 m^2

Earthworks status – Complete

Figure B25 - Pre construction aerial

Figure B25 - Pre-rehabilitation aerial

Current Status - Cut infilled to natural level, topsoiled and seeded with rock lined drain installed to manage surface water from roll over. Cut on eastern side of road still requires reshaping upon completion of works

Figure B26 - Post Topsoil application

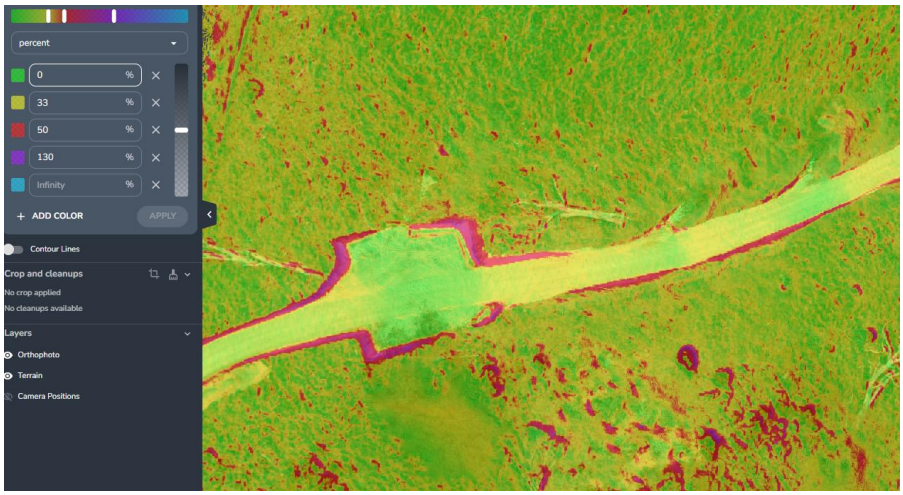


Figure B27 - Gradient Mapping

Batters originally 50 – 130% see below, now less than 33% straw mulch applied and rock armour at base of stockpile

Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 and Table B8)

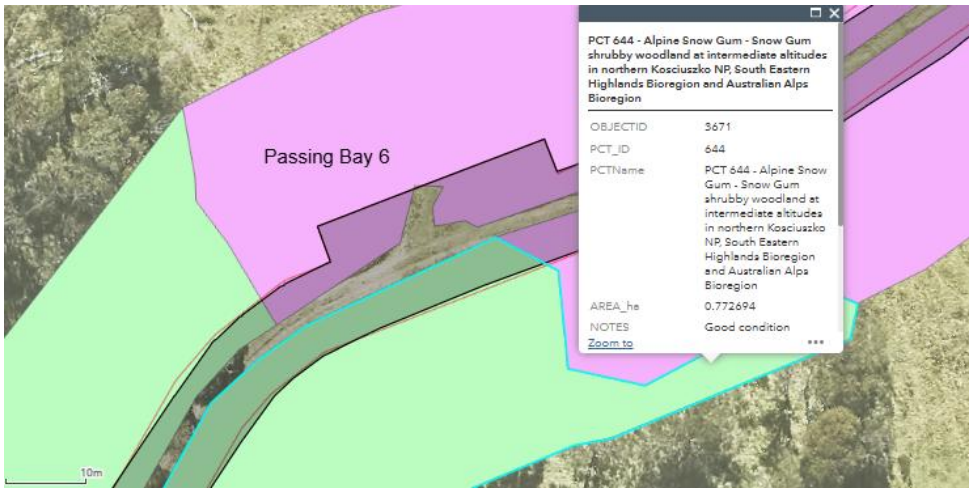
Table B8: Tube Stock Species - Passing Bay 6

PCT	Priority Species	Number for site
644	*Acaena novae-zelandiae*	5
644	*Eucalyptus pauciflora*	2
644	*Bulbine bulbosa*	8
1224	*Poa labillardierei*	10
1224	*Carex appressa*	6

PCT	Priority Species	Number for site
1224	*Carex gaudichaudiana*	6
1224	*Hovea montana*	5

Figure B28 - PCT Mapping - 1224

Figure B29 - PCT Mapping - 644



Passing Bay 7 - Area – 275m^2

Earthworks status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

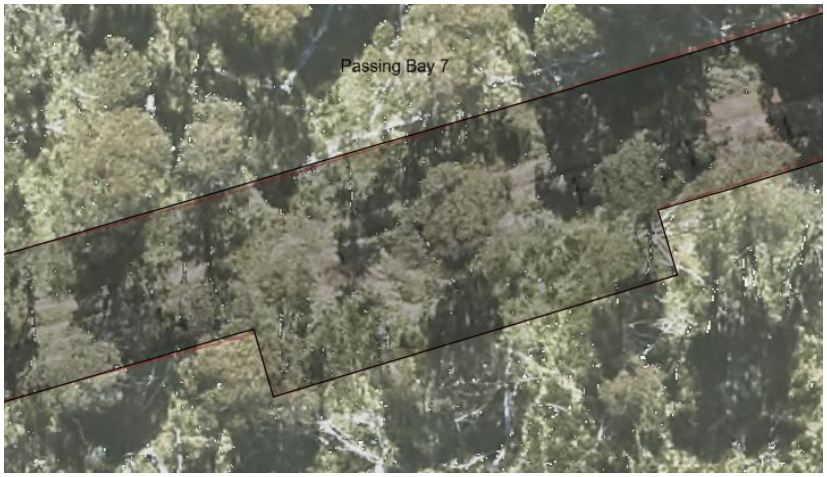


Figure B30 - Pre Construction Aerial

Figure B31 - Pre-rehabilitation aerial

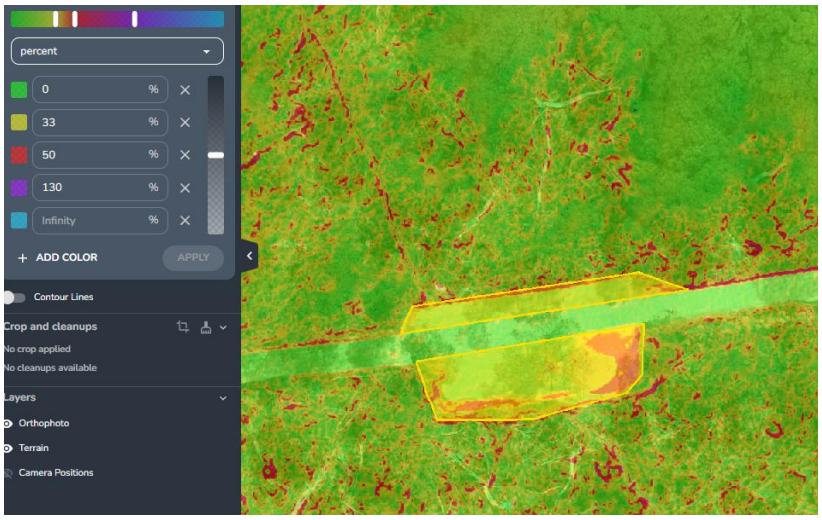


Figure B32 - Gradient Mapping

Gradient less than 33% no further treatment

Cover –Straw mulch with native seed (see Section 5.2).

Vegetation – Initial tubestock planting – (see Section 4.2 and Table B9)

Table B9: Tube Stock Species - Passing Bay 7

PCT	Priority Species	Number for site
644	*Acaena novae-zelandiae*	5
644	*Eucalyptus pauciflora*	20
644	*Daviesia ulicifolia*	4
644	*Bulbine bulbosa*	8
644	*Poa sieberiana*	20

Figure B34 - PCT Mapping - 644

Passing Bay 8 - Area – 190m^2

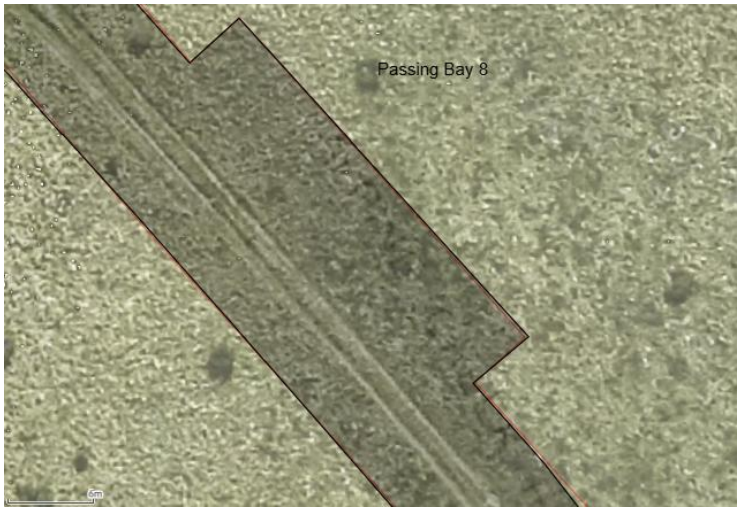


Figure B35 - Pre Construction Aerial

Earthworks Status –

- Stockpiles removed
- Passing bay size reduced, topsoil to be applied and surface compaction relieved

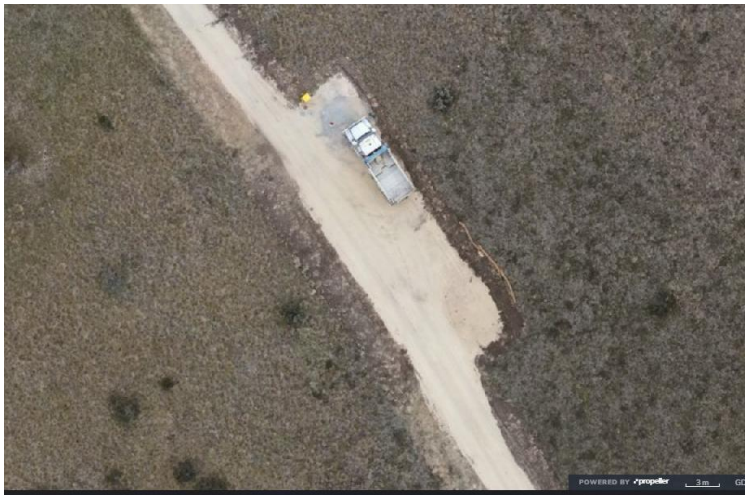


Figure B36 - Pre-rehabilitation aerial

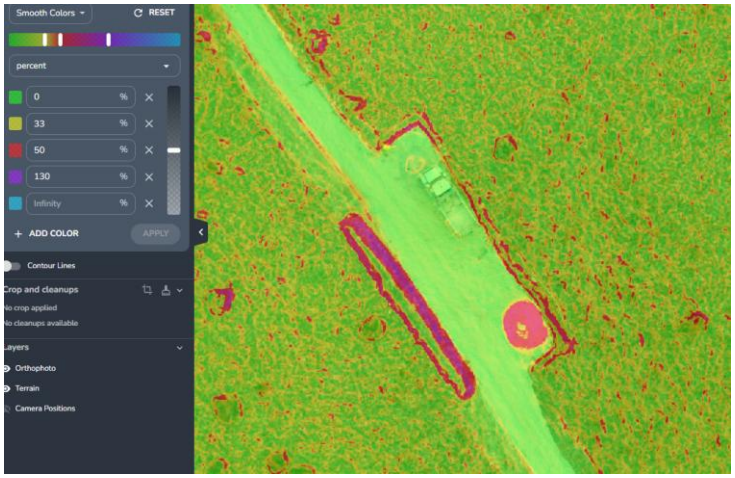


Figure B37 - Gradient Mapping

Gradient less than 33% excluding stockpiles no further treatment

Cover– complete - Hydromulched with native seed (see Section 5.2)

Vegetation – Initial tubestock planting – see (see Section 4.2 and Table B10)

Table B10: Tube Stock Species - Passing Bay 8

PCT	Priority Species	Number for site
1224	Poa Clivicola	20
1224	Poa labillardierei	8
1224	Carex appressa	2
1224	Hovea Montana	4

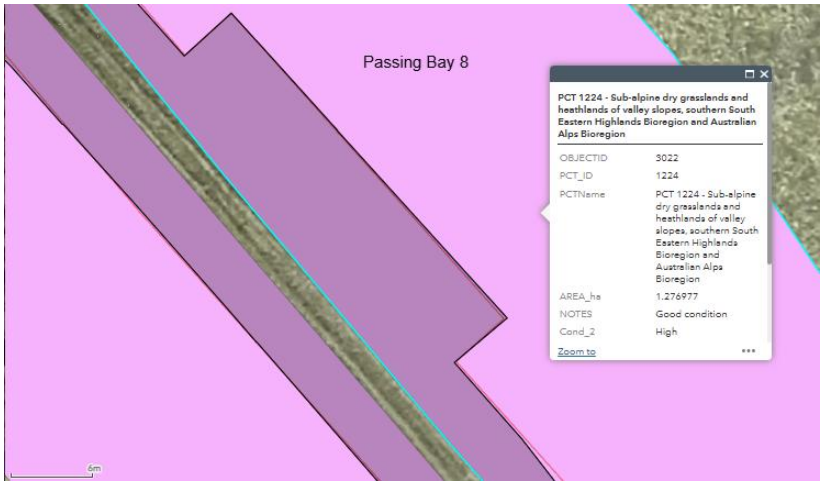


Figure B38 - PCT Mapping - 1224

Fish Weir and Laydowns - Area Max 8000 m^2

current disturbance footprint: 4322m^2

Earthworks Required —

- Construction equipment and materials removed from site
- Any potentially contaminated soil removed and disposed of appropriately
- Stockpiles removed
- Landform reinstated to natural levels
- Surplus topsoil to be applied and surface compaction relieved
- Undulating surface roughness maintained

Figure B39 - Fish Weir and site laydown

Figure B40 - Pre-rehabilitation aerial

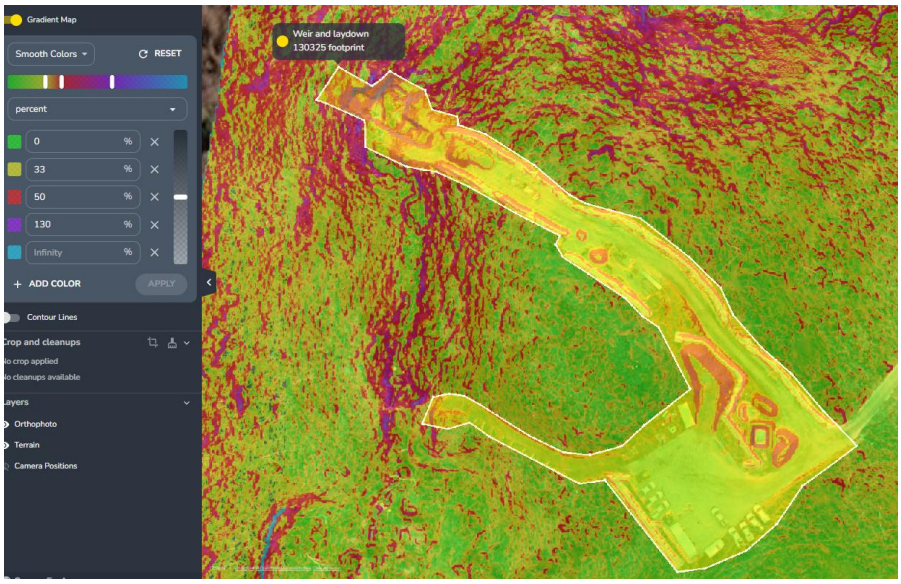


Figure B41 - Gradient Mapping

Gradient less than 33% for majority of laydown with access to the weir less than 50 (%. This area will require some slope breaks in the form of coir logs no more than 5 metres apart).

For the small area between the weir structure and vegetation where the slope is 50- 130% local rock is to be used to control potential erosion.

Cover – Native seed & Straw mulch disturbed area (see Section 5.2)

Habitat Features – Any stockpiled rocks and logs to be reinstated to provide fauna shelter and niches for vegetation growth.

Vegetation –Initial tubestock planting **–** (see Section 4.2 and Table C11).

Table C11: Tube Stock - Laydown and weir access

PCT	Priority Species	Number for site
303	*Eucalyptus stellulata*	5
1224	*Hakea microcarpa*	200
1224	*Hovea montana*	200
1224	**Luzula densiflora* Woodrush	100
1224	*Poa phillipsiana*	300
1224	*Poa clivicola*	500

*****If available

Figure B42 - Pre-rehabilitation aerial

Riparian Zone – Surrounding Fish Weir

Works Required

- Removal of concrete plug and temporary stream diversion including pipes, sandbags and straw bales
- Locally sourced rock to provide erosion protection between the weir structure vegetation
- Native seed and Straw bales to be spread on disturbed areas

Vegetation - Planting at 4 per metre- area to be assessed after final works for final quantity - Likely

Table C12: Tube Stock Species - Fish Weir Surrounds

PCT	Priority Species	Number per 50m2
1224	*Carex appressa*	50
1224	*Carex gaudichaudiana*	60
1224	*Poa costiniana*	50
1224	*Poa clivicola*	20
1224	*Poa labillardierei*	17
1224	*Hakea microcarpa*	3

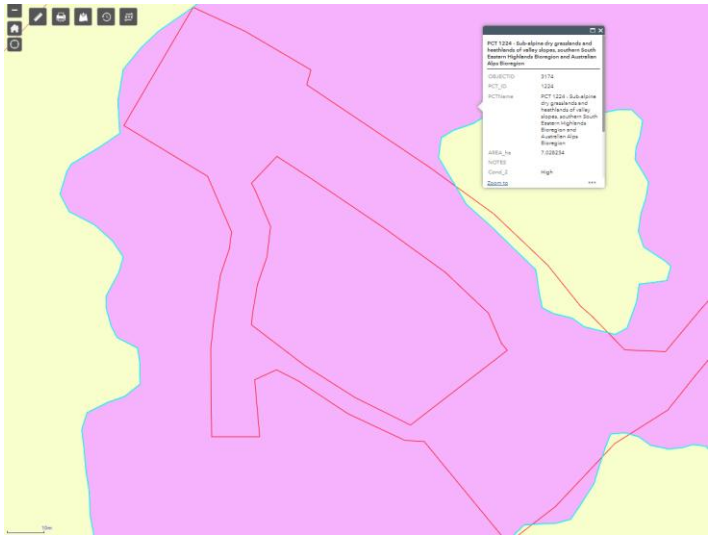


Figure B43 - PCT Mapping - 1224

Appendix C – Passing Bay and Water Way Locations

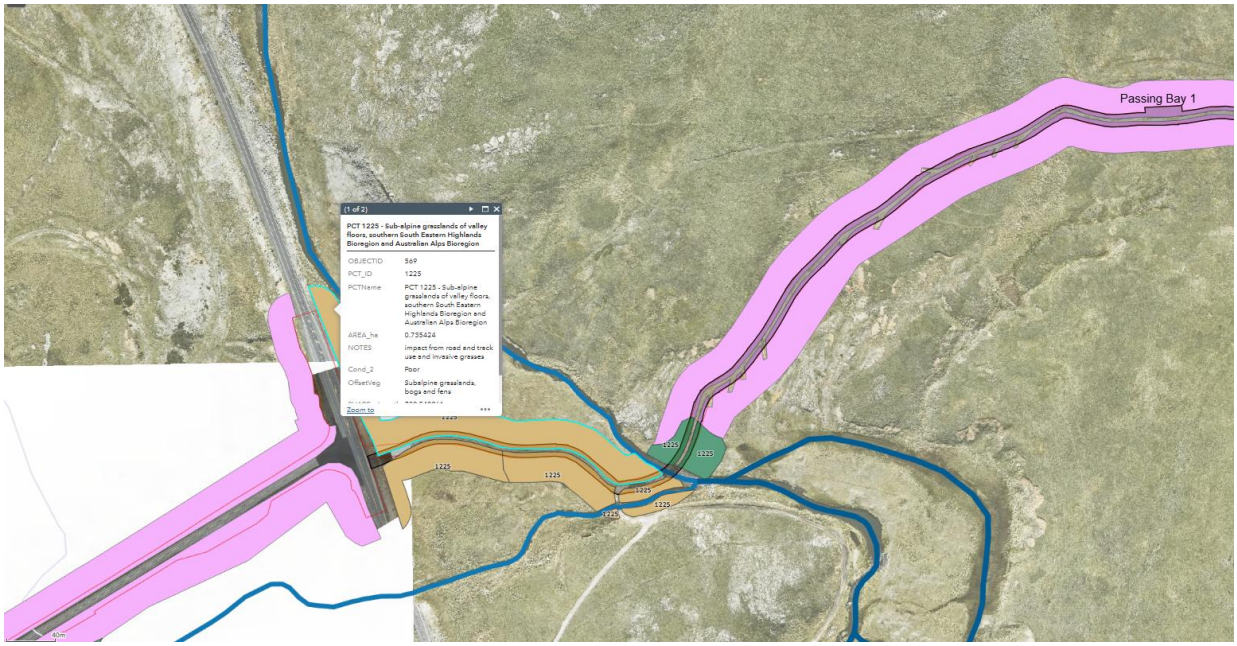


Figure C1 - Eucumbene River location and - PCT's

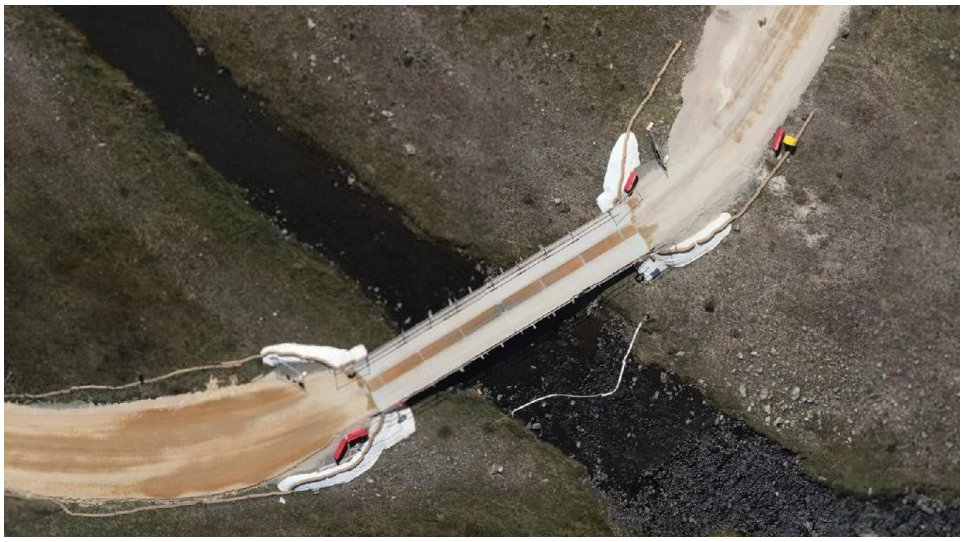


Figure C2 - Eucumbene River

Figure C3 - Hayes Gully location and PCT's

Figure C4 - Hayes Gully

Figure C5 - Passing Bay 2 to Passing Bay 3 location and PCT's

FIgure C6 - Unnamed water course after Passing Bay 3 location and PCT's

Figure C7 - Unnamed water course after Passing Bay 3

Figure C7 - Chance Creek location and PCT's

Figure C8 - Chance Creek

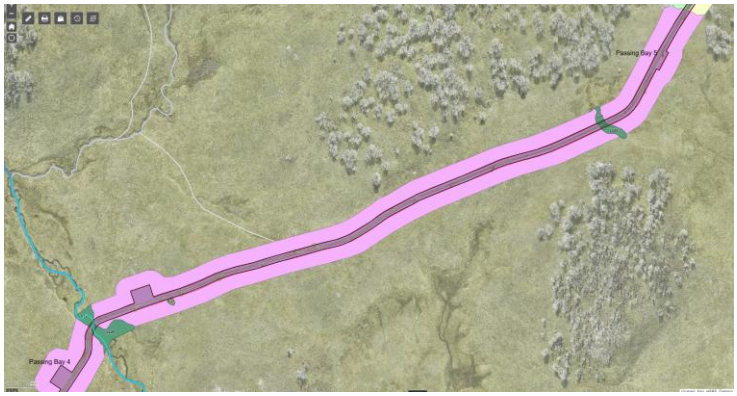


Figure C9 - Chance Creek to Passing Bay 5 location PCT's

Figure C10 - Passing Bay 6 to Kiandra Creek location and PCT's

Figure C11 - Kiandra Creek

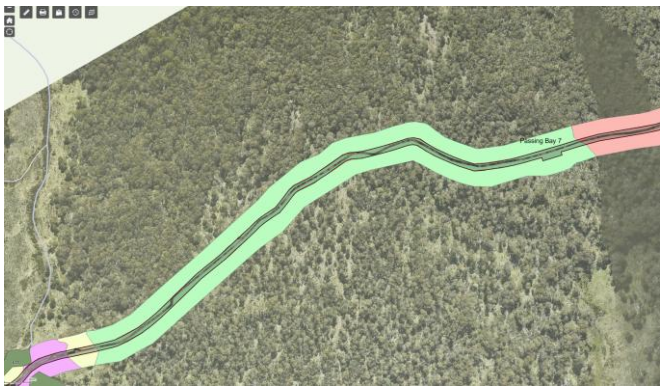


Figure C12 - Kiandra Creek to Passing Bay 7 location and PCT's

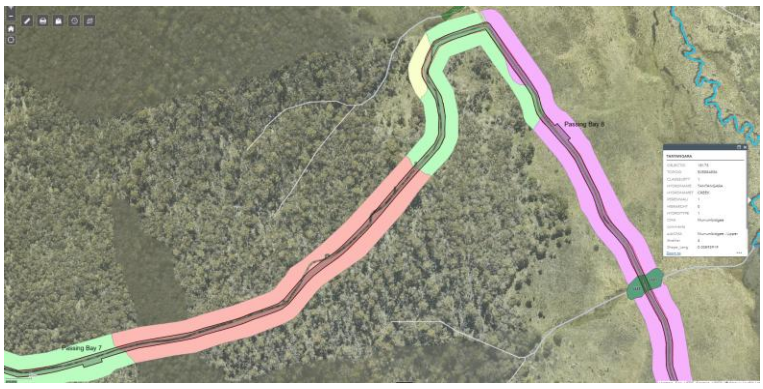


Figure C13 - Passing Bay 7 to Passing Bay 8 and Tantangara Creek location and PCT's

Figure C14 - Tantangara Creek

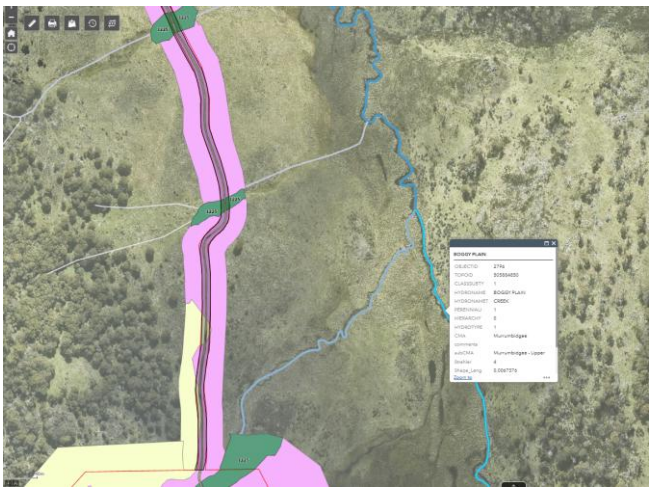


Figure C15 - Tantangara Creek to Weir Site Laydown location and PCT's

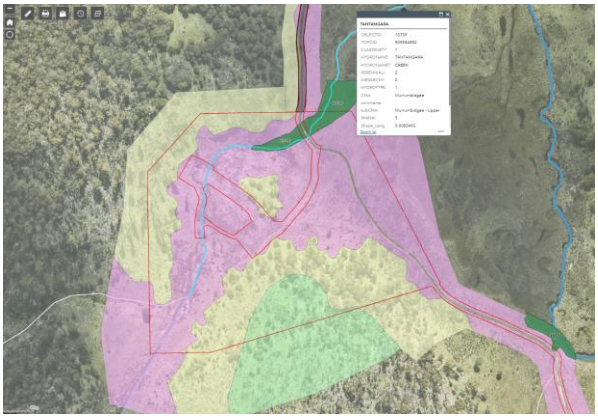


Figure C16 - Weir Site Laydown location and PCT's

Appendix D – Quarterly Observation Monitoring Form

1. **Site Name**
2. **Date:**
3. **Person completing inspection:**
4. **Weather conditions:**
5. **Site Access:**

- Site accessible for monitoring
- Access requires action
- Access not in place - Action required
- Access control in place to prevent unauthorised access
- Agreed signage in place

Comments

Action

6. **Photo monitoring points established and functional**
    - Yes
    - No - Action required
    - Other

    Comments

    Action

7. **Landform Stabilitability / Erosion**
    - No erosion present
    - Minor surface erosion less than growth medium depth
    - Minor erosion less than 300 mm - Action required
    - Major erosion more than 300 mm - Immediate action required
    - Sediment not controlled leaving area - Immediate action required

    Comments

    Action

8. **Bare Ground / Ground Cover (excluding rocks and logs)**
    - No bare ground
    - Bare ground - less than 5%
    - Minimal bare ground - less than 15% - Monitor
    - Bare patches - Between 15 and 30% - Action required
    - Bare patches - over 30% - Action required

    Comments

    Action

9. **Vegetation Health**
    - Minimal germination following direct seeding - Action required
    - Minimal mortality / sickness observed - Less than 5%
    - Mortality / sickness 5 - 20% - Action required
    - Mortality / sickness more than 20% - Action required

    Comments

    Action

10. **Weeds**
    - No weeds presents
    - Individuals weeds present - Action required
    - Weed infestation present - Action required
    - Colonising weeds of area present - Action required

    Comments

    Action

11. **Pests**
    - No evidence of pest species observed
    - Presence observed minimal impact - no impact to rehabilitation
    - Pest species causing damage to rehabilitation - Action required

    Comments

    Action

12. **Hydrological Integrity and function of bogs and fens (if applicable)**
    - Not applicable to area
    - No issue
    - Incision forming - Action required
    - Potential drying of bog identified - Action required

    Comments

    Action

13. **Waterways and drainage lines**
    - No issue
    - Bank erosion observed - Action required
    - Sedimentation observed - Action required

    Comments

    Action

14. Human Interference

- Wheel tracks
- Litter

Comments

Action

*Observational monitoring will be completed digitally