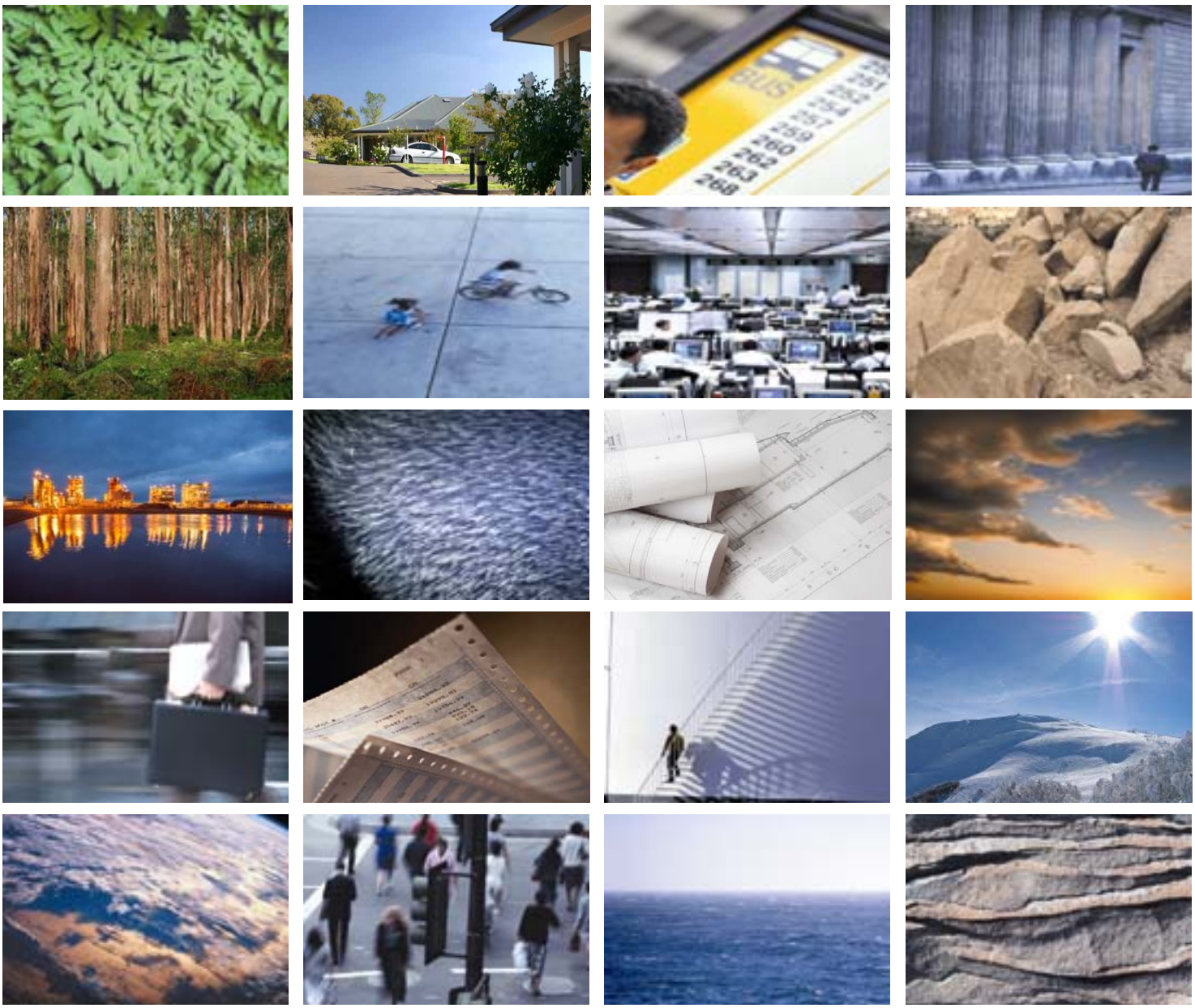

Mt Buller Sustainable Water Security Project (Off Stream Storage)

Site Environmental Management Plan

Mt Buller and Mt Stirling Alpine Resort Management Board

FINAL

December 2016

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Contents

1 INTRODUCTION[1]

1.1 PROJECT BACKGROUND

Mt Buller Alpine Resort (the Resort) is one of the most accessible alpine resorts in Australia, located within a sensitive area with significant ecological, scenic, tourism and recreational values. The sub-alpine environment as a whole is a valuable resource forming an important part of the Australian landscape.

The Resort has significant constraints on its water supply. The water requirements of the Resort are determined by the need to service the resident and visitor populations, and to maintain the amenity and functionality of the Resort during winter for skiing and snow-play.

Investigations into the augmentation of existing water supply options and infrastructure, and potential water storage locations have been undertaken periodically by the Mt Buller and Mt Sterling Alpine Resort Management Board (RMB) over the last two decades. A range of water supply options and potential sites for water supply storage have been assessed to varying degrees.

The RMB operates under the provisions of the Alpine Resorts (Management) Act 1997 and acts on behalf of the Crown, accepting directions or guidance from the Minister for Planning. The RMB has established the Mt Buller Sustainable Water Security Project which encompasses a series of projects designed to assist it in meeting its obligation to provide a safe and reliable water supply to the Resort, both now and in the future. One component of the Mt Buller Sustainable Water Security Project is the development of an off-stream storage solution and an associated upgrade of the Resort water supply infrastructure. Mt Buller is licenced to extract 700 ML of water per year from Boggy Creek. The water must be extracted between the months of May and October (inclusive). The current licence provides sufficient water to meet current and projected annual potable and snow making requirements.

However, due to a lack of storage, the full water allocation cannot be realised, and in the past Mt Buller has been required to extract water during the summer months, outside its licence. This has impacts on the flows of Boggy Creek and is not sustainable or desirable in the longer term.

Based on a number of previous investigations and reviews, the RMB has determined that a 100 ML on mountain storage is required to assist it in meeting future potable and snow making water demands. GHD were

[1] Section taken from Meinhardt, Mt Buller Sustainable Water Security Project - Off-Stream Storage. Site Environmental Management Plan, dated August 2016 (Meinhardt, 2016)

commissioned by the RMB to undertake investigations into the siting and concept design of the 100 ML storage and ancillary infrastructure required to service this asset. The project is known as the Mt Buller Off-Stream Storage Project (hereafter referred to as the Project).

1.2 PURPOSE

A Site Environmental Management Plan (SEMP) is required for all planning applications for site development on Mt Buller, in accordance with Schedule 1 and Schedule 2 of the Alpine Resort Planning Scheme (ARPS). The SEMP must be endorsed by the Minister for Planning and other relevant authorities including the RMB and the Department of Environment, Land, Water and Planning (DELWP) prior to the commencement of any building or works.

Construction activities have the potential to cause environmental impacts if not effectively monitored and controlled. This SEMP has been prepared to acknowledge construction activity for the Project that may have the potential to cause environmental impacts.

The SEMP should be read in conjunction with the statement of limitations provided in *Annex A*.

1.3 SEMP REQUIREMENTS

This SEMP has been prepared with reference to the DELWP Alpine Planning Information Kit.

The remainder of this document has been divided into three sections:

- Part A - Site Environmental Management Plan (to address the requirements of the SEMP Cover Form)
    - a detailed description of the development, including a site plan
    - designation of roles and responsibilities
    - identification of potential environmental impacts associated with construction activities, including a risk assessment
- Part B - Site Construction Management Plan
    - a description of management procedures (control measures, performance criteria and mitigation strategies) which aim to reduce any identified environmental impacts
- Part C - Ecological Rehabilitation Plan
    - a detailed report outlining re-vegetation requirements and other rehabilitation areas post construction

A copy of the endorsed SEMP must be kept on site at all times during the construction period. Failure to comply with the SEMP can result in enforcement action.

2 *PART A – SITE ENVIRONMENTAL MANAGEMENT PLAN*[2]

This section addresses the requirements of the SEMP Cover Form.

2.1 SITE LOCATION

The Project site is located within the Mt Buller Alpine Resort Ski Area, approximately 150 kilometres northeast of the Melbourne CBD, Victoria. The Project Construction Footprint (PCF) is located on a gently to moderately sloping plateau 700 metres east of the Mount Buller summit and 250 metres west of Mount Buller village. The PCF covers an area of 10.347 hectares (ha). The proposed permanent and temporary construction footprint of the project would be located between the final section of the unsealed Mt Buller Summit Road and the Summit Nature Walking Track (Biosis, 2016).

The PCF is located on Crown land that is permanently reserved for the purpose of the Mount Buller Alpine Resort, known as Crown Allotment 5A, Section A (SPI 5A~A\PP2370), Parish of Changue East, County of Wonangatta. The RMB is the public land manager. The PCF is within the:

- Victorian Alps Bioregion;
- Goulburn River Basin; and
- Management area of Goulburn Broken Catchment Management Authority. (Biosis, 2016).

[2] Section modified from Meinhardt, 2016 with information added from GHD,

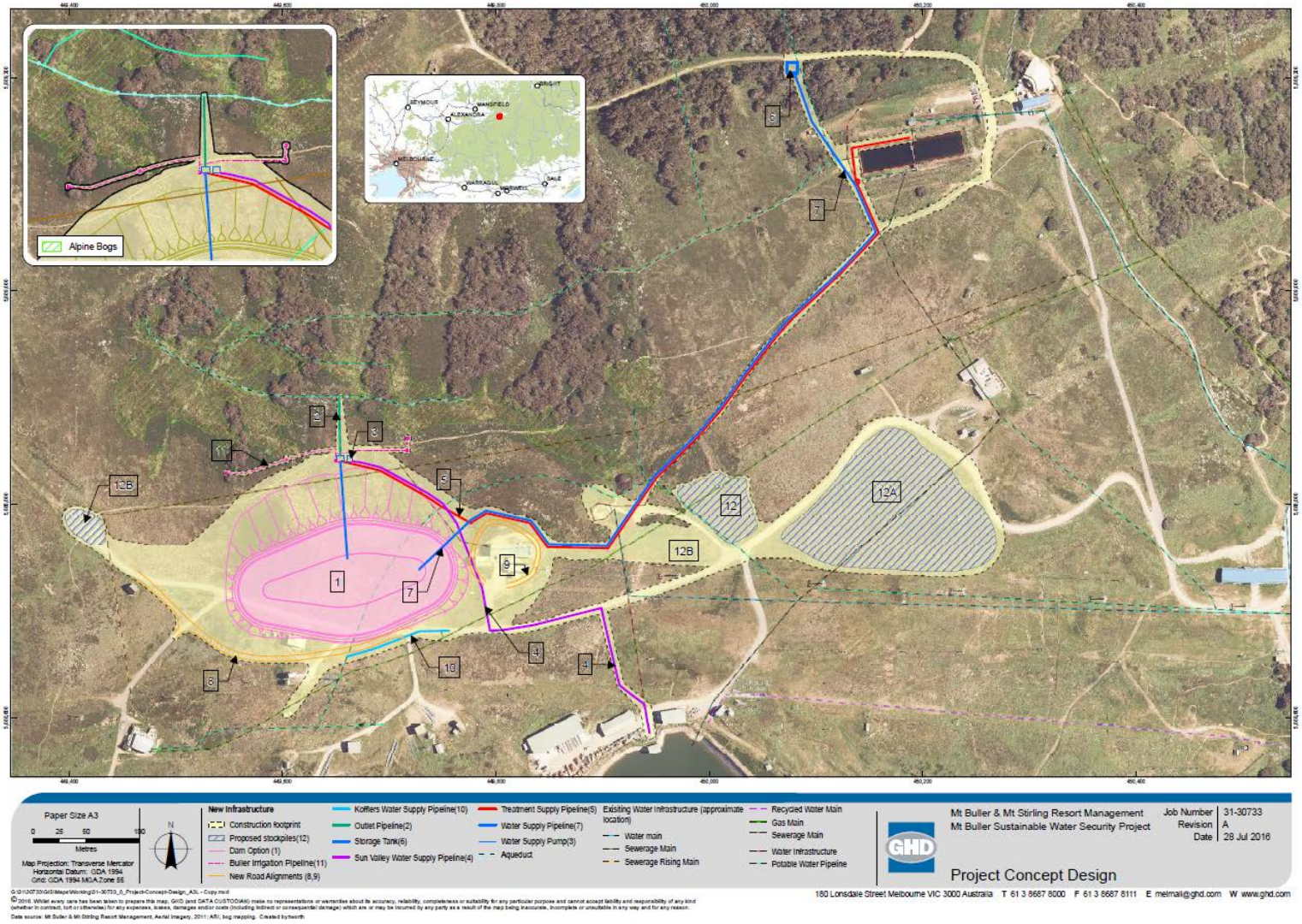

FIGURE 1: Proposed Concept Design and Project Construction Footprint

Source: GHD Mt Buller Sustainable Water Security Project Off Stream Storage Concept Design Summary 2016

2.2 *PROJECT DESCRIPTION*

The Project involves the construction of a 100 ML, HDPE lined water storage by cut and fill methodologies.

A full drainage blanket is to be installed below the HDPE liner. The proposed southern bank of the storage comprises the natural excavated ground whilst the northern boundary of the storage is formed by an earthfill embankment. The dam is to be fully lined, no zoning of the earthfill embankment is planned.

Additional infrastructure associated with the project is described in detail in in *Table 2.1* below and includes:

- Storage drainage – connecting to existing aqueduct;
- Storage transfer pump station;
- Sun Valley pipeline – to allow transfer of water from the new storage to the Sun Valley Reservoir;
- Raw water supply pipeline to treatment plant and low level reticulation network;
- Raw water supply break tank and booster pump station;
- Raw water supply pipeline from booster pump station to new water storage;
- Summit carpark access road re-alignment;
- Control Centre access road;
- An environmental watering system; and
- Stockpile areas.

This infrastructure, as well as the proposed construction methodologies, is detailed in the Mt Buller Sustainable Water Security Project Off-Stream Storage Concept Design Summary Report (GHD, 2016a).

Table 2.1 Project Infrastructure Requirements

Number (as per Figure 1 above)	Construction requirement	Description
1.	Construction of a water storage drainage and collection system	Drainage and collection system, oval shape, lined, inlet and outlet points.
2.	Storage Drain	A discharge pipe that extends down the hillside north of the Summit Nature Walk Track and connects to the existing aqueduct.
3.	Storage transfer pump station	Pump station with 2 pumps. One pump will transfer to treatment plant and reticulation system. Second pump will transfer to Sun Valley Reservoir.
4.	Sun Valley Pipeline	A 250mm diameter truck main pipe connecting the new storage to the existing Sun Valley Reservoir.
5.	Raw water supply pipeline to treatment plant and low level	200mm diameter truck main pipe delivering water from the new storage

Number (as per Figure 1 above)	Construction requirement	Description
	reticulation network	to the existing treatment infrastructure.
6.	Raw water supply break tank and booster pump station	A break tank and booster station to connect the existing raw water supply infrastructure from Boggy Creek to Burnt Hut.
7.	Raw water supply pipeline from booster pump station to new water storage	A 200mm diameter transfer pipe connecting the Break Tank to the new storage.
8.	Summit carpark access road re-alignment	Estimated 5m wide gravel access track.
9.	Control Centre access road	Estimated 5m wide gravel access track connecting into existing access track.
10.	Connection and re-connection of existing services	Service reconnections.
11.	Environmental watering system	The system is designed to gravity feed water via a series of regulating pits (1 m x 1 m) connected via a network of underground and above ground distribution pipes.
12.	Stockpile areas	It is estimated that the main stockpile will reach a maximum height if about 5 m, allowing for 3 to 1 batters, assuming only the main construction material is stockpiled in this area and the topsoil and waste is stockpiled in the smaller stockpile areas.

The Concept Design Report, Geotechnical Risk Assessment and Landscape Assessment relating to the Project can be referred to in GHD's Concept Design Summary Report (GHD, 2016a), GHD's Geotechnical Risk Assessment (GHD, 2016b) and GHD's Landscape and Visual Impact Assessment (GHD, 2016c).

2.3 *PROJECT MANAGEMENT*

The name and 24-hour contact details of the project manager responsible for ensuring compliance with the SEMP and completion of building and works described in the SEMP is detailed below in *Table 2.2.* Roles and responsibilities are further defined in Part B – Site Construction Management Plan.

Table 2.2 Project Contact List

Company	Position	Name	Contact Number
RMB Project Manager	Chief Executive Officer	John Huber	(03) 5777 7201

2.4 CONSTRUCTION SCHEDULE

The proposed construction schedule detailed below in *Table 2.3* provides indicative dates for the phases of construction works and is framed around the following assumptions outlined in the Concept Design Report (GHD, 2016a):

- A start after the completion of the snow season is nominally taken as the end of September (this start date may need to be adjusted depending on seasonal conditions);
- The construction schedule is based around a standard working week with 5 days on 2 days off roster, which runs for 122 days (25 weeks) until mid-March;
- Should the project incur delays, an additional 2 months are available for construction prior to the onset of the 2017 snow season;
- Specified equipment, work rates and construction sequencing are based on GHD's experience with similar dams and civil earthworks projects and will require re-assessment during functional and detailed design; and
- Actual methodology adopted by the selected contractor may differ and result in changes to the schedule as provided.

The principal contractor appointed will be expected to provide a detailed construction schedule.

Table 2.3 Proposed Construction Schedule

Task	Stages	Start	Completion
1-4	Preliminary Works	28.09.17	9.10.17
5	Site Establishment	12.10.17	26.10.17
6	Stockpile area and preparation works	19.10.17	3.11.17
7	Relocate haul/access road around pond	2.11.17	5.11.17
8	Storage Pond preparation works	4.11.17	18.12.17
9	Storage Pond Excavation works	16.11.17	23.12.17
10	Storage Pond Underdrainage works	07.12.17	23.12.17
11	Storage Pond Embankment Works	16.12.17	04.13.18
12	Site Rehabilitation	10.02.18	11.04.18
13	Demobilisation	29.02.18	15.03.18

It is noted that construction activity is generally only permitted between 1st November and 30th April each year, and final site tidy up and rehabilitation

may occur up to 15th May each year. As such, commencement of construction outside of these timeframes must be approved by the RMB and the Minister for Planning.

Refer to Proposed Construction Schedule for a description of proposed constructions works and a full construction schedule including resourcing labour units, equipment, rates and duration.

2.5 CONSTRUCTION ACTIVITIES/TECHNIQUES

Preliminary works undertaken by GHD have recommended that the project will be constructed in the following stages:

- Preliminary works;
- Site establishment;
- Stockpile area and preparation works;
- Relocate haul/access road around pond;
- Storage Pond preparation works;
- Storage Pond excavation works;
- Storage Pond underdrainage works;
- Storage Pond embankment works;
- Site rehabilitation; and
- Demobilisation.

The principal contractor appointed will be expected to provide their own recommended construction process.

Table 2.4 below refers to the construction activities/techniques that can be expected to be applied.

Construction engineering details and design parameters are referred to in the Concept Design Report (GHD, 2016a), in particular:

- Table 1 Concept Design Details - summarises technical requirements and engineering details applicable to construction techniques; and
- Table 2 Storage Concept Design Parameters - provides concept design parameters and details for the proposed infrastructure.

Table 2.4 Construction Activities/ Techniques

Stages	Description		Construction Activity / Technique
Preliminary Works Phase			
1-4	Preliminary works	1	Telstra cable relocation
		2	Waterline relocation
		3	Chairlift
		3.1	Removal of cable and two pylons from within embankment footprint
		3.2	Removal of chairlift buildings from within embankment footprint and dispose in accordance with site requirement
		4	Vegetation salvage from project construction footprint
		4.1	Assessment of vegetation with identification of individual plants and sods for salvage
		4.2	Excavation and relocation of salvage plants to interim staging area
		4.3	Relocation of salvage plants from staging area to planting site
Construction Works Phase			
5	Site establishment	5.1	Preparation of site for offices, crib, toilet block, goline, workshop, parking lot, etc.
		5.2	Installation of office, crib and toilet block
		5.3	Electrical hook-up
		5.4	Water hook-up
		5.5	Installation of gatehouse and fencing around work area
		5.6	Equipment mobilisation • dozer • excavator (35 t) • excavator (20 t) • excavator (5 t) • grader • articulated dump truck • compactor - sheepsfoot • compactor - smoothdrum • IT28 • manitou (telehandler) • water cart (16m3) • fuel cart • service cart • ute • bus • workshop
		5.7	Baseline survey (if required)
6	Stockpile area and preparation works	6.1	Slash vegetation and move to temporary stockpile
		6.2	Cover stockpile area with geofabric
		6.3	Relocate slashed vegetation stockpile onto designated area of covered stockpile area
		6.4	Construct and install erosion control measures, including supply of all required manufactured products
7	Relocate haul/access road around pond	7.1	Clear, grub, load, haul and place vegetation from road footprint to designated stockpile area
		7.2	Clear, grub, load, haul and place topsoil from road footprint to designated stockpile area (300 mm thick)
		7.3	Excavate from stockpile, load, haul, place, moisture condition and compact road sub-base

Stages	Description		Construction Activity / Technique
8	Storage pond preparation works	8.1	Clear, grub, load, haul and place vegetation from water pond footprint to designated stockpile area
		8.2	Clear, grub, load, haul and place topsoil from water pond footprint to designated stockpile area (300 mm thick)
		8.3	Excavate, load, haul and place unsuitable material from water dam footprint to designated stockpile area
9	Storage pond excavation works	9.1	Excavate to design limits, load, haul and place in situ material from water dam footprint to designated stockpile area
		9.2	Moisture condition and blend excavated material from water dam foot print placed at designated stockpile in accordance to specifications
10	Storage pond underdrainage works	10.1	Excavate to design limits, load, haul and place in situ material from water dam footprint to designated stockpile area
		10.2	Supply and install 200 diameter outlet pipe including bedding to 800 mm cover
		10.3	Load from stockpile, haul, place, spread and compact moisture conditioned blended fill into outlet pipe slot to design limits
		10.4	Supply and install geotextile separation layer within the underdrainage trenches
		10.5	Supply and install underdrainage pipework within embankment footprint
		10.6	Supply and install drainage media within underdrainage trenches
11	Storage pond embankment works	11.1	Grade, moisture condition and compact water dam embankment footprint in accordance to specifications
		11.2	Load from stockpile, haul, place, spread and compact moisture conditioned blended fill into water pond embankment in accordance to design limits and specifications
		11.3	Proof roll upstream embankment of water dam and floor of basin
		11.4	Supply and install HDPE liner on prepared upstream embankment trench including excavation and backfill of anchor trenches along crest
		11.5	Supply and install perimeter fence along crest of embankment
		11.6	Load from stockpile, haul, place, spread and compact moisture conditioned topsoil onto the downstream water pond embankment in accordance to design limits and specifications
		11.7	Load, haul, place over size boulders and stripped vegetation from stockpile onto downstream embankment slope in accordance to design drawings for provision of fauna habitat
		11.8	Supply and install erosion control mat onto downstream embankment slope in accordance to design and specifications
		11.9	Supply and place all materials required for seeding and fertilising downstream slope of water dam downstream embankment slope
12	Site rehabilitation	12.1	Remove and dispose in accordance with legal requirements the geotextile liner placed beneath the stockpile area
		12.2	Remove and dispose in accordance with legal requirements the redundant erosion control measures placed for the project works
		12.3	Repair damage to public road caused by haul fleet
		12.4	Black top section of haulroad constructed along southern side of water pond

Stages	Description		Construction Activity / Technique
13	Demobilisation	13.1	Disconnect the electrical power
		13.2	Disconnect the water supply
		13.3	Remove office, crib and toilet block
		13.4	Remove the gatehouse and safety fencing around work area
		13.5	Equipment de-mobilisation
		13.6	Final pick-up survey (if required)

2.6 ENVIRONMENTAL RISKS

The principal contractor will be expected to demonstrate how potential environmental impacts will be taken into account and managed to eliminate (where practical) or mitigate impacts. A risk assessment methodology should be employed to assess the potential environmental impacts, and prioritise preventative and management strategies and actions.

Potential environmental issues have been identified in *Table 2.5*, and these are further discussed in Part B – Site Construction Management Plan (refer Section 3.8).

Table 2.5 Project Environmental Risks

Risk	Measures to Address Risk
Land Contamination and Management Water Quality Management (including Surface Water and Groundwater) Air Quality Management (Dust and Vehicle Emissions) Noise and Vibration Management Waste Management Flora and Fauna Heritage Acid Sulphate Soils Bushfire Risk	Refer to Part B – Site Construction Management Plan

2.7 SITE ENVIRONMENTAL VALUES

Environmental values and potential environmental impacts associated with these environmental values are discussed in *Section 3.8*.

2.8 PROJECT MONITORING

The principal contractor appointed will be expected to prepare and implement environmental inspection, monitoring and reporting procedures. At a minimum, weekly monitoring and inspections are to be undertaken by the Site Manager to evaluate compliance with the SEMP, ensure that all controls

are being followed and that any non-conformances are recorded and corrective actions implemented.

An Environmental Inspection Checklist will be developed and tailored specifically to the requirements of the site. The Site Manager will undertake environmental inspections daily, weekly and after significant rainfall events to evaluate effectiveness of environmental controls. Dated photographs will be taken of the site at times prior to, during and following the construction period and supplied to the responsible authority and the RMB to demonstrate compliance with the SEMP.

Environmental reporting and auditing will be conducted as outlined in Part B – Site Construction Management Plan. The RMB Project Manager will be immediately advised of any non-conformances identified through monitoring activities.

2.9 DECLARATION

The following Declaration is to be completed by the principal contractor:

I agree to ensure that:

- This SEMP will be adhered to;
- All endorsed plans will be adhered to;
- All site rehabilitation and revegetation works will be undertaken in accordance with the approved SEMP;
- Prior to construction personnel commencing work, the site supervisor will ensure:
    - An appropriate site induction has been undertaken;
    - Equipment/Plant will be serviced off-site;
    - All equipment will be cleaned and free of vegetation, soil and seed prior to being brought onto the site;
    - Approval from the Resort Management Board will be obtained prior to any out-of-hours work occurring. Written notification will be provided to local residents when out-of-hours work is occurring;
- Provision of new service connections and upgrading of existing services will be undertaken in a timely manner with minimal on-site and off-site impacts and with prior approval of the RMB and services providers; and
- Advice will be obtained from the 'Dial Before You Dig' service to determine the location of existing services onsite.

Full Name	**Signature**
Role	**Organisation**

Date: ____/_____/_____

3 PART B – SITE CONSTRUCTION MANAGEMENT PLAN[3]

3.1 PURPOSE

The purpose of this framework Construction Management Plan (CMP) is to outline practical and achievable management procedures to prevent or mitigate environmental impacts during construction of the Project.

A detailed CMP must be prepared by the principal contractor to provide assurance to the RMB, as the Minister for Planning and other stakeholders that potential environmental impacts during construction have been adequately characterised and addressed.

3.2 OBJECTIVES

The objective of the CMP is to allocate responsibilities, identify environmental risks and provide appropriate management and monitoring procedures to ensure that:

- Construction works undertaken by the principal contractor (and subcontractors) have minimal impact on the environment; and
- Construction works are undertaken in accordance with relevant legislation and guidance.

This document presents a framework for environmental management during construction activities, and may be used as a guide for preparation of the detailed CMP. However, it should be noted that development of the CMP is not restricted to the management procedures outlined in this document (i.e. additional controls may be warranted depending on the level of risk as determined by the principal contractor).

3.3 SCOPE OF CMP

The CMP prepared by the principal contractor should include, at a minimum:

- A detailed description of the construction zone, including site plans (all buildings and works must be confined to the defined construction zone);
- Designation of roles and responsibilities (including 24 hour contact details);
- A review of relevant legislation;
- Identification of potential environmental impacts associated with construction activities, including a risk assessment;

[3] Section taken from Meinhardt, 2016d

- A description of management procedures (control measures, performance criteria and mitigation strategies) which aim to reduce any identified environmental impacts. The management procedures should be proportional to the level of risk assigned to each potential environmental impact;
- Occupational health and safety procedures (if not addressed by a separate document);
- Procedures for induction and training, emergency response, incident reporting and handling complaints; and
- An outline of relevant monitoring, auditing and reporting procedures.

3.4 CONSULTATION

It is recommended that prior to undertaking construction works on the Project site, the principal contractor consult with the relevant personnel / organisations to obtain assistance in identifying and managing potential environmental impacts.

3.5 PROJECT DESCRIPTION

The CMP should provide a detailed description of construction works and the layout of the work site including:

- Location and description of the site;
- Details of the type of work that will be carried out during construction;
- Detailed construction schedule;
- A site plan of the construction zone showing the spatial location of key features inclusive of:
    - neighbouring buildings;
    - surrounding street networks;
    - waterways;
    - site access points for pedestrian, vehicle and machinery;
    - surface water drainage;
    - native vegetation/trees:
        - on site/off site
        - to be retained and protected
        - to be removed or lopped
    - Proximity to areas of environmental significance, such as Alpine Bogs
    - Easements
    - Existing service locations and protection measures
    - Storage areas for
        - construction vehicles
        - construction materials
        - equipment
        - waste and recycling points
        - stockpiles

        - fuel and other chemicals
        - spill kits
    - Location of temporary site offices/lunchrooms
    - Topography slope of the land
    - Sediment control measures including locations
    - Stormwater drainage measures
    - Location of site vehicle wash down locations
    - Location of green waste storage (if applicable)

A copy of the site plan should be prominently displayed at the site office, and updated and amended as necessary.

3.6 ROLES AND RESPONSIBILITIES

The CMP must provide 24 hour contact details for key personnel responsible for ensuring compliance with the CMP as well as other key personnel associated with the project, detailing Position and Title within the organisation (e.g. Site Manager), Name and Contact details (phone numbers and email address where applicable).

An outline of key roles responsibilities is provided in *Table* below.

Table 3.1 Key Roles and Responsibilities

Person	Responsibility
RMB Project Manager	• Confirm that appropriate SEMP Measures are in place prior to construction. • Conduct regular checks of SEMP implementation and compliance. • Assist with responding to complaints arising from construction activities, as necessary.
Principal Supervisor/ Contractor/ Site	• Develop and maintain CMP document that is consistent with the SEMP. • Ensure that procedures outlined in the CMP are effectively implemented prior to and during construction works. • Ensure site staff and contractors are trained prior to works and competent in their responsibility specified in the CMP. • Maintain records of CMP implementation.
Environmental Consultant	• Review of CMP prior to construction, as requested by RMB. • Conduct regular checks of CMP implementation and compliance, as requested by RMB.

3.7 LEGISLATIVE AND POLICY FRAMEWORK

The Project is subject to the requirements of the Planning and Environment Act 1987 which establishes a framework for planning use, development and protection of land in Victoria. The Act provides for the creation of the Victorian Planning Provisions which contain Zones, Overlays, State Planning Policy Framework and Local planning Policies. Within Alpine Resorts this includes Environmental Significance Overlay Schedule 1 (ESO1), Design and Development Overlay, Schedule 3 (DDO3), Erosion Management Overlay, Schedule 1 (EMO1) and Bushfire Management Overlay (BMO). The purpose of EMO1 is to protect areas prone to erosion, landslip or other land degradation processes, by minimising land disturbance and inappropriate development.

The summary listed below provides an indicative guide on relevant federal and state legislation, regulations and guidelines which must be met through the construction and rehabilitation phase of the Project.

The principal contractor will be responsible for obtaining relevant approvals, licences and permits required to carry out construction works and will be required to submit evidence of these to the RMB prior to commencing works.

Legislations and guidelines:

Commonwealth Legislation

- Environment Protection and Biodiversity Conservation Act 1999; and
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984.

Key State Legislation

- Alpine Resorts (Management) Act 1997;
- Alpine Resorts Strategic Plan 2012;
- Planning and Environment Act 1987;
- Environmental Effects Act 1978;
- Environmental Protection Act 1970;
- Flora and Fauna Guarantee Act 1988; and
- Catchment and Land Protection Act 1994.

Key Guidelines

- Mt Buller and Mt Stirling Strategic Management Plan 2016 – 2018; and
- Alpine Planning Information Kit.

Other Relevant State Legislation

- Aboriginal Heritage Act 2006;
- Australia's Native Vegetation Framework 2012;
- Building Act 1993;
- Conservation Forest and Lands Act 1987;

- Country Fire Authority Act 1958;
- Crown Land (Reserves) Act 1978;
- Health Act 1958;
- Native Title Act 1993;
- Water Act 2007;
- Dangerous Goods Act 1985;
- Fisheries Act 1995;
- Health Act 1958;
- Heritage Act 1995;
- Local Government Act 1989;
- Water Act 2007; and
- Wildlife Act 1975.

Regulations

- Aboriginal Heritage Regulations 2007;
- Country Fire Authority Regulations 2004;
- Dangerous Goods (Storage and Handling) Regulations 2000;
- Environment Protection (Industrial Waste Resource) Regulations 2009;
- Pollution of Waters by Oil and Noxious Substances Regulations 2012; and
- Wildlife Regulations 2002.

Policies

- State environment protection policy (Ambient Air Quality);
- State environment protection policy (Control of Noise from Commerce, Industry and Trade) No. N-1;
- State environment protection policy (Prevention and Management of Contaminated Land);
- State environment protection policy (Groundwaters of Victoria);
- State environment protection policy (Waters of Victoria); and
- Industrial Waste Management Policy (Waste Acid Sulfate Soils).

3.8 ENVIRONMENTAL VALUES AND POTENTIAL ENVIRONMENTAL IMPACTS

Information on site environmental values and potential Project impacts have been summarised using information from Meinhardt, 2016 and GHD, 2014. Refer to GHD, 2014 for further details on environmental values.

Potential environmental impacts or issues associated with construction of the Project must be considered. Issues may include:

- Land Contamination and Management;
- Water Quality Management (including Surface Water and Groundwater);
- Air Quality Management (Dust and Vehicle Emissions);
- Noise and Vibration Management;

- Waste Management;
- Flora and Fauna;
- Heritage; and
- Bushfire Risk.

The principal contractor is expected to demonstrate how potential environmental impacts will be taken into account and managed to eliminate where practical, or mitigate impacts. A risk assessment methodology should be employed to assess the potential environmental impacts, and prioritise preventative and management strategies and actions.

3.8.1 Land Use

The Project is located within the Mt Buller Alpine Resort Ski Area, approximately 250 meters from the Mt Buller Alpine Village, and to the north of the final section of the unsealed Mt Buller Summit Road. The Project area includes the existing Boggy Creek ski lift alignment and extends north down the hillside to the Summit Nature Walk track.

The Mt Buller Resort is located on Crown Reserve managed by the RMB. Mt Buller Resort is subject to the provisions of the Alpine Resorts Planning Scheme which is administered by the Department of Transport Planning and Local Infrastructure (DTPLI). Planning overlays relevant to the Project are: ESO1 (Environmental Significance Overlay – Schedule 1), EMO1 (Erosion Management Overlay – Schedule 1), WMO (Wildfire Management Overlay) and DDO3 (Design and Development Overlay – Schedule 3).

Potential impacts on land use include:

- Creation of dust, through activities such as earthworks, site clearance, vehicle movement or wind erosion of unestablished, dry areas including stockpiles;
- Vehicle exhaust emissions;
- Increase in traffic through the Mt Buller Alpine Village;
- Impacts on visual amenity;
- Noise impacts on residents of the village; and
- Wind-blown litter due to inappropriate waste management.

3.8.2 Topography, Geology and Soils

The Project is located on a gently to moderately sloping plateau directly east of the Mt Buller summit. The project location slopes downhill to the north with the slopes steepening as they approach the valley below. The project area is typically vegetated with low lying alpine grasses, herbs and shrubs. Occasional rock outcrops of basalt are exposed towards the southeast corner of the Project area with a scattering of boulders across the surface.

The Warburton 1:250,000 geology map issued by the Geological Survey of Victoria indicates that the Project location predominantly consists of a cap of Tertiary basalt overlaying Devonian granite. The map indicates that the Mt Buller massif directly to the west of the site is made up of Devonian hornfels. The geotechnical investigations undertaken for the Project confirmed the granite and basalt rock shown in the geology mapping, but found that the extent of the basalt capping on the Project site was minimal.

Potential impacts include:

- Contamination of soils through spills of chemicals or fuels; and
- Erosion from earthworks and vehicle movements.

3.8.3 Land Contamination and Management

Mt Buller Resort is located on Crown Reserve managed by the RMB. There is a diesel underground storage tank (UST) located at the top of the lift station for the Boggy Creek T-Bar, which would require decommissioning as part of the Project.

Potential land contamination impacts that may arise as a result of construction activities include:

- Spoil created during grading of the site and from excavating service trenches;
- Exposure of potentially contaminated soil; and
- Spillages during storage and handling of fuel and chemicals.

A review of published mapping, including the CSIRO Australian Soil Resource Information System indicates a very low risk of encountering acid sulphate soils (ASS) at the Project site. The Geotechnical Risk Assessment (GHD, 2016b) found that there may be disseminated pyrite in the carbonaceous mudstone; which may oxidise upon exposure and produce acid. Further assessment during the detailed design stage of the Project is recommended.

Potential impacts from ASS include:

- Acidification of soil, sediment, rock, surface water and/or groundwater due to exposure of ASS.

To adequately characterise potential land contamination impacts, reference should be made to previous site investigations or monitoring and this information should be appended to the CMP (where available).

3.8.4 Hydrology

The Project is located in the upper northern reaches of the Delatite River catchment, and adjacent to the catchment divide with the Howqua River catchment. Both rivers are part of the Goulburn River catchment. The Delatite

River catchment is characterised by very steep topography, high average rainfall of approximately 1,450 mm/year and average annual evapotranspiration of approximately 1,150 mm/year. The dam storage is located approximately 800 m upstream of the Boggy Creek Diversion at Boggy 1 pump station. The Boggy Creek Diversion associated with Boggy 1 pump station diverts water from Boggy Creek and an unnamed tributary for Mt Buller's existing water supply, and has a combined catchment area of approximately 0.58 km^2. The storage is also within 100 m of a number of environmentally significant Alpine Sphagnum Bogs and Associated Fens, which are generally referred to as Alpine Bogs.

Potential impacts on hydrology include:

- Interception of rainfall by the storage, including an area equivalent to approximately 2.5% of the catchment area for the Boggy Creek Diversion at Boggy 1 pump station;
- Interception of rainfall, which would reduce groundwater recharge on areas upslope of some Alpine Bogs; and
- Diversion of surface runoff around the storage.

3.8.5 Hydrogeology

The hydrogeology of the Project location is complex and comprises a number of localised groundwater flow processes occurring within fractured basalt, and weathered granite aquifers, granitic sand and sediments. Superimposed upon the flow processes occurring within these aquifers are ancient landslide structures, which may further influence local groundwater movement. The hydrogeological investigation for the Project found:

- The groundwater quality is high with salinities falling within Segment A (State Environment Protection Policy (Groundwaters of Victoria)). The low salinities confirm localised groundwater flow paths;
- No significant geochemical differences were identified between the various aquifer units screened. This supports interaction between the various geologies;
- Groundwater flow is topographically controlled, radiating from the summit, however at a local scale, fracturing and secondary porosity features can influence groundwater movement;
- Spring flow has been mapped at a number of locations around the proposed storage site, particularly towards the north;
- There is no nearby extractive groundwater use;
- Groundwater is connected to surface water within the local area; and
- Although broad scale Groundwater Dependent Ecosystem (GDE) mapping did not identify GDEs, Alpine Bogs (including Sphagnum Moss) have been mapped north of the proposed storage site. Alpine Bogs are a threatened ecological community under Commonwealth and State legislation. Waterlogging, including shallow groundwater, is important for their existence.

Potential impacts on hydrogeology include:

- Contamination of groundwater;
- Severance, dislocation or introduction of preferred pathways for groundwater seepage as a result of excavation for ancillary infrastructure such as pipelines, and
- Dislocation of groundwater by construction (and operation) of the proposed storage.

Alpine Bogs rely on waterlogged conditions, of which spring flow (the surface expression of groundwater) is suspected as being an important contributor at the site. Of the 17 Alpine Bogs downslope of the proposed water storage location, eight bogs had interpreted catchments that were potentially influenced by the proposed storage construction. Estimated reductions in surface water recharge to each Alpine Bog (based on the interception area of the storage as a proportion of the bog catchment area) range between 0% (no effect) and 50%. This is a worst case estimate as it assumes that only vertical infiltration contributes to recharge. It does not account for lateral groundwater flow which could be sourced from outside the immediate area (Water Quality Management (including Surface Water and Groundwater).

The Project site is situated towards a broad ridge which runs eastwards from the peak of Mt Buller. The plateau formed by this broad ridgeline continues to the south for approximately 400 m before descending to the river valley to the south which is in the Goulburn River Catchment. Immediately to the north, the slope increases in steepness towards Boggy Creek which is in the Delatite River catchment. The existing slopes are utilized as ski runs during the winter months and, as such, are generally vegetated with grasses and low shrubs. Areas of rock outcrop are present towards the south east of the proposed storage area. The gravelled Summit Road currently traverses from east to west across the proposed storage location.

During construction, stormwater may have an increased sediment load, which can impact on stormwater infrastructure and receiving waters.

Stormwater or fresh water used onsite may also come into contact with contamination sources (such as spilled fuel/chemicals or contaminated soils) during construction activities. This may result in contaminated runoff entering stormwater drains or percolating through to groundwater. Any water which has come into contact with contaminated sources must be segregated and treated as wastewater.

3.8.6 Air Quality Management (Dust and Vehicle Emissions)

Generation of dust during construction activities may occur, particularly during dry and windy conditions. Typical sources of dust include exposed areas (i.e. where vegetation has been cleared), unsealed roadways, earth-moving activities and stockpiles.

Vehicle emissions can also impact on air quality.

3.8.7 Noise and Vibration Management

Construction activities can create noise emissions and vibration from truck haulage, excavations and building construction.

Potential sources of noise and vibration during construction activities include:

- Vehicles operating on site;
- Fixed machinery;
- General construction activities; and
- Movement of vehicles entering and leaving the site.

3.8.8 Waste Management

Construction activities can generate a variety of wastes including general office waste, excess soil from excavations, construction and demolition waste and hazardous waste (e.g. spent chemical containers).

A lack of suitable litter bins on the construction site can result in litter blowing off site and being released into the environment.

3.8.9 Flora and Fauna

Flora and fauna assessment works undertaken by GHD in July 2014 identified the significant ecological communities, habitat and native vegetation known or likely to occur within the PFC and that would or may be impacted during construction works.

Further Flora and Fauna Assessment works undertaken by Biosis (Biosis, 2016) involved redesign of the proposed water storage area, which resulted in reducing proposed native vegetation removal by more than 10%, avoiding all direct impacts on Alpine Bogs, minimising the removal of habitat for Broad-toothed Rat, Alpine Bog Skink and other fauna, and increasing the minimum buffer between the PCF and preferred Mountain Pygmy-possum habitat from 70 metres for the original PCF to 200 metres for the current revised PCF.

Ecological impacts will be further minimised and avoided through implementation of the Ecological Rehabilitation Plan, Offset Strategy, Hydrological and Ecological Monitoring and Adaptive Management Program and measures outlined below in the CMP.

Potential impacts on flora and fauna during construction activities include:

- Disturbance and loss of native vegetation;
- Invasion of weeds;
- Sedimentation of downslope Alpine Bogs; and
- Unintentional introduction of invasive aquatic species to Boggy Creek catchment during construction.

3.8.10 Heritage

The Project is a high impact activity under the Aboriginal Heritage Regulations 2007 (works in an alpine resort that would result in significant ground disturbance) and is within registered areas of cultural heritage sensitivity associated with a named waterway, Boggy Creek, and a high plains landform. A mandatory Cultural Heritage Management Plan (CHMP) has been prepared for the Project and was submitted to the Registered Aboriginal Party (RAP) for assessment on the 26 June 2014 and amended on 26 October 2016.

There are no previously registered Aboriginal places located within the Project activity area. The nearest registered place (8123-0003) is approximately 2.5 km to the east. This place is a reference to a 'suitable campsite' consisting of edge-ground axes and grinding stones. The exact location of this registered place is not clear.

No Aboriginal cultural heritage was discovered during the field assessments for the CHMP. Potential impacts on cultural heritage and archaeology include:

- Harm to undocumented Aboriginal cultural heritage places.

3.8.11 Bushfire Risk

The Project is located within alpine areas subject to a Wildfire Management Overlay. Potential impacts relevant to bushfire risk include:

- The use of construction vehicles, flammable and combustible materials (for example, fuels and paint) and welding within vegetated areas pose an increased fire risk within the construction footprint.

3.9 CONSTRUCTION MANAGEMENT PROCEDURES

The principal contractor is required to prepare specific construction management procedures to address the potential environmental impacts identified in *Section 3.8* and any other potential impacts identified.

The construction management procedures should outline the:

- Issue;
- Management procedures / actions;
- Responsible personnel to undertake the action; and
- Timing for completion of action.

Suggested measures to either eliminate or mitigate potential environmental impacts are presented as a guide below. These control measures must be implemented at a minimum, unless alternative suitable control measures are presented in the CMP to the satisfaction of the RMB.

Additional measures may also be specified by the Principal Contractor/Site Supervisor. The management procedures should be proportional to the level of risk assigned to each potential environmental impact.

3.9.1 Land Contamination and Management

Objectives

The key objectives of the land contamination and management procedures are to manage potential land contamination impacts including: removal of diesel underground storage tank (UST); erosion and sediment runoff; exposure of potentially contaminated soils; and contamination of soil (i.e. via fuel or chemical spillages) during construction works. In managing these potential impacts, the overarching aim is to achieve compliance with relevant legislation and guidelines.

Land Contamination Management Procedures

The procedures outlined in *Table 3.1* describe how potential land contamination impacts can be minimised during construction activities.

Table 3.1 Land Contamination Management Procedures

Issue	Procedures	Responsibility	Timing
Sediment Control Measures	Sediment control measures should be developed and implemented with consideration to the risk of sediment runoff. Refer to EPA Publications 275 and 981.	Site Supervisor	Prior to commencement of works
	Sediment traps must be designed, installed and maintained to maximise the volume of sediment trapped from the site during construction.		At all times
	Sediment control measures must have a size and capacity to withstand the flow of a one in five year storm event.		At all times
	All sediment control measures must be maintained during construction and inspected prior to (and after) rain events to ensure they are functioning properly.		At all times
	Any sediment on internal or external roads should be cleaned up as soon as practicable.		Prior to commencement of works and throughout construction phase
	Apply crushed rock to frequently used tracks and haul roads that may produce sediment.		Throughout construction phase
	Construction areas including tracks, roads and stockpiles must be formed and bunded to prevent the spread of weeds and soil		Throughout construction phase
Erosion	Grading, excavation and construction must not proceed during periods of heavy rainfall.	Site Supervisor	At all times

Issue	Procedures	Responsibility	Timing
	Install and maintain erosion controls on unstable slopes. Refer to EPA Publications 275 and 981.		Prior to commencement of works and throughout construction phase
	A mulch of fibre matting, shredded plant material from the site and/or certified weed free sterile straw, preferably rice, sorghum or sugarcane mulch, must be maintained on exposed areas until dense plant plant cover is established.		At all times
	Keep vehicle traffic to well-defined haul roads.		At all times
Topsoil	Topsoil must be kept separate from sub-soil when stockpiling soil, and covered with an appropriate fabric to minimise loss and sedimentation.	Site Supervisor	As required
Spoil	Excavated material to be removed offsite for disposal must be covered.	Site Supervisor	As required
	Test and classify (prior to excavation), stockpile and dispose of any contaminated material in accordance with the Environment Protection Act 1970, subordinate legislation and associated guidance and technical notes. This includes EPA Victoria's Industrial Waste Resource Guidelines, Industrial Waste Management Policy (IWMP) (Waste Acid Sulphate Soils), EPA publication 655.1 Acid Sulphate Soil and Rock and SEPP (Prevention and Management of Contaminated Land).		
Imported soil or fill	Any soil or fill imported to the site will be required to be tested by the supplier for contamination. Any imported material used onsite must be classified as fill material under EPA publication IWRG621.	Site Supervisor/ Environmental Consultant	As required
Storage and Handling of Chemicals	Refer to procedures in Section *3.9.8*		

3.9.2 Water Quality Management (including Surface Water and Groundwater)

Objectives

The key objectives of the water quality management procedures are to eliminate or mitigate potential impacts on surface water and groundwater entering the headwaters of Boggy Creek Catchment during construction works and in doing so achieves compliance with relevant legislation and guidelines.

Water Quality Management Procedures

The procedures outlined in *Table 3.2* describe how impacts to surface water and groundwater management can be minimised during construction activities.

Table 3.2 Water Quality Management Procedures

Issue	Procedures	Responsibility	Timing
Dewatering	Any water to be pumped from the site should be filtered before release to ensure that no sediment or weed seeds enter the Boggy Creek Catchment. Energy dissipation measures also need to be in place to guard against potential scouring.	Site Supervisor	As required
Stormwater drainage	Natural drainage patterns must not be altered post construction, except through an approved drainage plan.	Site Supervisor	Post-construction
	Cut-off or intercept drains must be established during construction to redirect stormwater away from cleared areas and slopes to stable (vegetated) areas.		
	Stormwater collected by impervious surfaces during construction must be drained via sediment traps to the road drainage system where possible.	Site Supervisor	At all times
	Drip line drainage, including energy dissipation measures, must be installed under eaves to minimise erosion caused by raindrop action and snow shedding.		
	Obtain approval from local drainage authorities to discharge water to drain or drainage system. Refer to EPA Publications 275.	Site Supervisor	As required
	If using porous materials (e.g. crushed rock) it should be contained by edging or boxing. Where suitable, porous material should be free of fines to allow for free drainage and to minimise the risk of sediment transport.		
Stockpiles	Long-term stockpiles must be covered to prevent dust emissions and erosion.	Site Supervisor	At all times
	All stockpiles of soil, sand, fertiliser, cement or other fine, loose material must be placed in locations away from drainage lines, roadside channels and culverts unless adequately protected from erosion by diversion drains, bunds or similar works.		
Sediment Control	Refer to procedures in Section *3.9.1*		

Issue	Procedures	Responsibility	Timing
Wastewater	No wastewaters should be discharged to waterways or stormwater unless approved by the EPA. Refer to EPA Publications 275 and 981. Wastewater may be disposed to sewer subject to a Trade Waste agreement with the local water authority. Copies of the relevant agreement(s) must be included in the CMP.	Site Supervisor	As required
Storage and Handling of Chemicals	Refer to procedures in Section *3.9.8*		

3.9.3 Air Quality Management (Dust and Vehicle Emissions)

Objectives

The key objectives of the air quality management procedures are to eliminate or mitigate the impact of dust and vehicle emissions during construction and in doing so achieve compliance with relevant legislation and guidelines.

Air Quality Management Procedures

The procedures outlined in *Table 3.3* describe how air emissions (dust and vehicle emissions) can be minimised during construction activities.

Table 3.3 Air Quality Management Procedure

Issue	Procedures	Responsibility	Timing
Dust	Exposed areas should be minimised and avoided where possible.	Site Supervisor	At all times
	Regular watering of exposed areas should be conducted, particularly prior to and during dry and windy conditions. Use of dust suppressants may also be considered, subject to approval by the RMB.	Site Supervisor	Throughout construction phase
	Stockpiles should be sufficiently wetted prior to disturbance, and during if possible.	Site Supervisor	As required
	Earthworks should cease during dry and windy conditions.	Site Supervisor	As required
	Apply crushed rock to frequently used tracks and haul roads.	Site Supervisor	As required
Vehicle/ Equipment Emissions	Maintenance of vehicles and other exhaust emitting equipment should not be undertaken on site.	Site Supervisor/ Vehicle Operators	At all times

3.9.4 Noise and Vibration

Objectives

The key objectives of the noise and vibration management procedures are to eliminate or mitigate noise and vibration impacts during construction and in doing so achieve compliance with relevant legislation and guidelines.

Noise and Vibration Management Procedures

The procedures outlined in Table *3.4* describe how noise and vibration can be reduced during construction activities.

Table 3.4 Noise and Vibration Management Procedures

Issue	Procedures	Responsibility	Timing
Noise and Vibration	Construction activities may only occur between the hours of 7am to 6pm Monday to Friday and 7am to 1pm Saturday.		Throughout construction phase
	Maintain speed limits on internal tracks and haul roads.		Throughout construction phase
	Regularly maintain equipment and machinery to the manufacturer's specifications.		As required

3.9.5 Waste Management

Objectives

The key objectives of the waste management procedures are to reduce wastes by selecting, in order of preference, avoidance, reduction, reuse and recycling methods. Construction should involve the reuse of materials and the recycling of waste wherever possible and to ensure that all litter is disposed and stored in a responsible manner.

Waste Management Procedures

This section does not deal with soil for removal and/or disposal off site (discussed in Section *3.9.1*) or management of wastewater (discussed in Section *3.9.2*). The procedures outlined in Table *3.5* describe other waste management practices.

Table 3.5 Waste Management Procedures

Issue	Procedures	Responsibility	Timing
	Storage of equipment, waste materials and building materials must be contained within the area defined on the Site Plan.	Site Supervisor	At all times

Issue	Procedures	Responsibility	Timing
General	Materials will be reused or recycled where possible. Provide designated bins for materials to be recycled with prominent signage and defined on the site plan.	Site Supervisor	Throughout construction phase
	Adequate and appropriate waste bins must be provided on site, with locations to be determined in conjunction with the RMB. If waste bins are to be located off site, written approval from the RMB is required.	Site Supervisor / RMB	Prior to commencement of works and throughout construction phase
	No waste may be disposed of on site. Waste must be transported to an appropriate off-site transfer station, recycling centre or land fill, to be determined in consultation with the RMB. Waste is to be collected when waste bins are full.	Site Supervisor	As required
	Opportunities to avoid waste generation should be identified wherever possible.	Site Supervisor	At all times
	Waste will be managed to prevent generation of litter, transmission of odours and control vermin (e.g. bin lids are to be kept closed, waste is to be collected when bins are full).		
Litter control	Construction areas must be kept free of litter at all times.	Site Supervisor	At all times
	Provide bins for general waste at prominent waste generation areas within the site (eg. lunch rooms, on-site offices). The location of general waste bins should be marked on the Site Plan.	Site Supervisor	Throughout construction phase
Hazardous Waste	Any empty drums to be removed off-site should be managed in accordance with EPA Publication IWRG644.1 *Used Containers - Transport and Management*.	Site Supervisor	As required
Site Clean Up	All equipment, construction materials and waste must be removed from the site as part of site clean up works.	Site Supervisor	Site clean up works

3.9.6 Flora and Fauna Management

Objectives

The key objectives of the flora and fauna management procedures are to:

- Protect rare/vulnerable/threatened species including the Alpine Bog Skink *Pseudemoia cryodroma* and Broad-toothed Rat *Mastacomys fuscus mordicus*.
- Minimise impact on vegetation within and adjacent to the PCF; and
- Prevent unauthorised damage/removal of protected flora.

Flora and Fauna Management Procedures

Table 3.6 describes flora and fauna management procedures.

Table 3.6 Flora and Fauna Management Procedures

Issue	Procedures	Responsibility	Timing
Flora and Fauna	Adopt mitigation measures, monitoring programs and management plans outlined in Biosis' Ecological Rehabilitation Plan (Biosis and Tract, 2016).	Site Supervisor	Prior to commencement of works and throughout construction phase
	The presence of rare/vulnerable/threatened species should be recognised on site. Refer to Biosis and GHD, 2016a for details.		Prior to commencement of works and throughout construction phase
	Erosion, sedimentation and stormwater may impact on offsite flora and fauna. Refer to Land Contamination and Water Quality Management Procedures (Sections *3.9.1* and *3.9.2*respectively).		Prior to commencement of works and throughout construction phase
	The project construction area must be clearly delineated with signs and temporary fencing. No works are to extend beyond the PCF.		Prior to commencement of works and throughout construction phase
	The requirements for flora and fauna protection should be included in the site induction process.		Throughout construction phase
Pests and Animals	Clean construction vehicles and equipment of soil and organic matter to remove seeds prior to arriving on site to prevent the introduction and/or spread of weeds and pathogens.	Site Supervisor	Throughout construction phase
	Building work that uses transported gravel and soil must be monitored to prevent the introduction of exotic species.		
	Site inspections must be conducted during and after construction to identify weed species requiring control.		
	No animals (including dogs) are permitted on site without the prior written consent of the RMB.		
Bushfire Management	No fire is to be lit on site without RMB approval.	Site Supervisor	At all times.
	Comply with the requirements of the *Country Fire Act 1958* and Regulations.		

3.9.7 Heritage Management

Objectives

The key objective of the heritage management procedure is to ensure archaeological features are protected during construction works.

Heritage Management Procedures

The procedures described in *Table 3.7* outline how potential impacts to archaeological features can be minimised during construction activities.

Table 3.7 Heritage Management Procedures

Issue	Procedures	Responsibility	Timing
Heritage	All works must be carried out in accordance with the Cultural Heritage Management Plan (CHMP) (GHD, 2016. The CHMP provides detailed information on procedures to be followed in the event of discovering archaeological remains or artefacts. A copy of the CHMP (GHD, 2016 must be available on-site during construction works.	Site Supervisor	Prior to commencement of works and throughout construction phase
	Report any suspected Aboriginal sites to the RMB and Aboriginal Affairs Victoria. Stop work in the event that works may damage an Aboriginal relic until the issue is resolved appropriately in accordance with procedures prescribed under the *Aboriginal Heritage Act 2006* and the *Aboriginal Heritage Regulations 2007*.	Site Supervisor	Prior to commencement of works and throughout construction phase

3.9.8 Storage and Handling of Hazardous Materials

Objectives

The key objectives of the storage and handling of hazardous materials procedures are to avoid spillage of fuels and other chemicals used during construction, and in doing so prevent potential impacts to land and water (including surface water and groundwater).

Storage and Handling of Hazardous Materials Management Procedures

These procedures describe how the storage and handling of hazardous material can be managed during construction to avoid or minimise potential environmental impacts.

This section does not deal with contaminated soil (discussed in Section *3.9.1*).

Table 3.8 Storage and Handling of Hazardous Materials Procedures

Issue	Procedures	Responsibility	Timing
Waste Management Plan	Preparation of a Waste Management Plan in conjunction with the relevant RMB is encouraged to help achieve compliance with the relevant performance standards.	Site Supervisor	Prior to construction works
General	Chemicals and fuels stored on site must be kept to a minimum. Oils, fuel and other liquid chemicals are to be located on spill trays, or in a bunded area, at least 5 metres from any stormwater drains. Refer to EPA Publication 347.	Site Supervisor	At all times
	Storage tanks and drums should be labelled appropriately.		At all times

Issue	Procedures	Responsibility	Timing
	Material Safety Data Sheets (MSDS) and a chemicals register should be readily available for all chemicals stored on site.		At all times
	An appropriately stocked spill kit should be stored on site, for use in the event of fuel or chemical spills. The location of the spill kit should be marked on the Site Plan.		At all times
	All chemical spills should be contained and cleaned up immediately.		As required

3.9.9 Additional Construction Requirements

Objectives

Manage all construction activities in accordance with applicable legislation, guidelines and conditions of permits and Project approvals.

Additional Construction Procedures

Additional construction procedures are described in *Table 3.9*.

Table 3.9 Additional Construction Procedures

Issue	Procedures	Responsibility	Timing
General Site Requirements	All construction work will be undertaken in accordance with: • Environmental Guidelines for Major Construction Sites, Best Practice Environmental Management Series, EPA Pub. 480 (EPA, 1996), except where expressly stated. • EPA Publication 275 Construction Techniques for Sediment Pollution Control. • EPA Publication 981 Reducing stormwater pollution from construction sites.	Site Supervisor	At all times
Construction Zone and Vehicle Access	All buildings and works must be confined to the defined construction zone.	Site Supervisor	At all times
	Access should be confined to designated access tracks and pathways, and as far as practical utilise existing disturbed areas. Access must not be over adjoining leasehold sites. Access areas, both vehicular and pedestrian, must be stabilised to prevent sediment loss (eg. with crushed rock).		
Traffic Management	Prepare and implement a Traffic Management Plan (TMP) if required by the RMB.	Site Supervisor	Prior to commencement of works and throughout construction phase

Issue	Procedures	Responsibility	Timing
Storage Areas	The storage of all equipment, waste and building materials must be contained within the areas defined on the Site Plan.	Site Supervisor	At all times
Easements and existing service locations	Contact the 'Dial Before You Dig' service (phone 1100 or web www.1100.com.au) and the RMB to identify where all existing services and infrastructure are located on site	Site Supervisor	Prior to construction works
	Contact the relevant service utility/planning authorities to determine what measures need to be implemented to best protect the asset. (For Information regarding Telstra: Telstra Network Integrity Services 1800 810 443)		

3.10 GENERAL MANAGEMENT PROCEDURES

The Site Supervisor is responsible for addressing general management requirements of the CMP, including:

- Occupational health and safety;
- Environmental awareness and training;
- Environmental management and records;
- Recording any discrepancies or incidents and ensuring that the CMP and other relevant procedures are followed;
- Completing a daily log of activities including inspections and incidences;
- Complaint handing;
- Monitoring and auditing; and
- Reporting.

3.10.1 Occupational Health and Safety

Objectives

The key objectives of the occupational health and safety procedures are to manage the health and safety requirements for construction workers and other personnel present on site in relation to risks associated with construction activities.

Occupational Health and Safety Procedures

The procedures outlined in *Table 3.10* describe how occupational health and safety can be managed during construction activities.

Table 3.10 Occupational Health and Safety Procedures

Issue	Procedures	Responsibility	Timing
General	Prepare a site occupational health and safety plan for construction works. This should include appropriate procedures for management of dangerous/hazardous substances (where relevant).	Site Supervisor	Prior to commencement of works
	Conduct induction training in respect of OH&S for all construction personnel in conjunction with the relevant RMB. This includes environmental awareness and identification of heritage items.	Site Supervisor	Prior to commencement of works
	Maintain records for all employees who have undergone induction training.		At all times
	Provide sufficient OH&S equipment (e.g. First Aid Kits, emergency showers in appropriate locations), provide location on the Site Plan.		
	Undertake regular emergency drills.		Every 6 months
	Ensure there is sufficient signage regarding first aid locations.	Site Supervisor	Prior to commencement of works and throughout construction phase
	Wear/use protective equipment appropriate to tasks being undertaken.	All staff	At all times
Site security and visitors	Secure fencing should be installed to restrict access to the site and provide protection from physical hazards. In particular, unsupervised excavations should never be left open or unfenced as they present a hazard to site personnel, visitors and animals.	Site Supervisor	Prior to commencement of works and throughout construction phase
	All visitors must report to the site office.		Throughout construction phase
	Records of site attendance to be maintained.		

3.10.2 Emergency and Incident Reporting

Objectives

Incidents should be managed and resolved as quickly as possible to reduce the impact on the environment and human health.

Emergency and Incident Reporting Procedures

The following definitions are provided with regard to emergency and incident reporting:

- **Emergency** – An event that poses significant risk to human health and/or the environment, which requires site evacuation and/or immediate response from emergency services.

- **Incident** – An event which has impacted on human health or the environment. Note: further guidance regarding health and safety related incidents are provided by WorkSafe Victoria.
- **Close call** – An event which may have led to impacts on human health or the environment.

Table 3.11 Emergency and Incident Reporting Procedures

Issue	Procedures	Responsibility	Timing
Emergency and incident reporting	Develop and maintain emergency and incident procedures and reporting forms, including contact details for assistance and reporting (e.g. RMB, emergency services) and the procedure, responsibilities and roles to be observed for specific scenarios (e.g. spill management).	Site Supervisor	Prior to commencement of works and throughout construction phase
	All staff will report every emergency, incident or close call to the Site Supervisor.	All staff	As soon as practicable
	Coordinate incident response and ensure incident is resolved.	Site Supervisor	As soon as practicable
	Report incidents to the RMB where environmental impacts have occurred (or may occur).		As soon as practicable
	Report incidents to the EPA where offsite impacts occur.		As soon as practicable
	Review incidents and response actions with a view to avoiding reoccurrence of incidents.		Immediately after incidents

In the event of an emergency, at least one the following should be immediately contacted:

Table 3.12 Emergency Contacts

Name	Company & Position	Contact Numbers
TBA		

3.10.3 Complaints

Objectives

All complaints should be managed and resolved as quickly and efficiently as possible.

Complaints Procedures

Complaint procedures are described in *Table 3.13.*

Table 3.13 Complaints Procedures

Issue	Procedures	Responsibility	Timing
Complaints	Develop and maintain complaint register to respond to complaints as follows: • Establish nature of complaint and record details of complaint in the incident register. • Note details of complainant, time, and date of incident, nature of problem, outcome of resulting investigation, solution to problem and name of person dealing with complaint.	Site Supervisor	Prior to commencement of works and throughout construction phase

3.10.4 Monitoring

Objectives

Regular monitoring should be undertaken in order to mitigate impacts on the surrounding environment due to construction activities.

Monitoring Procedures

Table 3.14 Monitoring Procedures

Issue	Procedures	Responsibility	Timing
Background Readings	Background monitoring of noise, dust and/or stormwater quality may be required to establish baseline conditions prior to construction. The requirement for background monitoring should be confirmed with the RMB.	Site Supervisor	Prior to commencement of works (as required)
Monitoring Plans	Implement Hydrological and Ecological Monitoring and Adaptive Management Program (HEMAMP), as outlined in Biosis and GHD, 2016b.	Site Supervisor / RMB	Prior to commencement of works (as required)
	Prepare a Groundwater Management Plan (GMP) in in accordance with the relevant recommendations of the hydrological and hydrogeological assessment for the Project (GHD, 2014), if required by the RMB.		
	Prepare Surface Water Management Plan (SMP) prior to construction if required by the RMB.		
	Prepare Water Quality and Aquatic Health Monitoring in Boggy Creek prior to construction if required by the RMB.		
	Implement Ecological Rehabilitation Plan (ERP) in accordance with relevant flora and fauna assessments (Biosis and GHD, 2016a) and offset strategy (Biosis, 2016).		

Issue	Procedures	Responsibility	Timing
Regular monitoring	Regular inspections of the effectiveness of stormwater system and sediment control measures should be undertaken, with necessary improvements made where required.	Site Supervisor	Weekly throughout construction phase.
	Noise and vibration monitoring may be required during construction activities, as requested by RMB. If required, noise and vibration monitoring should be conducted with consideration to the *State Environment Protection Policy (Control of Noise from Industry, Commerce and Trade) No. N-1* and relevant Australian Standards.		As required
	Dust emissions will be monitored via personal observations and the review of any complaints received from surrounding residential areas or regulatory authorities.		Daily, or more frequently as required based on site conditions
	Conduct a site walkover to identify any litter and clean up as required.		Daily
	Conduct regular inspections to verify CMP implementation (see *Section 3.10.5*).		Weekly
	Conduct annual monitoring of rehabilitation area as per the ERP.		Annually
	Conduct annual monitoring and management of Alpine Bogs as per the HEMAMP.		Annually

3.10.5 Reporting and Auditing

Objectives

Regular auditing and reporting should be undertaken in order to verify that the CMP is being implemented effectively.

Reporting and Auditing Procedures

Reporting and Auditing procedures are described in *Table 3.15.*

Table 3.15 Reporting and Auditing Procedures

Issue	Procedures	Responsibility	Timing
General	Conduct periodic inspections to ensure that environmental management procedures are implemented in accordance with this CMP.	Site Supervisor	Weekly, and after significant rain events (≥ 10mm rain fall in a 24hr period)
	Follow up and confirm that corrective actions are implemented and effective.		Weekly
ERP	Complete an annual ecological monitoring report as per specifications set out in ERP.		Annually
HEMAMP	Complete an annual Alpine Bog monitoring report as per specifications set out in HEMAMP.		Annually

4 PART C – ECOLOGICAL REHABILITATION PLAN[4]

A detailed Ecological Rehabilitation Plan (ERP) was produced by Biosis Pty Ltd (Biosis) and Tract Consultants Pty Ltd (Tract) (Biosis and Tract, 2016) for the site to address DELWP's request for further information.

4.1 INTRODUCTION

The proposed construction footprint for the site is approximately 10.347 hectares. After construction, 1.75 hectares will be permanently occupied by the water storage facility and new/ existing infrastructure. The remaining 8.60 hectares will be temporarily disturbed during construction and will be rehabilitated. This rehabilitation area will be broken into three zones based on current ecological value and future management requirements as well as a portion of land to be used for amenities. *Table 4.1* below summarises the proposed zones.

Table 4.1 Rehabilitation Areas

Use	Area	Zone	Current Vegetation	Ecological Value
Water storage and infrastructure	1.75	-	-	-
Rehabilitation	1.99	A	Sub-alpine Woodland, Alpine Grassy Heathland	High
	2.52	B	Apline Grassy Heathland, introduced vegetation	Medium
	0.78	C	Mostly introduced vegetation	Low
Amenity landscaping	3.31	-	-	-

The rehabilitation area (5.29 hectares) will replace the 5.278 hectares of native vegetation that is to be removed during construction.

All site staff and visitors need to be made aware of the specific requirements of each rehabilitation zone to minimise contamination and weed spread. This can be achieved by fencing, signage or maps and should be included in the induction process.

[4] Section completed using information from Biosis and Tract, Mt Buller Sustainable Water Security Project - Off-Stream Storage. Ecological Rehabilitation Plan, dated 30 November 2016 (Biosis and Tract, 2016)

4.2 REVEGETATION

Ground preparation, tubestock management, planting and seeding techniques, weed management, grazing protection, on-going maintenance and resourcing are all explained and discussed in detail in the ERP (Biosis and Tract, 2016). The major details are discussed below.

4.2.1 No Bare Ground

The fundamental principle of no bare ground within the rehabilitation area will be used. This will protect surrounding ecological communities, protect soil from erosion and prevent sediment movement into sensitive ecosystems. In order to achieve this, as many of the resources removed (including topsoil, sods, leaf litter, rock and boulders, etc.) will be re-used. Other materials including organic mulches and if necessary jute matting will be used to cover all bare ground as soon as practicable after construction.

4.2.2 Zone A

Zone A currently has the highest level of ecological value and will thereforehave the highest level of rehabilitation. The rehabilitation in this area will focus on establishing dense and diverse native vegetation and creating fauna habitats. A summary of the rehabilitation is shown below in *Table 4.2.*

Table 4.2 ***Zone A Rehabilitation Summary***

Ecological Value	Vegetation Type	No. of Strata	Revegetation Type	Quantity
High	Sub-alpine Woodland	3	Planting	10,075 tubes
High	Alpine Grassy Heathland	2	Planting and Seeding	15,005 tubes and 200 kg seed

All excavated material is to be stockpiled for re-use in a separate area to prevent weed dispersal.

4.2.3 Zone B

The rehabilitation in area B will focus on protecting soil (which is currently bare in some locations), increasing native vegetation cover and limiting the spread of weeds and introduced species. A summary of the rehabilitation is shown below in *Table 4.3.*

Table 4.3 ***Zone B Rehabilitation Summary***

Ecological Value	Vegetation Type	No. of Strata	Revegetation Type	Quantity
Medium	Alpine Grassy Heathland	2	Planting and Seeding	7,000 tubes and 350 kg seed

All excavated sods with little or no weeds will be stockpiled separated to zone A for re-use.

4.2.4 Zone C

The rehabilitation in zone C will focus on buffering and protecting higher value areas. This will be achieved by preventing soil erosion and limiting the spread of weeds into the rehabilitation area. A summary of the rehabilitation is shown below in *Table 4.4.*

Table 4.4 ***Zone C Rehabilitation Summary***

Ecological Value	Vegetation Type	No. of Strata	Revegetation Type	Quantity
Low	Mainly Introduced Vegetation	2	Planting and Seeding	3,000 tubes and 70 kg seed

4.3 HABITAT CREATION AND MAINTENANCE

The rehabilitation plan will ensure that there is no net loss of habitat for the Broad-toothed Rat and Alpine Bog Skink. It will also create new habitat for the Mountain Pigmy-possum and improve the connectivity of existing native vegetation outside the project construction footprint.

Rocks and boulders removed from each zone will be re-used as habitat for the Alpine Bog Skink and Mountain Pigmy-possum. Plant selection has also taken habitat creation for all three species into consideration.

4.4 AMENITY, RECREATION AND PLACE-MAKING

All amenities, recreational features and place-making designs over the remainder of the rehabilitation area have been carefully planned so as not to compromise the overall goal of ecological restoration. The existing ski lifts and walking tracks, as well as new features incorporating the site's cultural history, alpine flora and fauna and the water storage purpose, have been included in the landscape master plan and create a number of new opportunities and challenges. The ERP hopes to give the water storage facility its own visual and functional identity through a range of features including

interpretive signage, a shallow rock pool or 'beach' and a number of lookouts. Safety and security of both visitors and the water source have been successfully managed.

4.5 *MONITORING*

Monitoring the rehabilitation area will be conducted every year after construction for five years and will involve both qualitative and quantitative measurements against the performance criteria outlined below and in the ERP. Annual monitoring reports will be produced.

4.5.1 *Performance Criteria*

Short-term

Before the start of the first winter, erosion resistant ground will cover the rehabilitation area. The ground will be considered erosion resistant if there is no bare soil and sediment controls are properly in place.

Long-term

Within five years, there will be no overall loss of ecological values from the PCF, including 5.278 hectares of dense native vegetation and habitat for Alpine Bog Skink and Broad-toothed Rat.

4.5.2 *Qualitative Monitoring*

Qualitative measurements will be taken in the form of annual inspections looking at drainage and earthwork stability, sediment control condition, evidence of grazing and seedling mortality. Habitat potential for the Alpine Bog Skink, Broad-toothed Rat and Mountain Pigmy-possum will also be monitored by active searches for species or traces and camera traps if appropriate.

4.5.3 *Quantitative Monitoring*

Quantitative monitoring will be conducted using the CSIRO landscape functionality analysis. Eleven indicators will be measured and three indices calculated in order to determine extent and density of vegetation, percentage mortality of seedlings and ultimately determine whether a self-sustaining, functional biophysical system has been restored. The method will follow standards outlined by Tongway and Hindley (2005).

5 *REFERENCES*

Biosis, 2016, Mt Buller Sustainable Water Security Project - Off-Stream Storage. Offset Strategy

Biosis and GHD, 2016a, Mt Buller Sustainable Water Security Project - Off-Stream Storage. Flora and Fauna Assessment Report

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GHD, 2016 Mt Buller and Mt Stirling Alpine Resort Management Board Mt Buller Sustainable Water Security Project - Off-Stream Storage. Site Environmental Management Plan, amended October 2016

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GHD, 2016b Mt Buller Sustainable Water Security Project - Off-Stream Storage. Project Geotechnical Risk Assessment

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Tongway D and Hindley N, 2005 Landscape Function Analysis: Procedures for Monitoring and Assessing Landscapes. CSIRO Sustainable Ecosystems, Canberra

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