

MANAGEMENT PLAN

SNOWY 2.0 MAIN WORKS – VISUAL IMPACT MANAGEMENT PLAN (STAGE 1)

S2-FGJV-ENV-PLN-0259

REVISION K

AUGUST 2024

ABSTRACT

Schedule 3, Condition 53 and Condition 54, of the Infrastructure Approval requires detailed plans to minimise visual impacts of the long-term temporary and permanent infrastructure of the development on the Kosciuszko National Park. This plan has been prepared to address these requirements of Condition 53 and 54.

Revision Record

Rev.	Date	Reason for Issue	Prepared by	Reviewed by
K	09.09.2024	Issued for approval	C. Pedraza E. Porter	E. Martin C. Buscall



NOTE:

Revision Tracking

Rev.	Date	Description of Revision
A	03.12.2021	Initial draft for SHL review
B	25.01.2022	Update based on SHL and NPWS comments
C	01.03.2022	Updated based on final SHL comments
D	30.09.2022	Updated based on NPWS comments
E	21.12.2022	Updated based on NPWS and DPE comments
F	20.02.2023	Updated based on NPWS comments
G	01.03.2023	Updated based on NPWS comments
H	04.07.2023	Updated based on DPE comments
I	18.06.2024	Updated based on DPE comments and NPWS comments
J	30.08.2024	Updated based on NPWS comments
K	09.09.2024	Updated based on NPWS comments



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ABBREVIATIONS AND DEFINITIONS

Acronym	Definition
AFL	Agreement for Lease with NPWS
ADG code	Australian Code for the Transport of Dangerous Goods by Road and Rail
CoA	Conditions of Approval
CSEP	Community and Stakeholder Engagement Plan
DPIE	NSW Department of Planning, Industry and Environment
ECVT	Emergency egress, cabling and ventilation tunnel
EIS	Environmental Impact Statement
Exploratory Works EIS	<i>Environmental Impact Statement Exploratory Works for Snowy 2.0</i>
EMS	Environmental Management Strategy
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
FSL	Ful Supply Level
FGJV	Future Generation Joint Venture
GLVIA	Guidelines for Landscape and Visual Impact Assessment
KNP	Kosciuszko National Park
LCVIA	Landscape and Visual Impact Assessment
LCZ	Landscape Character Zones
LLOS	Liner Line of Sight Analysis
MAT	Main Access Tunnel
MOL	Minimum Operating Level
NPW Act	<i>NSW National Parks and Wildlife Act 1995</i>
NPW Regulation	<i>NSW National Parks and Wildlife Regulation 2009</i>
NPWS	NSW National Parks and Wildlife Service
OEH	NSW Office of Environment and Heritage
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RecMP	Recreation Management Plan
REMMs	Revised Environment Management Measures
RMP	Rehabilitation Management Plan
RLOS	Radial Line of Sight Analysis
SEP	Site Environmental Plan
SHL	Snowy Hydro Limited
SMRC	Snowy Monaro Regional Council
SSI	State Significant Infrastructure under EP&A Act (Infrastructure Approval 9208)
SVC	Snowy Valleys Council
VIMP	Visual Impact Management Plan



1. INTRODUCTION

1.1. Background

WeBuild (formerly Salini Impregilo), Clough and Lane have formed the Future Generation Joint Venture (FGJV) to provide the Civil Works Package for Snowy Hydro Limited (SHL) on the Snowy 2.0 Project (the Project).

The Project is a pumped hydro project that will increase the generation capacity of the Snowy Mountains Scheme by up to 2,000mW and at full capacity will provide approximately 350,000MW/h of energy storage. Snowy 2.0 will link the existing Tantangara and Talbingo reservoirs within the existing Snowy Scheme through a series of new underground tunnels and a hydro-electric power station, to be constructed within an underground cavern. The project includes all activities associated with the civil works requirements for the Snowy 2.0 Pumped Hydro-electric Scheme.

Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs, which are in the Kosciusko National Park (KNP) in southern NSW. Approximately 27km of concrete-lined tunnels will be constructed to link the two reservoirs and a further 20km of tunnels will be required to support the facility. The power station complex will be located almost one kilometre underground.

The project will deliver one of the largest pumped hydro schemes in the world and underscores the importance of the Snowy Scheme's role in the National Electricity Market.

FGJV was conceived to deliver an integrated engineering, procurement, and construction management service for the project. The joint venture is backed by the combined experience of WeBuild, Clough, and Lane, through their experience in the infrastructure, mineral and oil and gas sectors throughout Australia and the world.

1.2. Context

SHL is the proponent of the Project which is a pumped hydro-electric storage and generation project proposed to address increasing demands for renewable energy supplies. Snowy 2.0 involves linking Talbingo and Tantangara reservoirs within the existing Snowy Mountains Hydro-electric Scheme (Snowy Scheme) and building an underground power station between the two reservoirs.

FGJV and were engaged to deliver both Stage 2 of Exploratory Works and Snowy 2.0 Main Works. This management plan has been prepared for the Snowy 2.0 Main Works project.

The Main Works for Snowy 2.0 includes, but is not limited to the construction of:

- pre-construction preparatory activities including dilapidation studies, survey, investigations, access etc;
- an underground pumped hydro-electric power station complex;
- water intake structures at Tantangara and Talbingo reservoirs;
- power waterway tunnels, chambers and shafts;
- access tunnels;
- fish control structures in proximity to Tantangara Reservoir wall;
- new and upgraded roads to allow ongoing access and maintenance; and
- power, water and communication infrastructure, including:
 - a cable yard to facilitate connection between the NEM electricity transmission network and Snowy 2.0;



- permanent auxiliary power connection;
- permanent communication cables;
- permanent water supply to the underground power station; and
- post-construction revegetation and rehabilitation.

Snowy 2.0 Main Works includes numerous work areas as shown in Figure 1-2. These work areas include:

- Lobs Hole Ravine Road;
- Lobs Hole;
- Marica;
- Plateau;
- Rock Forest;
- Talbingo; and
- Tantangara.

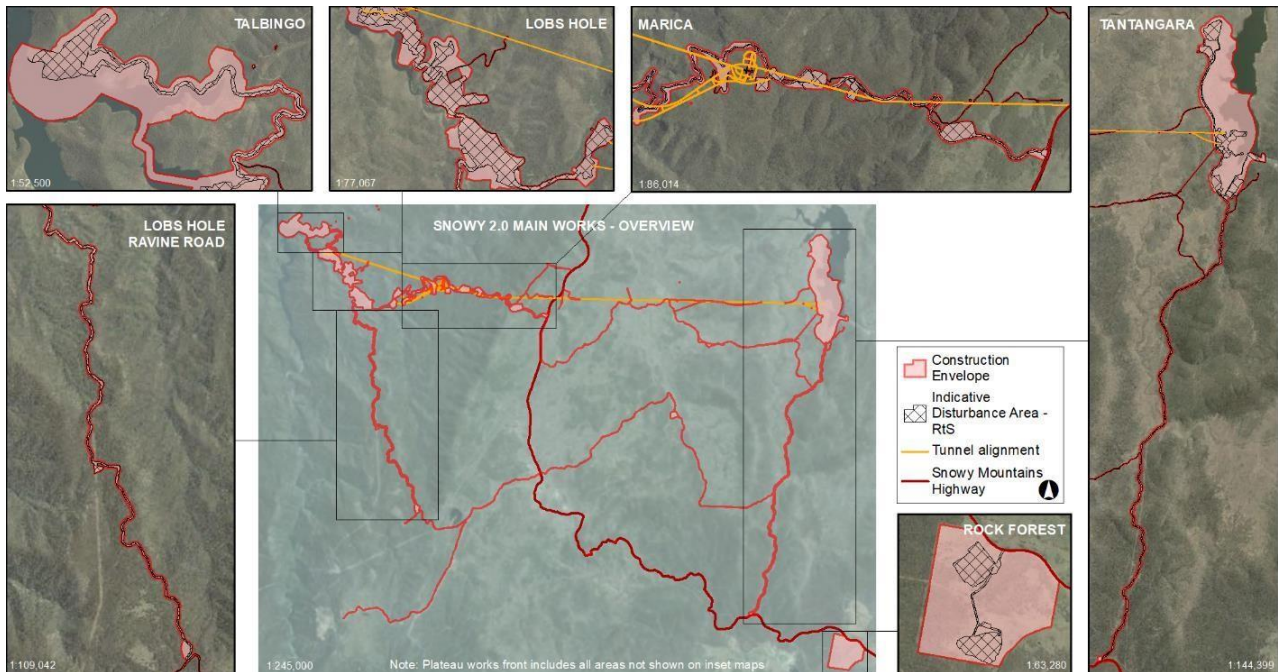


Figure 1-1: Snowy 2.0 Main Works work areas

1.3. 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 it is critical to the State for environmental, economic or social reasons.

An Environmental Impact Statement for the first stage of Snowy 2.0, the *Environmental Impact Statement 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 by the Minister for Planning on 7 February 2019. The purpose of Exploratory Works is primarily to gain a greater understanding of the underground geological conditions at the new power station. 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 on 27 March 2020.

An Environmental Impact Statement for the second stage of Snowy 2.0, the Main Works for Snowy 2.0 (Main Work EIS), was submitted to Department of Planning, Industry and Environment (DPIE or the Department) in September 2019 and was publicly exhibited between 26 September 2019 and 6 November 2019. A total of 222 submissions were received during the public exhibition period, including 10 from government agencies, 30 from special interest groups and 182 from the general public. In February 2020, the Response to Submissions Report (RTS or Submissions Report) was issued to DPIE to address the public and agency submissions (*Snowy 2.0 Main Works - Preferred Infrastructure Report and Response to Submissions*).

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 Infrastructure Approval SSI 9687. The Exploratory Works management plans have been incorporated into the Main Works plans in accordance with Schedule 2, Condition 9.



Further to the Infrastructure Approval, the Main Works RTS includes Revised Environmental Management Measures (REMMs) within Appendix C, which will also be implemented for the project.

In addition to the State approval, a referral (EPBC 2018/8322) was prepared and lodged with the Commonwealth Department of Agriculture, Water and 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 is a "controlled action" under the EPBC Act. The Project has been assessed under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979*.

1.4. Environmental Management System

The overall environmental management system (EMS) for the project is described in the EMS. The EMS forms part of the Project Management System (FGJV-PMS) and will include any requirements specified in the contract documents, where appropriate. All FGJV-PMS procedures will support, interface or directly relate to the development and execution of the plan.

This Visual Impact Management Plan (VIMP) forms part of FGJV's environmental management framework as described in the EMS. This plan aims to transfer the relevant requirements of the approval documents into a management plan which can be practically applied on the project site.

This document has been prepared for construction of the Snowy 2.0 Main Works project at concept or detailed design phase and complements the existing Landscape and Visual Impact Assessment contained within the EIS.

The Project Execution Plan (PEP) is the overarching document that outlines the minimum requirements for project management on the project. The PEP is not a standalone document and has been prepared with consideration to other project plan requirements. The PEP will also detail the interfaces between other project plans and provide information on the responsibility and management of the interfaces and project works.

1.5. Purpose

This Visual Impact Management Plan (VIMP or the Plan) forms part of the Environmental Management Strategy (EMS) for the construction of Snowy 2.0 – Main Works (Main Works (MW)) by FGJV (the Project). This VIMP has been prepared to address the requirements of:

- the Infrastructure Approval (SSI 9687) (Approval) issued for Snowy 2.0 Main Works on 20 May, 2020;
- the *Environmental Impact Statement Main Works for SHL 2.0* (Main Works EIS); and
- the revised environmental management measures (REMMs) within the *Response to Submissions Main Works for Snowy 2.0* (Submissions Report or RTS).

The key objective of the VIMP is to ensure that visual impacts are minimised, and within the scope permitted. To achieve this, SHL and FGJV will:

- ensure appropriate measures are implemented during design and construction, to address the relevant Conditions of Approval (CoA) and the REMMs listed within the Submissions Report for Main Works, as detailed within Table 2-1 and Table 2-2 of this Plan;
- ensure appropriate measures are implemented during construction to avoid or minimise long term temporary and permanent impacts;
- ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 2 of this Plan; and
- establish a visual impact monitoring program to assess the effectiveness of management

measures and promote adherence with the CoA.

The timing of the preparation, consultation, submission and approval of this Plan, along with other management plans required by the CoA, is shown within the EMS.

Specific on-site management measures identified in this Plan will be incorporated into site documents. These site-specific documents will be prepared for construction activities and will detail the management measures which are to be implemented on the ground. Construction personnel will be required to undertake works in accordance with the mitigation measures identified in the site-specific documents.

This plan aims to provide guidance on the concepts and measures that would be applied throughout detailed design development, and during construction.

1.6. Consultation Summary

In accordance with schedule 3, Condition 54(a) of the CoA, the VIMP has been prepared in consultation with:

- National Parks and Wildlife Service (NPWS).

A summary of consultation carried out with NPWS is outlined in the following table.

Table 1-1: Consultation

Date	Consultation	Outcomes
23 December 2021	The Plan (Rev B) was issued (electronically) to NPWS for review and comment	NPWS provided comments (electronically) 10 January 2022
14 January 2022	NPWS briefing including an online presentation of the plan	Discussion between NPWS, FGJV and SHL regarding comments provided by NPWS
23 August 2022	NPWS comments on Rev C	Minor amendments to make commitments more definitive and reflect the conditions of approval
4 November 2022	NPWS and DPE meeting	Discussion between NPWS, DPE, SHL and FGJV regarding additional information
3 February 2023	NPWS comments on Rev E	Minor amendments to Headrace Surge Shaft detail and clarity on what design information is currently available
27 February 2023	NPWS comments on Rev F	Minor amendments to Headrace Surge Shaft figures
16 May 2023	DPE comments on Rev G	Appendices added for detailed plans and other minor updates
22 December 2023	DPE comments on Rev H	Staging detail added and inclusion of interim/concept design for all areas
3 May 2024	NPWS meeting to discuss comments on Rev H and proposed updates for Rev I	Additional figure showing location of all features Updates to interim/concept designs Additional detail on scope of stage 1 and 2
14 June 2024	NPWS comments on Rev H	Minor amendments and suggestions accepted

25 July 2024	NPWS comments on Rev I	Further clarity on staging Commitments for stage 2 primarily regarding additional detail required for visualisations Minor amendments and suggestions accepted.
7 September 2024	NPWS comments on Rev J	Further clarity on stage 2 design inclusions Minor amendments and suggestions accepted Appendix G title updated to cover all Permanent Spoil Emplacements

1.7. Staging

Many of the elements of the Visual Management Plan relate to the long-term state of the permanent infrastructure and permanent spoil emplacement areas. Therefore, the required detailed designs for these areas are contingent on a variety of factors such as building finish, rehabilitation and landscaping details and location and specification of permanent roads. Therefore, this plan has been split into two stages with Stage 1 to include interim designs for each site based on the information available and Stage 2 to include detailed designs.

Stage 1

Stage 1 includes the overarching visual management principles of the interim design for the individual infrastructure sites (App A - I), and is based on the outcomes of consultation with NPWS (Table 1-2).

The interim designs will directly inform Stage 2 planning, and therefore will provide sufficient detail regarding the aesthetics and function, materials to be used, location and form.

Stage 2

Stage 2 will provide detailed designs of each of the infrastructure sites including landscape planting and screening for each site as detailed in the Rehabilitation Management Plan (RMP). The Visual Impact Management Plan (this plan) will be updated approximately two years following DPHI approval of Stage 1. Stage 2 will be developed in consultation with NPWS, and will include final detailed design information of each of the infrastructure sites as well as the type, timing, location and completion criteria of landscape planting and screening, as detailed in the Main Works Rehabilitation Management Plan (RMP). In addition, the final designs included in Stage 2 will include sufficient detail to ensure the requirements and needs of NPWS and SHL are considered with respect to minimizing required infrastructure and visual impact. This detail will include:

- Surrounding ancillary infrastructure such as car parks and pathways;
- Multiple public viewpoints showing final concept as viewed by members of the public;
- Scale and form of structures;
- Confirmation of all construction materials including surface treatments;
- Public access considerations including fencing details and locations of locked gates;
- Location and design of public viewpoints and information signs, including relevant approvals if required;
- Final structure designs;
- Final leasehold areas defined; and

- Refinement of colours in agreement with NPWS.

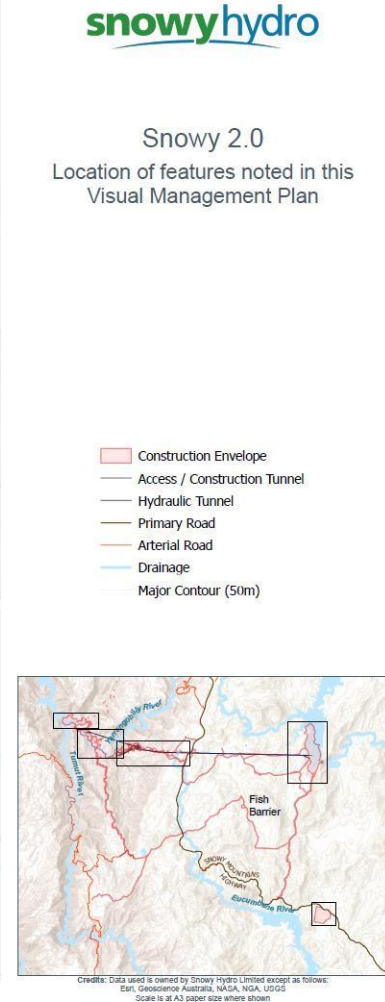
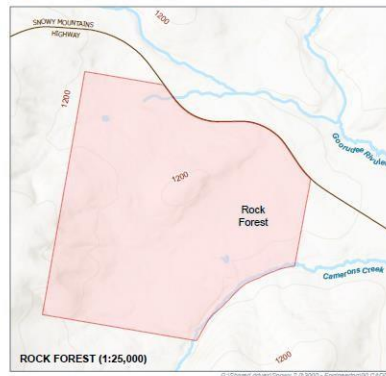
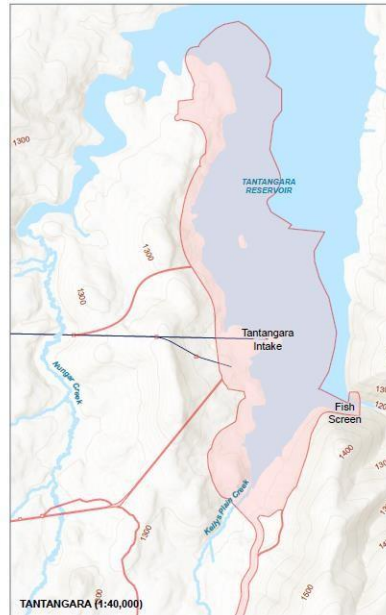
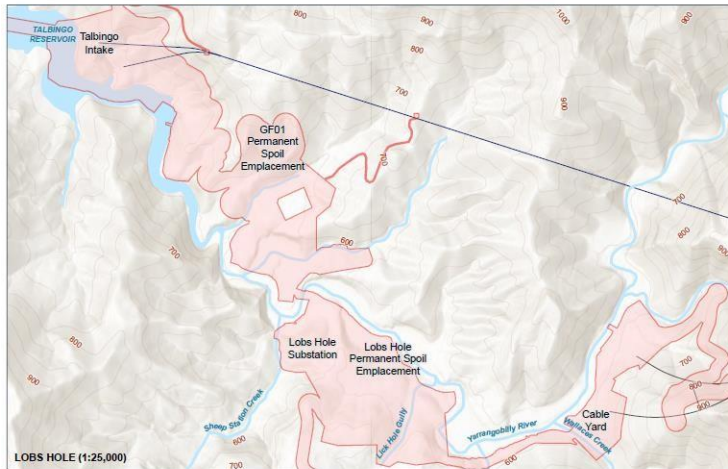
The timing of this stage is dependent on the approval of multiple site specific plans which provide sufficient detail to permit a progression to construction. Stage 2 will reference other relevant management plans including the Main Works RMP, the Recreational Management Plan and the Long Terms Road Strategy.

The location of all infrastructure noted in this plan is shown in Figure 1-4. Further breakdown on staging is provided in Table 1-3. Any updates to the plan will be provided to NPWS for consultation and to DPHI for approval.

Table 1-2: Further breakdown on staging

Component	Level of design - Stage 1 ¹	Level of design - Stage 2
Lobs Hole Substation	Interim design	Final design with all visual elements addressed
Cable Yard (ECVT Portal)	Interim design	Final design with all visual elements addressed
Talbingo Intake	Buildings - interim design Full Intake structure – interim design	
Tantangara Intake	Buildings - interim design Full Intake structure – interim design	
Middle Bay barge ramp	No design as this component is not confirmed to be required to be construction. If confirmed, Stage 1 of the plan will be updated to include an interim design	Middle Bay Barge Ramp final design will be provided if this component is required to be constructed
Headrace shaft & ventilation shaft	Headrace Shaft – interim design Ventilation Shaft – no design as this component is not confirmed to be required to be construction. If confirmed, Stage 1 of the plan will be updated to include an interim design	Final design with all visual elements addressed Ventilation Shaft final design will be provided if this component is required to be constructed
Fish screens and barriers	Fish screens – interim design Barrier – interim design	Final detailed design with all visual elements addressed
Permanent Spoil Emplacements	Ravine Bay - Interim GF01 - Interim Lobs Hole - Interim Tantangara – No design as this component is still under development.	Final detailed design with all visual elements addressed.

¹ Detailed designs are at a level which provides a good idea of the final product, however in consultation with NPWS is subject to change and refinement.



Spatial Reference: GDA2020 MGA Zone 55

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Figure 1-2: Locations of features noted in this Visual Management Plan

2. ENVIRONMENTAL REQUIREMENTS

2.1. Legislation

Legislation relevant to visual impact management includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act); and
- *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in the EMS.

2.2. Conditions of Approval

The conditions relevant to visual impacts taken from the Main Works Infrastructure Approval (SSI 9687) are presented in Table 2-1.

Table 2-1: Conditions of approval relevant to visual impact

Condition	Requirement	Where addressed
Schedule 3, condition 53	<p>The Proponent must:</p> <p>(a) minimise the visual impacts of the long-term temporary and permanent infrastructure of the development on the Kosciuszko National Park, including:</p> <ul style="list-style-type: none"> • having regard to the NPWS Park Facilities Manual; • complying with the requirements in approved management plan under the conditions of this approval; • using suitable planting and screening; • ensuring the visual appearance of the infrastructure blends into the surrounding landscape as much as possible, including: <ul style="list-style-type: none"> ○ using appropriate colours and non-reflective paints on permanent buildings to reduce glare; ○ incorporating textures on large surfaces and using dark aggregates and oxides for exposed concrete surfaces; ○ using locally sourced stone to clad buildings or portals, such the Lobs Hole substation building façade; • incorporating textured surfaces along the shoreline of the Ravine Bay and Talbingo spoil emplacement areas; • installing landscaping and/or suitable screening as soon as practicable along the Snowy Mountains Highway boundary of the Rock Forest site to screen the development on site from road users and nearby residences; <p>(b) minimising the visual impacts of the development on the Rock Forest site on nearby residences during construction;</p> <p>(c) not mount any advertising signs or logos on site, except where this is required for identification or safety purposes;</p> <p>(d) minimise the lighting impacts of the development, including ensuring that all external lighting associated with the development:</p>	Section 5

Condition	Requirement	Where addressed
	<ul style="list-style-type: none"> is consistent with the good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version; and complies with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version. 	
Schedule 3, condition 54	<p>Within 12 months of the commencement of construction, the Proponent must prepare a Visual Impact Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:</p> <p>(a) be prepared in consultation with the NPWS;</p> <p>(b) describe the measures that would be implemented to comply with condition 53 above; and</p> <p>(c) include detailed plans for minimising the visual impacts of the following permanent infrastructure:</p> <ul style="list-style-type: none"> Lobs Hole substation; cable yard; water intakes and associated infrastructure at the Talbingo Reservoir and Tantangara Reservoir; Middle Bay barge ramp; headrace surge shaft and ventilation shaft; and fish screens and barrier. 	Section 1.8 Section 5 Appendices
Schedule 3, condition 55	The Proponent must implement the approved Visual Impact Management Plan for the development	Section 1

2.3. Environmental Management Measures

Environmental mitigation and management measures are included in the EIS in Section 6.10.5. During preparation of the Submissions Report, REMMs were developed and are included in Section

8 of the Submissions Report. No changes were proposed to the environmental management measures in Section 6.10.5 of the EIS.

The environmental management measures relevant to this Plan are listed in Table 2-2 below. If additional measures are cross-referenced from another section of the EIS or Submissions Report, these measures are also included. Revised environmental management measures from Modification 1 have also been incorporated into Table 2-2.

Table 2-2: Environmental management measures relevant to visual impacts

Impact	Reference	Environmental Management Measures	Where addressed
Visual and landscape impacts resulting from permanent placement of excavated material	LCV01	The placement of excavated material in Talbingo, Lobs Hole and Tantangara Reservoir will be rehabilitated as guided by the Rehabilitation Strategy and in consultation with NPWS	Section 5
Visual and landscape impacts resulting from permanent infrastructure	LCV02	Detailed design is to consider: <ul style="list-style-type: none"> • materials and finishes that complement or where possible recede into the surrounding landscape; • the use of vegetation to screen project elements and re-vegetation of disturbed areas in line with the Rehabilitation Strategy; and • lighting to avoid spill that might affect sensitive areas or receivers. 	Section 5

2.4. Licences and Permits

Environment Protection Licence (EPL) 21266 has been issued for the Project for the scheduled activity of extractive activities. The EPL details conditions which must be complied with when undertaking the extractive activities works.

SHL entered into an Agreement for Lease (AFL) with the NSW Minister for the Environment on 18 December 2018 for Snowy 2.0. Subject to the terms of the AFL, FGJV has been granted rights to access the areas required for construction under Works Access Licences and Construction Leases.

2.5. Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- *NPWS Park Facilities Manual*
- *Dark Sky Planning Guideline*
- *AS4282 (INT) 1997 - Control of Obtrusive Effects of Outdoor Lighting*

Other reference documents:

- *Snowy 2.0 Environmental Impact Statement (September, 2019)*

3. EXISTING ENVIRONMENT

The Snowy 2.0 Main Works will be constructed within the South Eastern Highlands, NSW, South Western Slopes and Australian Alps Interim Biogeographic Regionalisation of Australia (IBRA) regions and primarily within the Kosciuszko National Park (KNP). The Project area intersects a number of major watercourses, including the Yarrangobilly River, Eucumbene River, Murrumbidgee River, Gooandra Creek, Tantangara Creek and Nungar Creek.

The Project area is located within KNP, which is largely vegetated across its 673,543 ha extent, with intact remnant vegetation extending into a further 1.6 million ha across the Australian Alps. The extent of vegetation across KNP provides a high degree of connectivity.

The natural landscape of Kosciuszko National Park (KNP) is both vast and varied. It has been shaped over time as a result of the interaction of a range of natural elements including water, air, earth, fire, flora, fauna and human interaction. These natural elements are presented in varying combinations which form part of a unique aesthetic, reflective of the only true alpine environment in NSW.

The KNP PoM identifies five different management zones that each provide an overarching geographic framework of linked, but varying, management strategies. The zones are intended to provide a spectrum of recreational settings within which visitors can appreciate and enjoy the park, from relatively remote and undeveloped country to particular places where prominence is given to the provision of visitor infrastructure.

3.1. Natural Landscape

The landform of the project area is highly diverse, ranging in elevation from about 750 metres above sea level to over 2,000 metres above sea level. In addition to the vast variation in altitude, a key feature of the landscape includes the distinct zones of prevailing landforms based on the underlying geology and influenced by the hydrological systems.

The waterbodies within the project area, inclusive of Tantangara and Talbingo Reservoirs, represent high aesthetic appeal within the KNP. These waterbodies are frequented by visitors for their high aesthetic and recreational appeal.

3.2. Cultural Landscape

The cultural landscape of the KNP is deeply embedded in Australia's Aboriginal and non-Aboriginal identity and it is the unique natural landscape that has influenced human habitation and movement throughout the region. Natural elements such as geology, climate and hydrology have been key influences in the cultural landscape both prior to and following settlement. This relationship between the cultural and natural elements of the park is central to its aesthetic appeal, character and use.

In addition to industry, the landform of the park has also governed the placement of infrastructure such as roads, dams and recreational use areas. The roads within project area include Lobs Hole Ravine Road, Tantangara Road and other minor roads within the project which are predominantly unsealed minor roads. Many of these roads are suitable for conventional vehicles. The Snowy Mountains Highway is an arterial road that transects the project, winding north-south between Tantangara and Talbingo Reservoirs.

4. VISUAL ASPECTS AND IMPACTS

4.1. Construction Activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental management systems). The relationship of aspects and impacts is one of cause and effect.

Key aspects of the project that have or may result in impacts to visual impacts are identified in Table 4-1. The extent of these impacts will depend on the nature, extent and magnitude of construction activities and their interaction with the natural environment (Column 2). This is further exacerbated by environmental factors (Column 3).

The aspects and impacts relevant to visual amenity for Snowy 2.0 Main Works are summarised in Table 4-1.

Table 4-1: Project construction aspects and impacts relevant to Snowy 2.0 Main Works – visual amenity

Environmental Aspects (Construction activities that have or may impact visual amenity)	Environmental Impacts	Environmental Factors (Conditions)
<ul style="list-style-type: none"> • Vegetation clearing • Construction of temporary laydown areas and infrastructure • General surface earthworks • Tunnel excavation (drill & blast, TBM) • Material stockpiles and emplacement areas • Cofferdam • Talbingo barge and associated marine vessels • Construction of permanent infrastructure including portals, intakes, surface buildings • Construction and upgrades of roads and trails 	<ul style="list-style-type: none"> • Moderate to high deterioration of the visual amenity of the surrounding area due to the construction activities 	<ul style="list-style-type: none"> • The sensitivity of the view is high for users of Kosciuszko National Park and adjoining areas. The tranquil, picturesque nature of the area experienced from the area greatly influences the sensitivity. So too, the absence of infrastructure.

Table 4-2: Project operational aspects and impacts relevant to Snowy 2.0 Main Works – visual amenity

Environmental Aspects (Operations that may impact visual amenity)	Environmental Impacts	Environmental Factors (Conditions)
<ul style="list-style-type: none"> • Talbingo barge launch facility and placement of excavated rock • Talbingo intake and associated infrastructure • Marica ventilation shaft • Upstream surge shaft 	<ul style="list-style-type: none"> • Moderate to high deterioration of the visual amenity of the surrounding area due to the permanent infrastructure 	<ul style="list-style-type: none"> • The sensitivity of the view is high for users of Kosciuszko National Park and adjoining areas. The tranquil, picturesque nature of the area experienced from the area greatly influences the sensitivity. So too, the absence of infrastructure.

<ul style="list-style-type: none"> • Tantangara Intake and associated infrastructure • Upgrade and construction of roads • MAT and ECVT infrastructure • Cable yard infrastructure at ECVT • Lobs Hole Substation • New and upgraded roads and drainage infrastructure • Permanently cleared areas 		
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4.2. Environmental Risk Assessment

The environmental aspects and impacts are further considered within Appendix A3 of the EMS. This includes a risk assessment process. The risk assessment is based on (1) the likelihood of an impact occurring as a result of the aspect; and (2) the consequences of the impact if the event occurred.



5. VISUAL IMPACT MANAGEMENT MEASURES

The unique natural landscape of Kosciuszko National Park requires effective management of visual amenity to ensure the temporary and permanent impacts are minimised. Visual impacts during Snowy 2.0 Main Works will be managed in accordance with the CoA during design and construction. SHL and FGJV aim to minimise adverse impacts during design and construction. Management measures to be implemented during development are described in the following sections.

To minimise impacts the management measures, outlined in Table 5-1, will be applied.



Table 5-1: Visual impact management measures as per Conditions of Approval

ID	Measurement / Requirement	When to implement	Responsibility	Source document
VI01	<p>Minimise the visual impacts of the long-term temporary and permanent infrastructure of the development on the Kosciuszko National Park, including:</p> <ul style="list-style-type: none"> • Consideration for the NPWS Park Facilities Manual during design and construction • Incorporate suitable planting and screening • Ensure the visual appearance of the infrastructure blends into the surrounding landscape as much as possible, including: <ul style="list-style-type: none"> ○ Using appropriate colours and non-reflective paints on permanent buildings to reduce glare, ○ Incorporating textures on large surfaces and using dark aggregates and oxides for exposed concrete surfaces ○ Using locally sourced stone to clad buildings or portals, such as the Lobs Hole substation building façade • Incorporating textured surfaces along the shoreline of the Ravine Bay and Talbingo spoil emplacement areas • Installing landscaping and/or suitable screening as soon as practicable along the Snowy Mountains Highway boundary of Rock Forest site to screen the development on site from road users and nearby residents 	Pre-construction and construction	Design team Environmental design reviewer Environment Coordinator Environment Manager Site Supervisor	CoA Condition 53 (a)
VI02	Minimising the visual impacts of the development on the Rock Forest site on nearby residences during construction	Construction	Environment Coordinator Environment Manager Site Supervisor	CoA Condition 53 (b)
VI03	Not mount any advertising signs or logos on site, except where this is required for identification or safety purposes	Construction	Environment Coordinator	CoA Condition 53 (c)

ID	Measurement / Requirement	When to implement	Responsibility	Source document
			Environment Manager Site Supervisor	
VI04	<p>Minimise the lighting impacts of the development, including ensuring that all external lighting associated with the development:</p> <ul style="list-style-type: none"> • Is consistent with the good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version; • Complies with the Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version 	Pre-construction Construction	Design team Environmental design reviewer Environment Coordinator Environment Manager Site Supervisor	CoA Condition 53 (d)
VI05	Within 12 months of the commencement of construction, the Proponent must prepare a Visual Impact Management Plan for the development to the satisfaction of the Planning Secretary.	Construction	Environment Manager	CoA Condition 54
VI06	The Visual Impact Management plan will be prepared in consultation with NPWS.	Construction	Environment Manager	CoA Condition 54 (a)
VI07	The Visual Impact Management plan will describe the measures that would be implemented to comply with condition 53 above.	Construction	Environment Manager	CoA Condition 54 (b)
08	<p>The Visual Impact Management plan will include detailed plans for minimising the visual impacts of the following permanent infrastructure:</p> <ul style="list-style-type: none"> • Lobs Hole substation; • cable yard; • water intakes and associated infrastructure at the Talbingo Reservoir and Tantangara Reservoir; • Middle Bay barge ramp; 	Construction	Design team Environmental design reviewer Environment Coordinator Environment Manager Site Supervisor	CoA Condition 54 (c)

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	<ul style="list-style-type: none"> headrace surge shaft and ventilation shaft; and fish screens and barrier. 		SHL (fish screens and barriers)	
VI09	The proponent must implement the approved Visual Impact Management Plan for the development.	Construction	Environment Manager	CoA Condition 55
VI10	The placement of excavated material in Talbingo, Lobs Hole and Tantangara Reservoir will be rehabilitated as guided by the Rehabilitation Strategy and in consultation with NPWS.	Pre-construction and construction	Environment Coordinator Environment Manager SHL	MW REMM LCV01
VI11	Detailed design is to consider: <ul style="list-style-type: none"> materials and finishes that complement or where possible recede into the surrounding landscape; the use of vegetation to screen project elements and revegetation of disturbed areas in line with the Rehabilitation Strategy; and lighting to avoid spill that might affect sensitive areas or receivers. 	Pre-construction and construction	Design team Environment Coordinator Environment Manager	MW REMM LCV02



5.1. Design

The design will be developed to meet the relevant mitigation measures as outlined in Table 5-1. This includes consideration of the relevant requirements in the following guidelines:

- *NPWS Park Facilities Manual.*
- *Dark Sky Planning Guideline.*
- *AS4282 (INT) 1997 - Control of Obtrusive Effects of Outdoor Lighting.*

Safety considerations must also be taking into account when developing the detailed design, or during construction.

The following table describes how the measures outlined in Table 5-1 would be implemented during design development.

Table 5-2: Visual impact management application – design

Management Measure	Application
Planting and Screening	
Suitable planting and screening including perimeter fencing, would be selected based on the NPWS Park Facilities Manual and the immediate environment in the area	<p>The use of vegetation to screen proposed project elements would be maximised where feasible. This would be done either at the source, and/or at strategic locations to provide a visual buffer between project elements and popular views, tourism destinations or vantage points such as lookouts, picnic areas, camping areas or visitor centres.</p> <p>Planting and screening would be developed in accordance with the RMP.</p> <p>Stage 2 of the VIMP will include detailed information on planting and screening once the RMP has been approved.</p>
Colours	



Management Measure	Application
Using appropriate colours and non-reflective paints on permanent buildings to reduce glare	<p>Colours would be determined based on the immediate surroundings. The use of dark colours is preferred as they are usually better absorbed within natural areas. Green and brown colours should be avoided. Greys and charcoal colours generally provide less visual contrast to the colours of the Australian landscape and complement the hues of the alpine environment of native woodlands.</p> <p>Paint will be non-reflective on permanent buildings to reduce glare and surface reflectivity as they increase the visual prominence of structures. This detail will be provided in Stage 2 and will cover minor additional building features such as walkways, ladders, stairs and handrails.</p> <p>Colours and paints to be selected in accordance with NPWS Parks Facility Manual Chapter 10 and approved by NPWS. 'Monument' or 'Woodland Grey' are NPWS preferred colours.</p>
Using dark aggregates and oxides for exposed concrete surfaces such as the intakes and gate shafts	<p>Manage exposed concrete surfaces to prevent glare and reduce the contrast between the existing environment and new project elements by ensuring colours and paints are selected in accordance with NPWS Parks Facility Manual Chapter 10.</p> <p>This includes grey coloured shotcreting for the intakes.</p>
Textures	
Incorporating textures on large surfaces	<p>Textures would be selected with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. Texture such as shotcreting or ribbing of concrete to create shadows and patterns will be incorporated into the design in areas such as the portals and roads, to minimise visual impact.</p> <p>Materials to be selected in accordance with NPWS Parks Facility Manual 6.1.8SPF (Shelters Materials, Finishes and Fixture Schedules), 6.1.8.SPS (Steel Structures Specification), 6.1.8SPT (Timber Structures Specification), Chapter 5 (Tracks and related structures).</p>
Incorporating locally sourced stone	<p>Maximising the use of locally sourced materials will complement the textures and colours of the landscape and its underlying geology. Stone will be utilised for cladding on buildings or portals.</p> <p>Materials to be selected in accordance with NPWS Parks Facility Manual 6.1.8SPF (Shelters Materials, Finishes and Fixture Schedules), 6.1.8.SPS (Steel Structures Specification), 6.1.8SPT (Timber Structures Specification), Chapter 5 (Tracks and related structures).</p>



Management Measure	Application
The combination of form, colour, and texture	<p>A combination of form, colour and texture will reduce the perceived scale of new structures, especially those visible from popular recreation areas and destinations such as the reservoirs. Materials to be selected in accordance with NPWS Parks Facility Manual 6.1.8SPF (Shelters Materials, Finishes and Fixture Schedules), 6.1.8.SPS (Steel Structures Specification), 6.1.8SPT (Timber Structures Specification), Chapter 5 (Tracks and related structures). The finishing details of these material will be refined in Stage 2.</p> <p>Design of the permanent spoil emplacement (PSE) area at Ravine Bay has been undertaken in accordance with specific landform design criteria to minimise visual impacts and ensure it is sympathetic with landforms in the surrounding area. The current design is for all-on-land placement however in-reservoir emplacement may occur later. Planting along the shoreline will be undertaken in accordance with RMP and will be representative of the surrounding area.</p>
Signage	
Not incorporating any advertising signs or logos on, unless required for identification or safety purposes	The design would only specify signage that is required as part of identification and safety purposes.
Lighting	
Minimise lighting impacts	<p>Managing the visual impacts of lighting would be carried out by ensuring all external lighting will be in accordance with the following guidelines and standards:</p> <ul style="list-style-type: none"> • Is consistent with the good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version. • Complies with the Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version. • NPWS Park Facilities Manual – 6.1.8 SPF – Electrical Fixtures

The following table describes the site-specific visual impact management measures for the locations identified in Condition 53.



Table 5-3: Site specific visual impact management application

Requirement	Application
Location specific	
Lobs Hole Substation	<p>The final state and colour of the Lobs Hole Substation will be agreed upon in consultation with NPWS. As such the visual amenity of the shed structure will be improved prior to handing any such areas back to NPWS. Details such as planting and screening will be refined with the final version to be included in Stage 2 of this plan. Refer to Appendix A for further detail.</p>
Cable Yard	<p>The Cable Yard consists of the ECVT Portal and GIS building.</p> <p>Planting and Screening: The road leading to the portal will be closed to the public. However, a key component to managing visual impacts will involve rehabilitation of vegetation and screening at the surrounding public viewpoints. In accordance with the RMP, vegetation selected around the Cable Yard will be representative of the PCTs which were present on site prior to disturbance.</p> <p>Colour: The GIS building will be in accordance with the <i>NPWS Park Facilities Manual</i> with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity. The portal face will be shotcreted or covered with steel mesh. Grey steel fencing will be installed within and above the portal for safety.</p> <p>Texture: The external façade of the GIS building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent patten with semi dry jointed mortar for the building walls.</p> <p>Signage: Signage to be included is the SHL logo and safety signage, such as entry and exit points.</p> <p>Lighting: will be in accordance with the following guidelines and standards:</p> <ul style="list-style-type: none"> • Good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version. • Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version. • NPWS Park Facilities Manual – 6.1.8 SPF – Electrical Fixtures <p>Refer to Appendix B for further detail.</p>



Requirement	Application
Tantangara Intake Structure	<p>Planting: In accordance with the RMP, vegetation selected around the intake structure will be representative of the PCTs which were present on site prior to disturbance. Vegetation growth will be limited due to cold air drainage below the road however where possible low grass and shrub planting will be used to match existing landscape conditions and assist the integration of the intake into the surrounding landform.</p> <p>Colour: In accordance with the <i>NPWS Park Facilities Manual</i>, the intake structure will predominantly consist of grey shotcrete. Natural rock will also be incorporated into the finished design.</p> <p>Texture: Materials selected with textures that will blend into the surrounding landscape will include a combination of shotcrete and natural rock.</p> <p>Refer to Appendix D for further detail.</p>
Tantangara Intake Building (Gate Shaft)	<p>Planting: In accordance with the RMP, vegetation selected around the intake building will be representative of the PCTs where present on site prior to disturbance. Vegetation growth will be limited due to cold air drainage below the road however where possible will be used to assist the integration of the intake into the surrounding landform.</p> <p>Colour: The Tantangara Intake Building will be in accordance with the <i>NPWS Park Facilities Manual</i> with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity.</p> <p>Texture: The external façade of the Tantangara Intake Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls.</p> <p>Signage: Signage to be included is the SHL logo and safety signage, such as exit points.</p> <p>Lighting: will be in accordance with the with the following guidelines and standards;</p> <ul style="list-style-type: none"> • Good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version. • Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version. • NPWS Park Facilities Manual – 6.1.8 SPF – Electrical Fixtures <p>Refer to Appendix D for further detail.</p>



Requirement	Application
Talbingo Intake Structure	<p>Planting and screening: In accordance with the RMP vegetation selected around the intake structure will be representative of the PCTs which were present on site prior to disturbance. Low grass planting will be used to allow maintenance access. Based on the layout of the site, the asset will only be viewed from the reservoir where it will be difficult to screen with planting.</p> <p>Colour: In accordance with the <i>NPWS Park Facilities Manual</i>, the intake structure will predominantly consist of grey shotcrete. Exposed natural rock with local cut slope stabilisation treatment will also be incorporated into the finished design.</p> <p>Texture: Materials selected with textures that will blend into the surrounding landscape will consist of a combination of shotcrete and natural rock including cut slope stabilisation treatment. Below the FSL, a natural rock surface will be used to ensure the landform is visually compatible with the existing lake edge.</p> <p>Refer to Appendix C for further detail.</p>
Talbingo Intake Building	<p>Planting and Screening: In accordance with the RMP, vegetation selected around the intake will be representative of the PCTs which were present on site prior to disturbance.</p> <p>Colour: The Talbingo Intake Building will be in accordance with the <i>NPWS Park Facilities Manual</i> with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity.</p> <p>Texture: The external façade of the Talbingo Intake Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls.</p> <p>Signage: Signage to be included is the SHL logo and safety signage, such as exit points.</p> <p>Lighting: will be in accordance with the following guidelines and standards;</p> <ul style="list-style-type: none"> • Good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version. • Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version. • NPWS Park Facilities Manual – 6.1.8 SPF – Electrical Fixtures <p>Refer to Appendix C for further detail.</p>
Middle Bay barge ramp	<p>The Middle Bay barge ramp is not yet confirmed to be required or not for the project as it is dependent on the final design and construction methodology of the Talbingo Intake. If the barge ramp is required then this plan will be updated to include an interim design and detail on minimising the visual impact of the work. A detailed design will be included in Stage 2.</p>



Requirement	Application
Headrace surge shaft	<p>Planting and Screening: In accordance with the RMP, vegetation selected around the intake will be representative of the PCTs which were present on site prior to disturbance.</p> <p>Colour: The Headrace Surge Shaft Building and Headrace Surge Shaft Tower will be in accordance with the <i>NPWS Park Facilities Manual</i>. The tower, building walls and building roof will be grey, unless otherwise agreed with NPWS. Paint will be non-reflective to reduce glare and surface reflectivity.</p> <p>Texture: The external façade of the Headrace Surge Shaft Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls.</p> <p>The Headrace Surge Shaft Tower will consist of poured in-situ concrete.</p> <p>Signage: Signage to be included is the SHL logo and safety signage, such as exit points.</p> <p>Lighting: will be in accordance with the following guidelines and standards;</p> <ul style="list-style-type: none"> • Good lighting design principles in the Dark Sky Planning Guideline, (DPE 2016), or its latest version. • Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version. <p>Refer to Appendix E for further detail.</p>
Ventilation shaft	<p>The Ventilation shaft is not yet confirmed to be required or not for the project. If it is required, then this plan will be updated to include a concept interim design and detail on minimising the visual impact of the work. A detailed design will be included in Stage 2.</p>
Fish screens and barrier	<p>A concept design for the Fish screens is in Appendix F. This will be updated to a detailed design in Stage 2 of this plan, once this detail has been finalised in Stage 2 of the Biosecurity Risk Management Plan. This will include further detail on colour, signage, texture, lighting, planting and screening once details are available.</p> <p>For the Fish Barrier, the key visual impact mitigation is the location of the structure, with it being located in a position that allows: the smallest possible and least intrusive structure and be largely obscured from most viewpoints due to local topography, including the nearby NPWS access track and Tantangara Creek Falls located downstream of the barrier. Notwithstanding the barrier will be a grey colour in accordance with the <i>NPWS Park Facilities Manual</i>.</p> <p>Refer to Appendix F for further detail.</p>



Requirement	Application
Ravine Bay, Tantangara and Talbingo spoil emplacement areas	The spoil emplacement areas will be landformed and rehabilitated as per the RMP. The concept plan for these sites is that the landform will be shaped in a way that blends into the natural surrounds. The vegetation that will be chosen to match the surrounding vegetation. Additional shrubs and trees will be planted on the bottom edge of the landforms to ensure that the site is screened appropriately from visitors to Talbingo reservoir and Yarrangobilly River. At Ravine Bay PSE, there will also be rock added to the bottom of the emplacement to minimise erosion and add texture to the site. Refer to Appendix G for further detail. Tantangara spoil emplacement area will be included in Stage 2.

5.2. Construction

To manage the visual impacts of the project during construction, the following considerations will be undertaken:

Table 5-4: Visual impact management application – construction

Requirement	Application
Minimise the lighting impacts of the development	Lighting (including flood lighting) during construction will be selected to avoid spill that might affect sensitive areas or receivers located adjacent to construction locations. Temporary lighting is in accordance with the Dark Sky Planning Guideline, (DPE 2016), or its latest version; and the Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version.
Screening at Rock Forest	The works at the Rock Forest site were designed to minimise the visual impact of the works, with the primary laydown area situated out of site from the highway and nearby residents. Therefore the screening that is in place is the natural shape of the land and vegetation. Refer to Appendix H for further detail.
No advertising signs or logos are installed on site	Only signage associated with identification or safety purposes will be installed.



5.2.1. Tantangara Cofferdam

Although temporary, the visual impacts of the coffer dam during construction will be managed via material and colour selection, specifically grey /charcoal rock to reduce the visual emphasis of the coffer dam and assist with understating the infrastructure with the landscape. The use of grey / charcoal is consistent with the NPWS Parks Facilities Manual (Chapter 10). The final landform will be restored following the decommissioning of the cofferdam and its rehabilitation in accordance with the RMP.



6. COMPLIANCE MANAGEMENT

6.1. Monitoring

Visual impact monitoring will be undertaken to ensure compliance with the management measures outlined in Table 5-1 above.

Monitoring for compliance of the management measures outlined in Table 5-1 above, will be carried out during design and construction as per the table below.



Table 6-1: Visual impact management measure monitoring

Item	Frequency	Standards	Reporting	Responsibility
Design				
<p>The design team will take into account the design specific visual impact management requirements and strategies when developing the design.</p> <p>The environmental design reviewer will review the designs to ensure compliance with the management measures and strategies.</p> <p>NPWS will be consulted on the surface work designs.</p>	Throughout design development	<p>Main Works Conditions of Approval.</p> <p>NPWS Park Facilities Manual</p> <p>Dark Sky Planning Guideline, (DPE 2016), or its latest version; and</p> <p>Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version</p>	As required	<p>Design team</p> <p>Design Manager</p> <p>Environmental design reviewer</p> <p>Environmental Manager</p>
Construction				
<p>Visual inspections by Environmental Advisors, Coordinators, Environmental Manager, and Site supervisor to ensure compliance with the requirements outlined in Section 5.</p>	Weekly	<p>NPWS Park Facilities Manual</p> <p>Dark Sky Planning Guideline, (DPE 2016), or its latest version; and</p> <p>Australian Standard AS4282 (INT) 1997 – Control of obtrusive Effect of Outdoor lighting, or its latest version</p>	As required	<p>Environmental Advisors</p> <p>Environmental Coordinators,</p> <p>Environmental Manager</p> <p>Site supervisor</p>

Any opportunities for improvement identified through the inspection process will be recorded in an inspection report (minor issues) in accordance with Section 1.9 of the EMS or an incident report completed in accordance with Section 8 of the EMS. Findings from inspection and incident report will be reported to relevant agencies in accordance with the risk matrix and reportable incidents outlined in the Environmental Management System.



6.2. Inspections

Weekly inspections of the project will be undertaken to confirm the satisfactory visual impact outcomes are achieved during construction as outlined in Section 6.1.

6.3. Auditing

Audits will be undertaken to assess the effectiveness of implementing the management and monitoring measures to ensure overall compliance with this VIMP. Audit requirements are detailed in Section 8.3 of the EMS.

6.4. Reporting

FGJV will report to SHL and other agencies, including NPWS, as required on visual impacts management issues related to the Project. This includes notification in relation to incidents.

Reporting will be undertaken on a 6-monthly basis and in accordance with the conditions of approval. Reporting requirements and responsibilities are documented in Section 5 and Section 6.1.1 of this plan, and Section 8.4 of the EMS.

6.5. Incidents

Incident management and response will be undertaken in accordance with Section 7 of the EMS.

APPENDIX A – LOBS HOLE SUBSTATION

The final state and colour of the Lobs Hole Substation will be agreed in consultation with NPWS and details will be included in Stage 2 of this plan. . As such the visual amenity of the shed structure will be improved prior to handing any such areas back to NPWS.

The interim design for the substation is provided below through the form of a series of rendered images (over time) which utilise the existing design and forecast vegetation growth. This shows how vegetation surrounding the substation in future years will act as a screen from the road. Note that the colours of the building and surrounding infrastructure are still to be agreed with NPWS. It is likely that the substation building will be monument grey rather than green, and the office buildings will be grey rather than white.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure A-1: Lobs Hole Substation – after construction



Figure A-2: Lobs Hole Substation – future visualisation



APPENDIX B – LOBS HOLE CABLE YARD

The Lobs Hole Cable Yard consists of the ECVT Portal and GIS building. The detailed design for this area is shown below through a series of images based on the current 3D design. The images depicts the colour, signage and texture that would be implemented.

- **Planting and Screening:** The road leading to the portal will be closed to the public. The location of this closure point will be agreed upon in alignment with the Long Term Road Strategy and Recreation Management Plan and in consultation with NPWS. However, a key component to managing visual impacts will involve rehabilitation of vegetation and screening at the surrounding public view points which will be refined in Stage 2 of this plan.
- **Colour:** As shown in figures B-1 and B-2, The GIS building will be in accordance with the *NPWS Park Facilities Manual* with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity. The portal face is currently a brown colour which is reflective of the current state of the site. This will be shotcreted or covered with steel mesh and therefore will be updated for Stage 2 of this plan. Grey steel fencing will be installed within and above the portal for safety.
- **Texture:** The external façade of the GIS building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. As shown in figure B-1 and B-2 the building walls will include metal wall cladding and precast concrete panels. Local stone will be incorporated into the building, with details to be provided in Stage 2 of this plan.
- **Signage:** Signage to be included is the SHL logo and safety signage, such as entry and exit points.
- **Lighting:** will be in accordance with the with the following guidelines and standards noted in section 5.

The below designs are interim and detailed designs will be included in Stage 2 of this plan. Stage 2 will also include detailed designs for the Main Access Tunnel Portal.



Figure B-1: GIS Building north-west facing



Figure B-2: GIS Building south-west facing

APPENDIX C – TALBINGO RESERVOIR

Talbingo Reservoir consists of the water intakes and associated infrastructure, including surface buildings. This section firstly includes detail of the intake structure and then includes detail of the building which are used to control the intake structure and are situated on top of it.

Talbingo Intake Structure

The concept design for the water intake is shown in figure C-1 in the form of a rendered image which utilises the current design and forecast vegetation growth. The building in this image is provided for visualization purposes only and will be updated in Stage 2.

- **Planting and screening:** Figure C-1 shows an example of how the Intake Structure will look once vegetation has grown back. This will be refined in the RMP.
- **Colour:** In accordance with the NPWS Park Facilities Manual, the intake structure will predominantly consist of grey shotcrete. Exposed natural rock with local cut slope stabilisation treatment will also be incorporated into the finished design.
- **Texture:** Materials selected with textures that will blend into the surrounding landscape will consist of a combination of shotcrete and natural rock including cut slope stabilisation treatment. Below the FSL, a natural rock surface will be used to ensure the landform is visually compatible with the existing lake edge.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure C-1: Talbingo Intake Structure

Talbingo Intake Building

This building is located directly above the intake structure as shown in figure C-1. The detailed design of the surface building is shown below through figures C-2 to C-4 based on the current 3D design.

- **Colour:** As shown in the below figures, the Talbingo Intake Building will be in accordance with the *NPWS Park Facilities Manual* with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity.
- **Texture:** The external façade of the Talbingo Intake Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls. Figure C-4 indicates the potential location of the textured rock feature.
- **Signage:** Signage to be included is the SHL logo and safety signage, such as exit points.
- **Lighting:** will be in accordance with the with the following guidelines and standards noted in section 5. The below designs are interim and detailed designs will be included in Stage 2 of this plan.

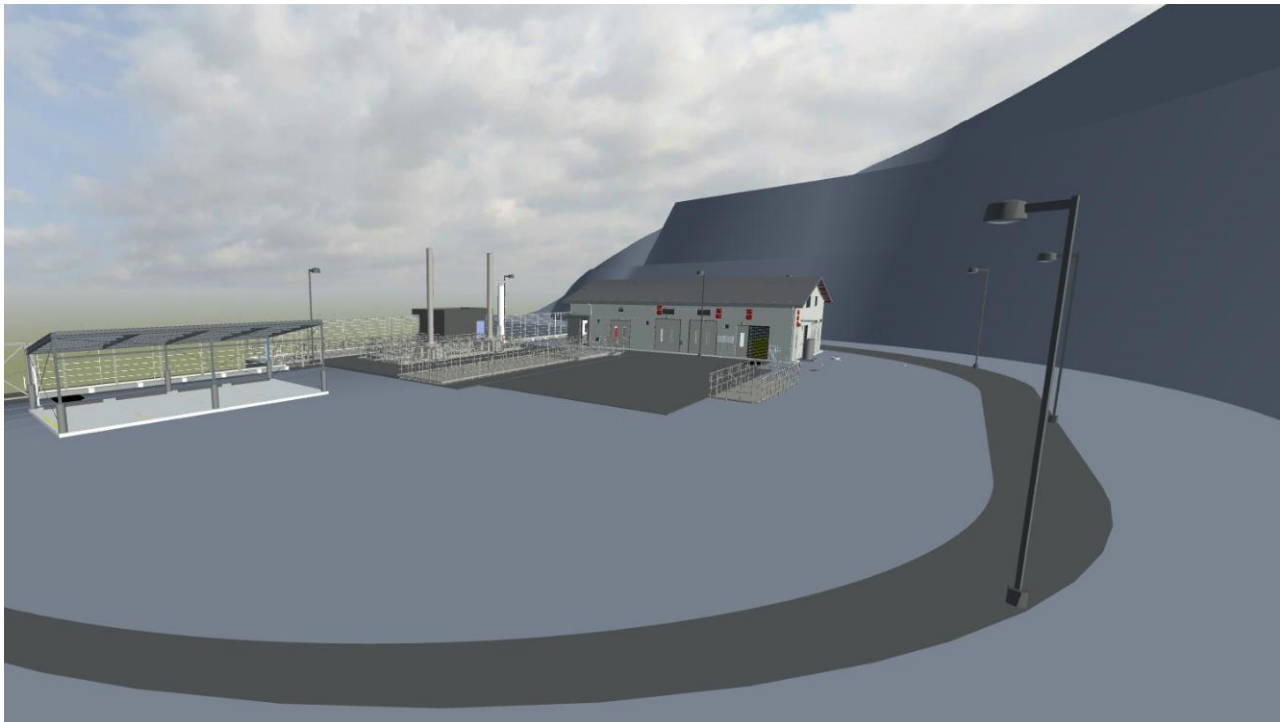


Figure C-2: Talbingo Intake Building south-east facing

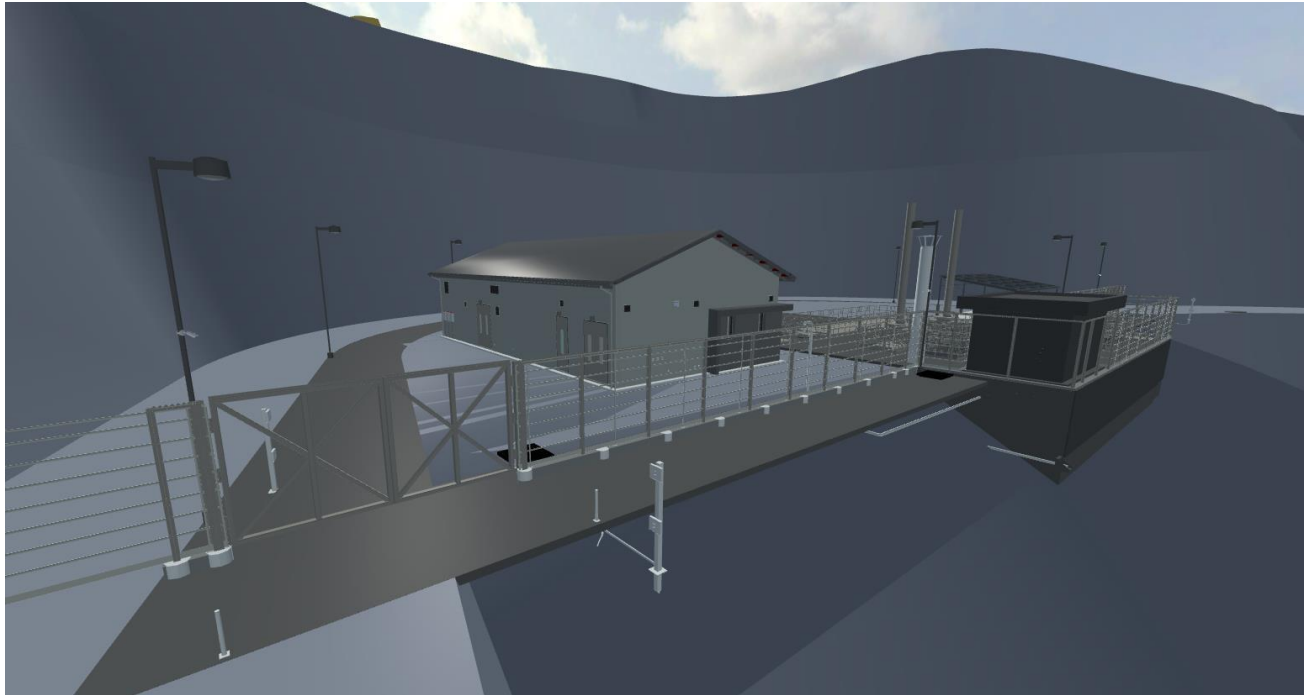


Figure C-3: Talbingo Intake Building north-west facing



Figure C-4: Talbingo Intake Building - showing rock feature

APPENDIX D – TANTANGARA RESERVOIR

Tantangara Reservoir consists of the water intakes and associated infrastructure, including surface buildings.

Tantangara Intake Structure

The concept design for the water intake as a whole is shown in figure D-1 in the form of a rendered image which utilises the current design and forecast vegetation growth.

- **Planting and screening:** Figure D-1 shows an example of the how the Intake Structure will look once vegetation has grown back. This will be refined in the RMP.
- **Colour:** In accordance with the *NPWS Park Facilities Manual*, the intake structure will predominantly consist of grey shotcrete. Natural rock will also be incorporated into the finished design.
- **Texture:** Materials selected with textures that will blend into the surrounding landscape will include a combination of shotcrete and natural rock.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure D-1: Tantangara Intake Structure

Tantangara Intake Building (Gate Shaft)

This building is located to the north of the intake structure as shown in figure D-1. The detailed design of the surface building is shown below through figures D-2 to D-4 based on the current 3D design.



- **Planting and Screening:** In accordance with the RMP vegetation selected around the intake building will be representative of the PCTs which were present on site prior to disturbance.
- **Colour:** The Tantangara Intake Building will be in accordance with the *NPWS Park Facilities* Manual with the building walls and roof to be grey. Paint will be non-reflective to reduce glare and surface reflectivity. Figure D-2 and D-3 will be revised with agreed colours.
- **Texture:** The external façade of the Tantangara Intake Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls. Figure D-4 indicates the potential location of the textured rock feature.
- **Signage:** Signage to be included is the SHL logo and safety signage, such as exit points.
- **Lighting:** will be in accordance with the following guidelines and standards noted in section 5.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure D-2: Tantangara Intake Building east facing



Figure D-3: Tantangara Intake Building north-east

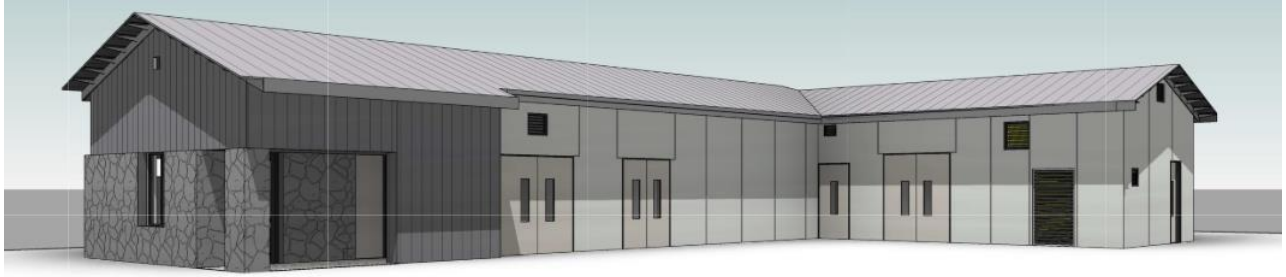


Figure D-4: Tantangara Intake Building - showing rock feature

APPENDIX E – HEADRACE SURGE SHAFT

The Headrace Surge Shaft consists of the shaft infrastructure and associated surface buildings. This section will be updated with details of the Ventilation shaft if this work front is to go ahead.

Headrace surge shaft

The concept design for the Headrace surge shaft area shown in figure E-1 and E-2 in the form of a rendered image which utilises the current design and forecast vegetation growth.

- **Planting and Screening:** In accordance with the RMP, vegetation selected around the intake will be representative of the PCTs which were present on site prior to disturbance
- **Colour:** The Headrace Surge Shaft Tower will be in accordance with the *NPWS Park Facilities Manual*. The tower will consist of poured in-situ concrete and be grey, unless otherwise agreed with NPWS.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure E-1: Headrace Surge Shaft (aerial view from the east)



Figure E-2: Headrace Surge Shaft (aerial view from west)

Headrace Surge Shaft surface building

This building is located across from the tower, as shown in figure E-1 and E-2. The detailed design of the surface building that is situated at the Headrace Surge Shaft is shown below through figures E-3 to E-5 based on the current 3D design.

- **Colour:** The Headrace Surge Shaft Building will be in accordance with the NPWS Park Facilities Manual. The tower, building walls and building roof will be grey, unless otherwise agreed with NPWS. Paint will be non-reflective to reduce glare and surface reflectivity.
- **Texture:** The external façade of the Headrace Surge Shaft Building will consist of various materials with the intention to reduce the contrast between built elements and the surrounding natural environment and reduce the potential for glare. The building walls will include metal wall cladding, precast concrete panels, and local stone in random but a consistent pattern with semi dry jointed mortar for the building walls. Figure E-5 indicates the potential location of the textured rock feature.
- **Signage:** Signage to be included is the SHL logo and safety signage, such as exit points.
- **Lighting:** will be in accordance with the with the following guidelines and standards noted in section 5.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.

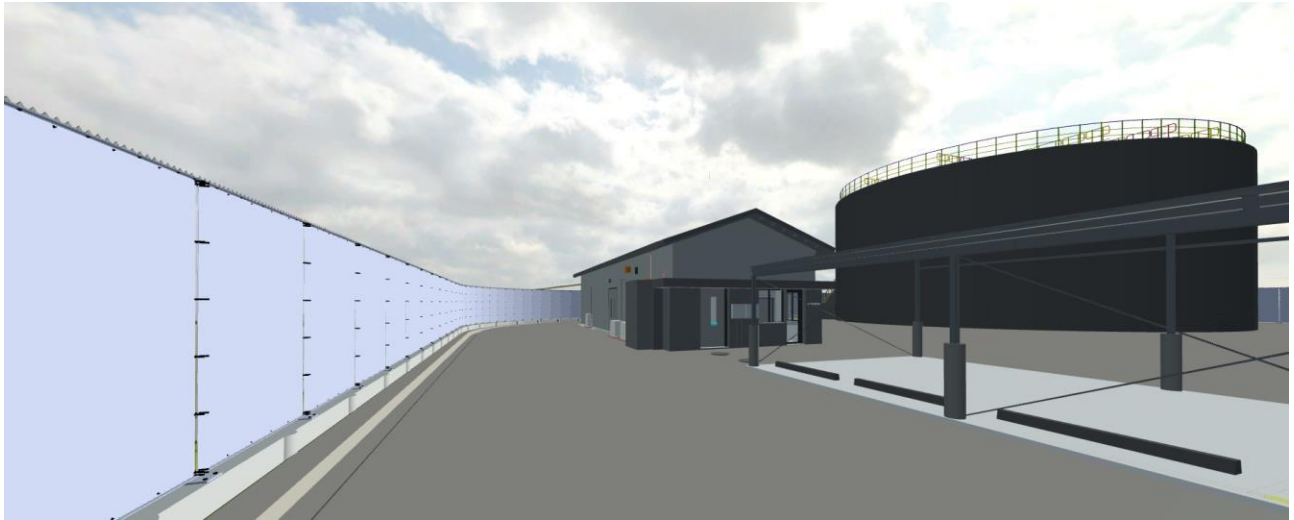


Figure E-3: Headrace Surge Shaft Building north-east



Figure E-4: Headrace Surge Shaft Building south-east facing



Figure E-5: Headrace Surge Shaft Building - showing rock feature

APPENDIX F – FISH SCREENS AND BARRIER

Tantangara Fish Screen

The Tantangara Fish Screen will be a permanent structure designed to prevent, so far as is reasonably practicable, the movement of pest fish and spread of disease to the mid-Murrumbidgee River and Lake Eucumbene.

A concept design for the screens is provided in Figure F-1 below based on 3D design data. Details will be refined with final design to be included in Stage 2 of this plan. This includes: precise location, extent and specific design features as well as additional details regarding minimising visual impact such as colour, signage, texture, lighting, planting and screening.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.



Figure F-1: Tantangara Fish screen concept design

Fish Barrier

The Fish Barrier on Tantangara Creek will be a permanent structure designed to prevent so far as is reasonably practicable Climbing Galaxias reaching the existing population of Stocky Galaxias in the upper reaches of the creek.

The detailed design for this structure is provided in Figure F-2 based on 3D design data and a locality plan is shown in Figure F-3. Stage 2 of this plan will include a final design following the development of the RMP for this site

The site indicated in Figure F-3 was selected as it provides a natural jump in topography that is beneficial for barrier design and allows for the smallest possible and least intrusive structure. This location provides the smallest permanent inundation area of alternate locations considered. From a visual impact perspective, the structure will be largely obscured from most viewpoints by local topography. The barrier will not be visible from the access track below and will not detract from the

Tantangara Creek Falls located downstream of the barrier. The barrier will be a grey colour in accordance with *NPWS Park Facilities Manual*.



Figure F-2: Tantangara creek Fish Barrier design



Figure F-3: Tantangara creek Fish Barrier location



APPENDIX G –PERMANENT SPOIL EMPLACEMENTS

As per Schedule 3 Condition 53(a) of the CoA, this VIMP must include incorporate *textured surfaces along the shoreline of the Ravine Bay and Talbingo spoil emplacement areas*. This plan therefore considers all the Permanent Spoil Emplacement areas at the Lobs Hole and Talbingo site, and from the view point of the reservoir / river to show the shoreline.

The Ravine Bay and GF01 & Lobs Hole Permanent Spoil Emplacements are currently under construction. An interim design for the long-term outcome of each of these sites has been provided in sections below in the form of a series of rendered images (over time) which utilise the current landform design and forecast vegetation growth.

Details will be refined with final design to be included in Stage 2 of this plan. This will include further detail on planting and screening as per RMP and textured surfaces. This will likely involve additional vegetation along shoreline to screen the site and different rock sizes and vegetation sizes along the shoreline to provide texture.

The below designs are interim and detailed designs will be included in Stage 2 of this plan. Visualisations for Tantangara Permanent Emplacement will be included in Stage 2.

Ravine Bay Permanent Spoil Emplacement



Figure G-1: Ravine Bay Permanent Spoil Emplacement - after construction



Figure G-2: Ravine Bay Permanent Spoil Emplacement - future visualisation

GF01 Permanent Spoil Emplacement



Figure G-3: GF01 Permanent Spoil Emplacement - after construction



Figure G-4: GF01 Permanent Spoil Emplacement - future visualisation

Lobs Hole Permanent Spoil Emplacement



Figure G-5: Lobs Hole Permanent Spoil Emplacement - after construction



Figure G-6: Lobs Hole Permanent Spoil Emplacement - future visualisation

APPENDIX H – ROCK FOREST

The works at the Rock Forest site were designed to minimise the visual impact of the works, with the primary laydown area situated out of site from the highway and nearby residents. Therefore the screening that is in place is the natural shape of the land and vegetation.

The image below depicts the location of nearby residents R6 and R19. The area outlined in blue shows the natural vegetation that is in place that blocks the Rock Forest work area from the view of nearby resident R6 and people travelling on the highway. The area outlined in green shows the natural vegetation that is in place that blocks the Rock Forest work area from the view of nearby resident R19. Once the Permanent Spoil Emplacement area is built the resident at R19 may be able to see the western edge of the landform. If this is the case, additional planting and screening will be designed and implemented to block the view of the site.

The below designs are interim and detailed designs will be included in Stage 2 of this plan.

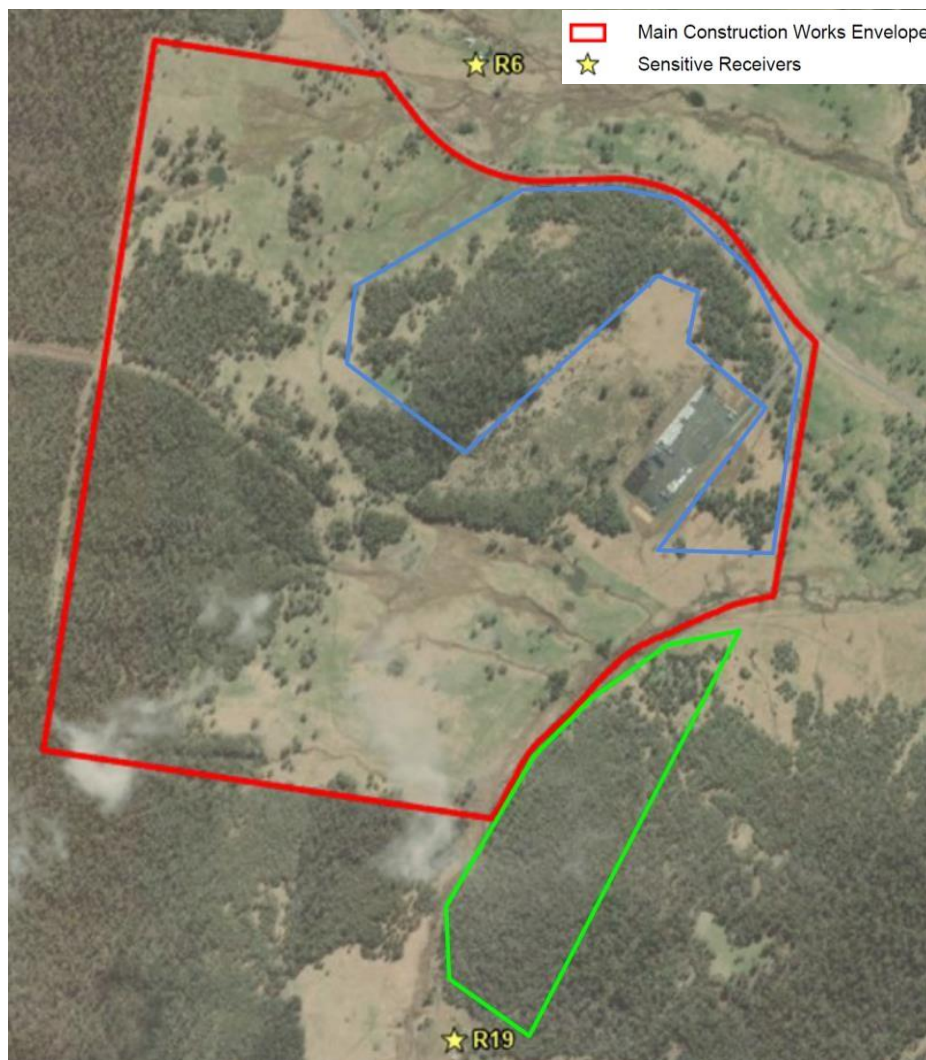


Figure H-1: Rock Forest Sensitive Receivers