



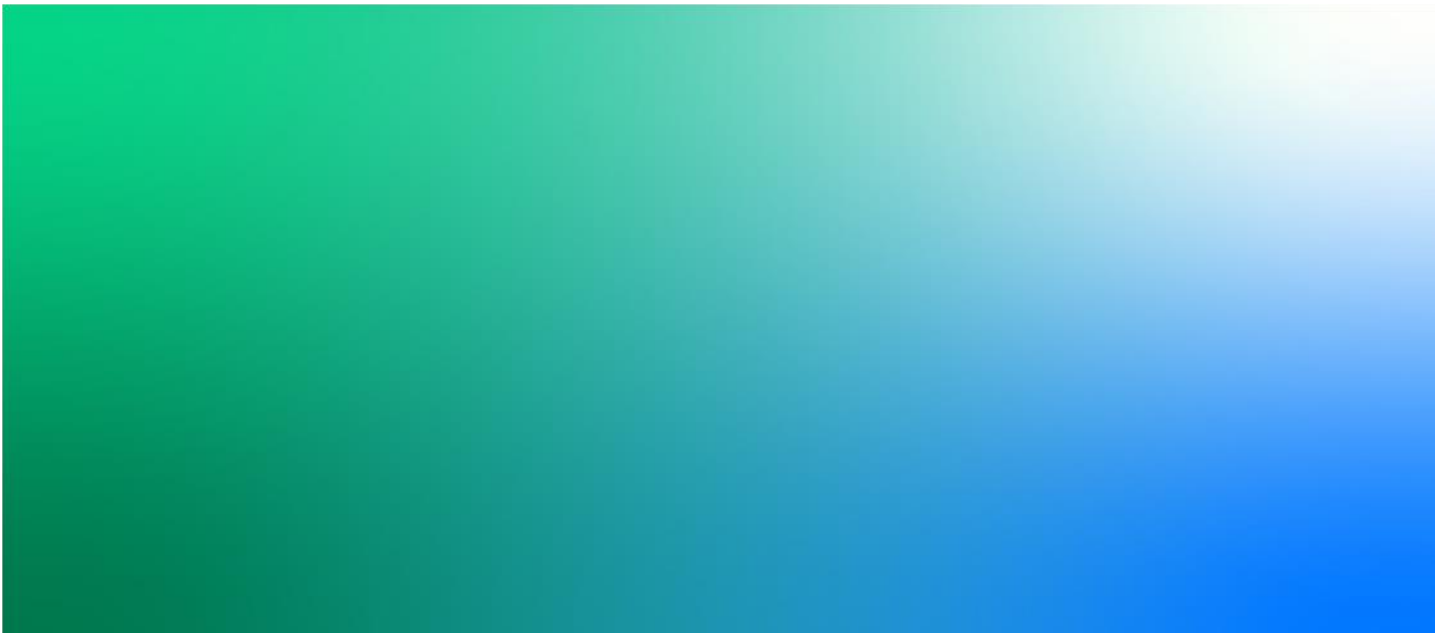
# **Victorian Murray Floodplain Restoration Project**

**VMFRP - Draft Environmental Management Framework**

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13 March 2020

**Lower Murray Urban and Rural Water Corporation**



## Victorian Murray Floodplain Restoration Project

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## Glossary

Acronym / Abbreviation	Description
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
Cwlth	Commonwealth
DEWLP	Department of Environment, Land Water and Planning
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environment Protection Authority (Victoria)
EWMP	Environmental Water Management Plans
GMW	Goulburn Murray Water
LMW	Lower Murray Water
Mallee CMA	Mallee Catchment Management Authority
MDBA	Murray-Darling Basin Authority
North Central CMA	North Central Catchment Management Authority
NSW	New South Wales
Parks Victoria	PV
SEPP	State Environment Protection Policy
SMP	Stakeholder Management Plan
SEMP	Worksite Specific Environmental Management Plan
Vic	Victoria
VMFRP	Victorian Murray Floodplain Restoration Project

## Important note about your report

The purpose of R8's engagement under the Victorian Murray Floodplain Restoration Project (VMFRP) is to design infrastructure for the VMFRP program including regulators, levees, roads, access tracks and culverts. Once constructed, Lower Murray Water (LMW), Goulburn Murray Water (GMW) and Parks Victoria (PV) are intended to become the owner and operator of the structures and access tracks so this phase of development recognises these organisations as important stakeholders. The designs are required to be suitable for construction pricing to inform business case prioritisation. The purpose of this infrastructure is to allow floodplains to be watered at the hydraulic design levels nominated by VMFRP. R8 are also engaged to provide Regulatory Approvals and Cultural Heritage Services. The purpose of these services is to support VMFRP to lodge the necessary approvals documents for the program with the relevant approvals authorities.

The sole purpose of this report and the associated services performed by R8 is to complete a draft Environmental Management Framework for VMFRP in accordance with the scope of services set out in the contract between R8 and VMFRP. This report was prepared initially to support the Hattah Lakes North referrals, has since been updated to support the Nyah and Vinifera referrals and will be subject to further update as other referrals are prepared.

R8 has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. However, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

In preparing this report, R8 has relied on the information provided by VMFRP in the data handover pack at the commencement of the program. In particular VMFRP has developed ecological objectives and, based on these, has proposed inundation levels and extents. R8 is reliant on VMFRP's prior flood modelling work and has designed the infrastructure in response to the VMFRP defined inundation levels and extents.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by R8 for use of any part of this report in any other context. This report has been prepared on behalf of, and for the exclusive use of VMFRP, and is subject to, and issued in accordance with, the provisions of the contract between R8 and VMFRP. R8 accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

This draft Environmental Management Framework is subject to the following limitations:

- The draft Environmental Management Framework has been prepared initially to support the Hattah Lakes North referrals, has since been updated to support the Nyah and Vinifera referrals, and will be subject to further update as other referrals are prepared.
- Legislation is dynamic and subject to change
- The design, including the location of levees, construction footprints and inundation areas will evolve over time
- No engagement has occurred to date with agencies or regulators on the content of this EMF
- The scope of approvals required for the VMFRP sites are currently unknown and will be subject to consultation with the relevant authorities and the outcomes of the Victorian *Environment Effects (EE) Act 1978* and Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* Referrals.
- Due to the stage of this program, mitigation measures have been derived based on the previous The Living Murray Project management plans and considering the works for the Hattah Lakes North Project. These measures will evolve in response to project approvals, engagement with relevant stakeholders and regulators, environmental studies, and assessments of risks and impacts carried out for the VMFRP sites.
- It is intended that this draft EMF will be subject to updates and refinement throughout the design and approvals phase of the program in order to incorporate findings from technical studies and design, address

statutory requirements and approval conditions, protect environmental values through adaptive management and reflect outcomes of stakeholder engagement.



# 1. Introduction

The Victorian Murray Floodplain Restoration Project (VMFRP) is being implemented as part of Victoria's obligations under the Murray Darling Basin Plan in partnership with Lower Murray Water (LMW), Goulburn Murray Water (GMW), Mallee Catchment Management Authority (CMA), North Central CMA, Parks Victoria and the Department of Environment, Land Water and Planning (DELWP). The VMFRP consists of nine discrete environmental works projects that aim to return a more natural inundation regime across approximately 14,000 ha of high-ecological-value Murray River floodplain in Victoria through the construction of new infrastructure and the modification of existing infrastructure.

This draft Environmental Management Framework (EMF) has been developed to provide a transparent framework to manage environmental impacts associated with construction and operation of the nine VMFRP projects (referred to as the program).

## 1.1 Purpose of the EMF

The purpose of this draft EMF is to:

- Provide an overview of the governance framework, processes and procedures that will be applied to manage environmental risks and impacts during construction and operation of VMFRP.
- Support referrals for the VMFRP under the Victorian *Environment Effects Act 1978* and Commonwealth *Environment Protection Biodiversity and Conservation Act 1999*.

The draft Environmental Management Framework was prepared initially to support the Hattah Lakes North referrals. It has since been updated to support the Nyah and Vinifera referrals and will be subject to further updates as other referrals are prepared.

## 1.2 Scope of the EMF

The EMF provides an overview of the governance framework that would apply to deliver the VMFRP works. It describes the documents that contractor(s) will be required to prepare, including, but not limited to, a Construction Environmental Management Plan (CEMP) as well as a list of mitigation measures that must be complied with during construction. The EMF also outlines the approach to operation of the VMFRP sites and the preparation of Environmental Watering Management Plans.

The EMF is a 'live' document and will be updated throughout the referrals, design and approvals phase of the program to:

- Incorporate findings from technical studies and design;
- Capture statutory requirements and approval conditions;
- Reflect environmental values and continuously improve protection measures through adaptive management; and
- Address the needs and expectations of interested parties (including stakeholders, regulators and the community).

Separate Cultural Heritage Management Plans (CHMP) are currently being prepared for each project site. All actions required under the CHMPs are to also be managed in accordance with this EMF.

The VMFRP partnership will not exist beyond the commissioning of the project works. For future operations and management of the sites, the Victorian Government (DELWP) will engage directly with the Water Authorities (GMW/LMW) for the operation and maintenance of sites, and, will separately engage directly with the Catchment Management Authorities (Mallee CMA and North Central CMA) to coordinate environmental watering events. On this basis, this EMF is applicable predominately to the pre-construction (design and approvals) and construction phase of this project. Guidance on the environmental management requirements for the operational phase are

provided to the extent applicable to the establishment of sites up until construction completion and does not apply to the ongoing management by water authorities and Catchment Management Authorities as delegated by the Victorian Government. Requirements for operation and ongoing management will be detailed in the site EWMPs. More details on project governance and roles and responsibilities are provided in Section 3.

### 1.3 Structure of the EMF

The EMF has been developed in general accordance with AS/NZS ISO 14001:2016 Environmental Management Systems – Requirements with guidance for use and the VMFRP Environmental Management Plan (EMP) (VMFRP, 2019a) which describes the environmental management processes to be adopted for the VMFRP.

The EMF comprises of:

- Program description and summary of environmental values with the program area (refer Section 2)
- An environmental strategy including requirements for:
  - Outline of roles and responsibilities for environmental management (refer Section 3)
  - Statutory requirements for the projects and the current status of environmental, cultural heritage and planning approvals (refer Section 4)
  - A summary of the risk assessment process and overview of potential construction and operation environmental risks (refer Section 5)
  - Details of the environmental management systems and plans to be prepared by VMFRP, Contractors and Operators to address identified risks and impacts and implement requirements of relevant legislation and project approvals (refer Section 6)
  - Monitoring, reporting and auditing requirements to evaluate compliance of VMFRP, Contractors and Operators with the EMF and supporting environmental management systems and plans (refer Section 7).

## 2. Program description

The VMFRP consists of nine discrete environmental works projects that aim to return a more natural inundation regime across approximately 14,000 ha of high-ecological-value Murray River floodplain in Victoria through the construction of new infrastructure and the modification of existing infrastructure. The program is being undertaken in partnership with LMW, GMW, Mallee CMA, North Central CMA, PV and DELWP and is funded by the Australian Government's Department of Agriculture.

Land use and flow regime changes along the Murray River has meant that the river floodplain and associated wetlands no longer receive their natural inundation regime. The VMFRP proposes to deliver water from the Murray River to high value wetlands and floodplains along the river through a suite of environmental works projects. The delivery of water will mimic a natural flood event, with the objective to improve the condition of vegetation communities and provide habitat for native fish, birds frogs and reptiles and work towards restoring the floodplain environment. Environmental works to be undertaken as part of VMFRP include channels, regulators and pumps to deliver water more effectively (VMFRP, 2019b).

There are nine discrete environmental works projects along the Murray River as part of the VMFRP including:

- Lindsay Island
- Wallpolla Island
- Hattah Lakes North
- Belsar-Yungera
- Burra Creek
- Nyah
- Vinifera
- Guttrum and Benwell Forests
- Gunbower National Park.

A summary of these projects is provided in the following sections.

### 2.1 Location

All nine VMFRP environmental works projects are in Northern Victoria adjacent to the Murray River with five of the project sites also expanding into the Murray River banks in New South Wales. The most upstream site is Gunbower National Park (60 km north-west of Echuca) and the most downstream site is Lindsay Island (east of the border of South Australia).

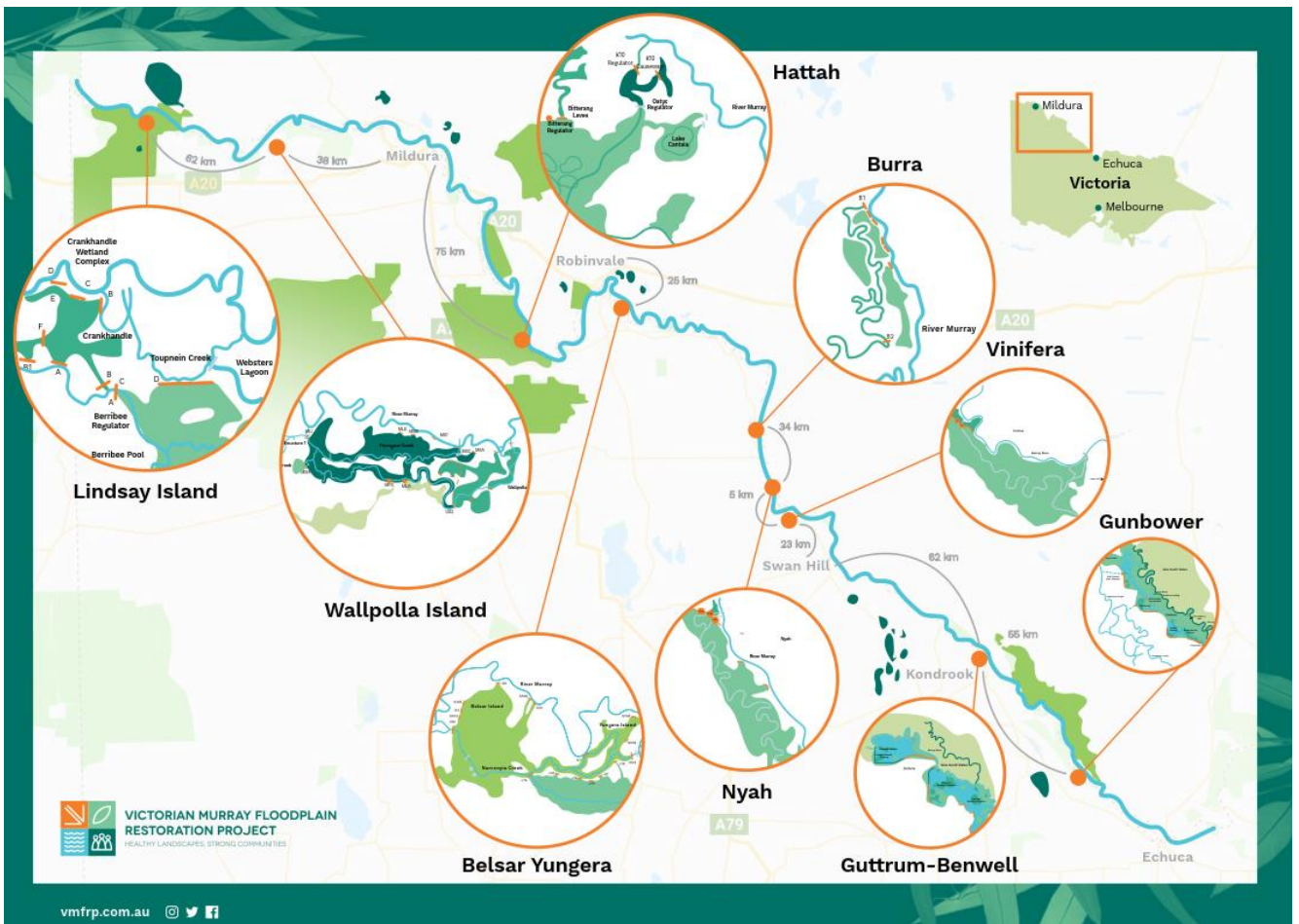


Figure 2.1: Relative location of environmental works projects along the Murray River (source: VMFRP, 2019b)

## 2.2 Environmental context and values

The floodplain environment is the land alongside the Murray River that is slightly higher in elevation and becomes flooded when the water levels (and volumes) in the River are high (Murray-Darling Basin Authority, 2018). Land use within the project areas are predominately State and National Parks, however these are surrounded by private landholdings dominated by irrigated agriculture with major enterprises including pasture production, intensive horticulture and viticulture.

The Murray River is a highly regulated system which has significantly reduced the incidence of minimal and minor flooding, resulting in the river floodplains receiving less water. Natural flooding patterns along the Murray River floodplain have also been significantly altered over the years by human activity such as impacts of river regulation, the development of public infrastructure (roads and bridges) and public or private flood works (levees) for the protection of urban areas or agriculture production (Murray-Darling Basin Ministerial Council, 2002).

The floodplain environment is an important feature of the Murray River. It provides essential habitat and resources to support diverse native flora and fauna communities and species including many threatened ones. Habitats of high conservation value (e.g. River Red Gum and Black Box forests) along the Murray River provide important refuges and hotspots in a significantly altered landscape for species including water birds, woodland birds, frogs, turtles, fish and macroinvertebrates (Murray-Darling Basin Authority, 2019a). Wetlands, (billabongs, backwaters, lakes, swamps and floodplain depressions) are also ecologically significant parts of the floodplain, supporting a higher biodiversity of species and greater ecological production (Murray-Darling Basin Ministerial Council, 2002).

The Murray River floodplain environment also provides a range of social and economic benefits including recreational activities, tourism, timber production and apiculture. There is also evidence along the floodplain of both Aboriginal and European activities, and they are particularly culturally significant for the Traditional Owners of the area (North Central CMA, 2014a). The floodplain environment is an important component defining the ecological character, and therefore the environmental values, of the Murray-Darling Basin's Ramsar sites (Murray-Darling Basin Authority, 2019a).

A reduction in the frequency and duration of River Murray inflows is impacting on the ability to support healthy floodplain communities and support the cultural heritage values of the sites. The condition and resilience of native vegetation has been reduced which has impacted the availability and quality of potential habitat for native flora and fauna, and a reduction in the abundance and diversity of native flora and fauna across the area (North Central CMA, 2014a and 2014b).

The VMFRP will provide significant benefits to the floodplain environment at the nine discrete environmental works project sites by returning a more natural water regime through the delivery of environmental water (VMFRP, 2019b). However, given the proposed environmental works are being undertaken adjacent to the Murray River there is potential for impacts to the floodplain environment. Potential impacts from construction are summarised in Section 5.2 and operational impacts associated with delivery of environmental water are summarised in Section 5.3.

## 2.3 Objectives

The Murray-Darling Basin Plan (the Basin Plan) sets sustainable diversion limits, which is how much water can be used in the Murray-Darling Basin, while leaving enough water to sustain natural ecosystems. The Basin Plan contains mechanisms to adjust sustainable diversion limits, including a suite of projects to be implemented. These include projects that allow environmental outcomes to be achieved with less water, meaning more water can remain in the system for other uses (e.g. households, industry and irrigation agriculture) (Murray-Darling Basin Authority, 2019b).

The VMFRP will implement nine of these projects along the Murray River floodplain in Victoria which will include undertaking engineering works such as flow control regulators, pipes and pumps to achieve similar environmental benefits to natural inundation, using a smaller volume of water.

Table 2.1 summarises the overarching objectives of the proposed water management for each of the nine environmental works projects. A suite of ecological objectives and targets have also been developed for each site and represent the desired ecological outcomes of enhanced flooding. These are documented in the site EWMPs.

Table 2.1: Overarching objectives of water management of the nine environmental works projects

Environmental works project	Overarching objective of water management
Lindsay Island	Protect and restore the key species, habitat components and functions of the Lindsay Island ecosystem by providing the hydrological environments required by indigenous plant and animal species and communities (Mallee CMA, 2015a).
Wallpolla Island	Protect and restore the key species, habitat components and functions of the Wallpolla Island ecosystem by providing the hydrological environments required by indigenous plant and animal species and communities (Mallee CMA, 2015b).
Hattah North	Protect and restore the productivity and integrity of floodplain vegetation and its capacity to support floodplain fauna (Mallee CMA, 2015c).
Belsar-Yungera	Protect and restore the key species, habitat components and functions of the Belsar-Yungera ecosystem by providing the hydrological environments

Environmental works project	Overarching objective of water management
	required by indigenous plant and animal species and communities (Mallee CMA, 2015d)
Burra Creek	Protect and restore the key species, habitat components and functions of the Burra North ecosystem by providing the hydrological environments required by indigenous plant and animal species and communities (Mallee CMA, 2015e)
Nyah	Protect and restore the key species, habitat components and functions of the Nyah Park ecosystem by providing the hydrological environments required by indigenous plant and animal species and communities (Mallee CMA, 2015f)
Vinifera	Protect and restore the key species, habitat components and functions of the Vinifera Park ecosystem by providing the hydrological environments required by indigenous plant and animal species and communities (Mallee CMA, 2015g)
Guttrum and Benwell	Reinstate a more natural flooding regime that protects and enhances the ecological values within the Guttrum and Benwell Forests. (North Central CMA, 2014a)
Gunbower	Reinstate a more natural water regime that protects and enhances the ecological values within the Gunbower National Park and, where possible, supports values in downstream areas of Gunbower Forest (North Central CMA, 2014b)

## 2.4 Construction phase

The environmental works proposed under the VMFRP include construction and modification of existing regulators, raised tracks and levees, pump stations (temporary and permanent), hardstands and pipelines designed to deliver and retain water on the Murray River floodplain. The type of works being undertaken is similar to water infrastructure which already exists along the Murray River and with the adjacent modernised irrigation districts. However, completion of the works involves complex design, approvals and construction processes to minimise the impacts on environmental values, sensitive cultural heritage sites, neighbouring landowners and downstream water values and users (DELWP, 2019a). The construction works will be managed through a suite of environmental management systems and plans as described in Section 6.

### 2.4.1 Environmental works components

Table 2.2 provides a brief description of the key environmental works components proposed as part of the VMFRP that may occur at some or all of the sites. Table 2.3 identifies which environmental works components are proposed for each of the nine environmental works projects.

Table 2.2: Environmental works component description

Component	Description
Regulators – various sizes	Regulators of varying sizes will be used to deliver, move or retain water on the floodplain to meet the environmental watering regime (i.e. volume and duration of flood water), as outfalls to the Murray River or to supply irrigation (diversion) customers. The various regulator sizes include: <i>Very large</i> – major regulator structures on large waterways that will require individual design. They typically are multi-bay structures with more than 3-4m head with bridge crossings for access and will be designed as cast insitu concrete



Component	Description
	<p>structures with sheetpile cutoffs for seepage control. Some will require piled foundations for structural support and some have fishways.</p> <p><i>Large</i> – intermediate sized regulator structures nominally resisting 2-3m head with some degree of individual design of the structure is required. They will typically have box culverts for the road crossing but the remainder will be cast insitu concrete, typically with sheet pile cutoffs for seepage control.</p> <p><i>Small</i> – to water control regulators that retain water less than 2m deep. The small regulators generally comprise box culvert style regulators with box culvert units up to 1.8m high, and variations of these. Non-standard small regulators consist of small irrigation type flow control structures (R9 Joint Venture, 2019).</p> <p>Some regulators will be operated so that fish passage (targeting small bodied fish) can occur both in managed release and natural flood scenarios and flow velocities are also appropriate for fish passage. There will also be provision of Carp/large bodied fish screens on some regulators to prevent large fish being trapped on the floodplain (Seran and BL&amp;A, 2018).</p>
Fishway	<p>Fishways may be included on selected regulators where the movement of fish into the inundated floodplain areas is critical for sustaining fish populations. The fishways will either be:</p> <p>Vertical slot fishways which provide a channel around the regulator structure with baffles forming a vertical opening that controls head drop and velocity through the fishway.</p> <p>Rock ramp fishways where a rock lined ramp is provided around the regulator structure designed to mimic a natural creek reach and control velocity such that fish can migrate upstream (R9 Joint Venture, 2019).</p>
Containment banks	<p>Containment banks are a raised embankment, predominantly earthfill, whose primary objective is to provide water containment for the purpose of containing environmental water on the floodplain and avoiding/ controlling the breakout of water to prevent unintended flooding (R9 Joint Venture, 2019).</p>
Levees	<p>Levees are a raised embankment, predominantly earthfill, whose primary objective is to provide flood protection along a river or artificial waterway. Levees may also be used to serve a secondary purpose of environmental water containment (R9 Joint Venture, 2019).</p>
Spillway	<p>Spillways have been incorporated into some levee embankments or integrated with regulator structures to control overflow during a natural flood.</p>
Culverts	<p>Culverts (pipe and box) will be located throughout the project sites to maintain access for operational staff and the public.</p>
Drop structures (rock chutes)	<p>Drop structures and rock chutes near the confluence of Murray River may be required at some environmental works project sites to control the erosion associated with discharge of managed releases from the floodplain to the river. The structures will be built from combinations of sheetpile and rock materials, however exclude concrete regulator structures which may also serve a drop structure function (R9 Joint Venture, 2019).</p>
Pump Stations – permanent	<p>Pump stations and their associated infrastructure will be used to provide water from the Murray River to enable full forest flooding events as well as small-scale flows to water floodplain wetlands and depressions.</p>
Hard Stands - temporary pumping	<p>A permeant area established for the purposed of temporary pumping (R9 Joint Venture, 2019). Temporary pump sites will also be used to provide water from the</p>

Component	Description
	Murray River to enable full forest flooding events as well as small-scale flows to water floodplain wetlands and depressions.
Pipelines	Permanent pipelines may be required to move water to lower ground or throughout the site. Where irrigation (diverters off waterways) customers are required to be supplied within the project areas, pump and pipeline irrigation systems may also be required.
Road and track upgrades	Roads refers to existing Council or State owned public roads, comprised of formalised sealed or unsealed pavement structures consisting of a prepared subgrade with base and/or subbase layers.  Tracks refer to public access tracks in State Forests or National Parks and range from formalised pavements to unformed tracks established by clearing vegetation, regarding and re-profiling utilising existing materials (R9 Joint Venture, 2019).

Table 2.3: Environmental works proposed

Infrastructure	Lindsay Island	Wallpolla Island	Hattah North	Belsar-Yungera	Burra Creek	Nyah	Vinifera	Guttrum-Benwell	Gunbower
Regulator – Very large	✓	✓		✓					
Regulator – Large	✓	✓	✓	✓	✓	✓		✓	✓
Regulator – Small	✓	✓		✓	✓	✓	✓	✓	✓
Fishway	✓	✓		✓					✓
Containment Banks	✓	✓	✓	✓	✓	✓	✓	✓	✓
Levees								✓	✓
Spillways	✓	✓	✓	✓	✓	✓	✓	✓	✓
Culverts	✓	✓	✓	✓		✓	✓	✓	✓
Drop structures	✓				✓	✓			
Pump Stations – permanent								✓	✓
Temporary pumping	✓	✓		✓	✓	✓	✓	✓	
Pipeline (permanent)	✓			✓					✓
Track and road	✓	✓	✓	✓	✓	✓	✓	✓	✓



Infrastructure	Lindsay Island	Wallpolla Island	Hattah North	Belsar-Yungera	Burra Creek	Nyah	Vinifera	Guttrum-Benwell	Gunbower
construction/upgrades									

### 2.4.2 Ancillary components

The ancillary components associated with the construction of the environmental works include site access, construction laydown areas and borrow sites.

#### Site access

Site access will be via existing access tracks (e.g. public roads, forest tracks) where available. In some cases new access tracks and/ or passing bays will be required. All works to upgrade existing tracks or install new access tracks will be located to minimise any adverse impacts (e.g. avoid native vegetation where practicable).

#### Laydown areas

Laydown areas will be required at each of the environmental works project sites for storage of construction materials, facilities for workforce and parking. The location of the laydown areas will be selected to minimise adverse impacts (e.g. avoid tree protection zones where practicable).

#### Borrow sites

Borrow sites will be required to source fill materials. VMFRP are currently carrying out a site selection process to identify potential borrow site locations.

### 2.4.3 Construction methods

The site specific construction methods associated with the proposed environmental works will be developed as part of the detailed design process for each of the environmental works projects.

## 2.5 Operational phase

The environmental works proposed to be undertaken as part of the VMFRP will allow for the delivery of environmental water to high value floodplains and associated wetlands along the Murray River. As part of the program investigations, operational scenarios for the managed environmental watering events at each of the nine project sites have been developed to address the ecological objectives set. These scenarios include the proposed area of inundation and water levels, volume of water required, the frequency, duration and timing of the inundation and any specific areas targeted for the inundation (e.g. whole of forest flooding or direct watering of floodplain wetlands). Table 2.4 provides a high level indicative summary of the proposed operational changes at each of the sites. Detailed operating plans will be developed as part of site specific EWMPs.

The future operation of the nine project sites and potential impacts from delivery of environmental water will also be managed through site specific EWMPs. The EWMPs are described in more detail in Section 6.4.1.

Table 2.4: Indicative proposed operational scenarios for environmental works projects

Environmental works project	Area inundated	Areas of hydrological change
Lindsay Island	5,365 ha	Lower floodplain, Lindsay Creek, Mullaroo Creek, Crankhandle Wetland Complex, Crankhandle West, Crankhandle East and Lindsay South Wetland

Environmental works project	Area inundated	Areas of hydrological change
Wallpolla Island	2,651 ha	Mid and upper floodplain, floodplain downstream of Long Levee Regulator 1, Finnigans Creek, Wallpolla Creek, South Wallpolla
Hattah North	1,130 ha	Chalka Creek north floodplain and wetlands, Bitterang north floodplain, Lake Boolca, Lake Mourmpal, Lake Lockie, Lake Hattah, Lake Kramen
Belsar-Yungera	2,370 ha	Lower and upper floodplain, Narcooyia Creek, Lake Powell and Lake Carpul
Burra Creek	325 ha	Lower and upper floodplain, Burra Creek, floodplain billabongs
Nyah	440 ha	Lower and upper floodplain, Parnee Malloo Creek, low level floodplain wetlands
Vinifera	340 ha	Lower and upper floodplain, Vinifera Creek, seasonal wetlands
Guttrum and Benwell	1,270 ha Guttrum 660 ha Benwell	Guttrum Forest, Benwell Forest and semi-permanent wetlands
Gunbower	500ha	Camerons Creek, Black Charlie Lagoon, Baggots Swamp and Pig Swamp and the surrounding river red gum forest.

### 3. Roles and responsibilities

This section outlines the proposed roles, responsibilities, accountabilities and governance arrangements for implementing the EMF during the construction and operation of the VMFRP.

#### 3.1 Governance arrangements

VMFRP, on behalf of the Victorian Government, is responsible for delivering the environmental works. VMFRP is a partnership program between LMW, GMW, Mallee CMA, North Central CMA, PV and DELWP.

VMFRP is also responsible for overseeing and engaging Contractors and consultants for all aspects of the program. This includes site investigations, stakeholder engagement, preparing the documentation that informs any subsequent statutory approvals, obtaining key planning approvals and procurement, through to construction delivery. The asset owners and waterway managers, with support from land managers and storage/ resource managers, will be responsible for the future operation of the sites (Figure 3.1).

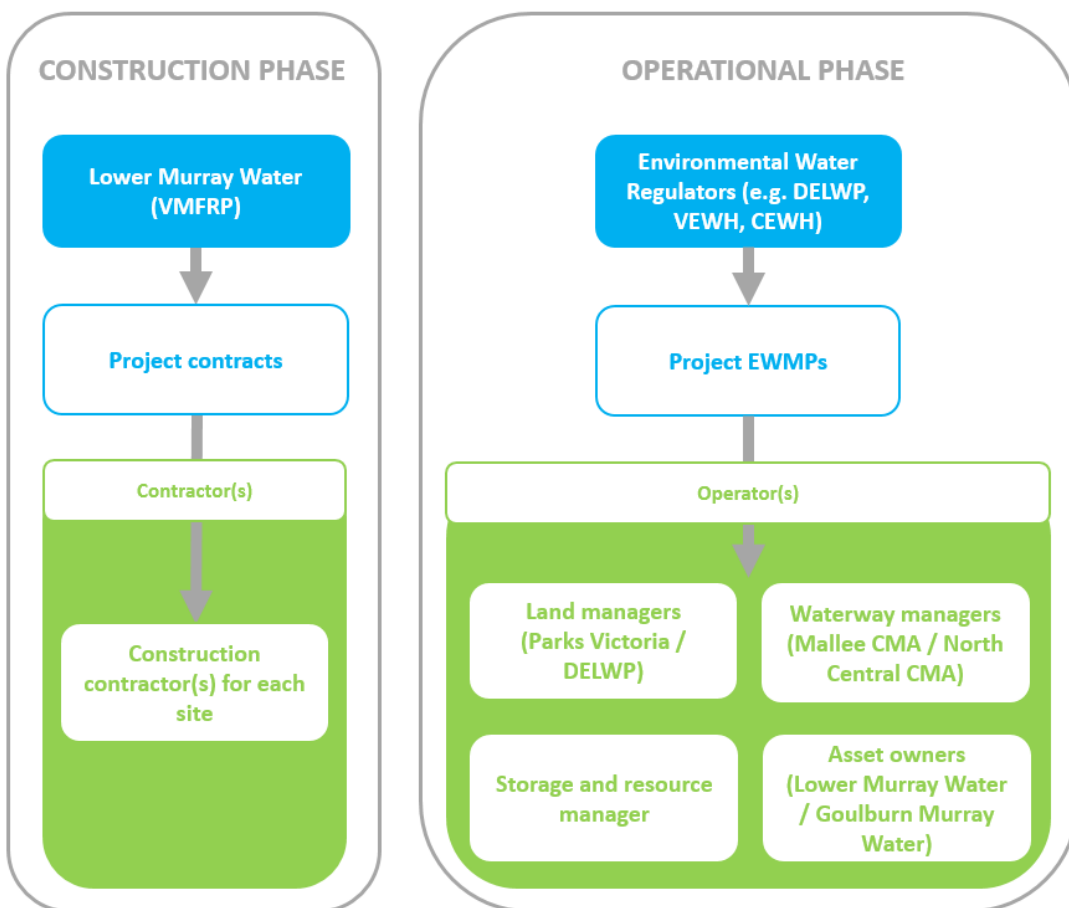


Figure 3.1: Roles and responsibilities for program delivery

Fulfilling the responsibilities and accountabilities across all elements of the EMF involves VMFRP, Contractors, Operators and regulators. The contractors' responsibilities will be included as contractual requirements in project contracts. The contractors will also be responsible for activities conducted by their sub-contractors.

Operation of the completed works will be managed in accordance with the Operator's existing management systems and procedures, as well as site specific Environmental Watering Management Plans. Requirements for environmental performance reporting and adaptive management during operation will be documented in the EWMP.

### 3.2 Roles and responsibilities

Table 3.1 describes the key roles and responsibilities for environmental management under the EMF. Contractor responsibilities would be included as contractual conditions in the project contracts.

Table 3.1: Roles and responsibilities

Organisation	Environmental responsibilities
<b>General</b>	
Regulators and Agencies (e.g. Victorian Minister for Planning, PV, CMAs, DELWP)	<p>Administer and determine compliance with project approvals.</p> <p>Review, comment and where necessary approve relevant plans and documents as required by the EMF.</p>
VMFRP (partnership program between LMW, GMW, Mallee CMA, North Central CMA, PV and DELWP)	<p>Obtain applicable principal statutory approvals for the projects</p> <p>Undertake design and tender documentation</p> <p>Establish, implement and maintain the currency of this EMF</p> <p>Develop and implement the VMFRP EMP</p> <p>Engage construction contractors and require compliance with legislation, project approvals and this EMF as a condition of project contracts</p> <p>Review and approve contract documentation for each project contract in accordance with this EMF (including associated management plans), and as required by statutory approvals.</p> <p>Prior to commencement of work, verify that the contractor has complied with the relevant management plans and environmental controls.</p> <p>Review the contractors' performance against the approved management plans and controls, carry out regular audits of contractor performance, and require corrective action as necessary.</p> <p>Appoint a Cultural Heritage Advisor</p> <p>Notify relevant authorities of externally reportable events (refer to Section 7.7).</p>
<b>Contractor(s)</b>	
Project Contractors	<p>Comply with the EMF (including the associated management plans), legislative and approval requirements.</p> <p>Obtain any additional permits from regulatory authorities (other than the approvals that would be obtained by or jointly with VMFRP).</p> <p>Develop and implement a project specific Environmental Management System (EMS) or apply their existing EMS to the specific activities for the project. The EMS is to conform to AS/NZS ISO 14001:2016.</p> <p>Prepare a CEMP, and associated work method statements, other plans required by the EMF, statutory approvals, regulations or project contracts.</p> <p>Submit to VMFRP environmental management documentation for review and approval such as (but not limited to) the CEMP and site-specific environmental management plans prior to commencement of construction.</p> <p>Provide adequate resources to effectively establish, implement, maintain, monitor and improve the CEMP, the EMS and other related documents.</p> <p>Appoint suitably qualified Project Environmental Officer(s) to supervise implementation of the CEMP and relevant environmental management measures.</p>

Organisation	Environmental responsibilities
	<p>Appoint a suitably qualified Project Ecologist to undertake specific tasks identified in the CEMP. This includes being on site leading up to and during clearing</p> <p>Complete internal audits of their compliance with the EMF, CEMP approvals, regulations, project approvals and ancillary plans and documentation and undertake corrective actions to address non-compliances. Submit audit/corrective action reports to the VMFRP for review upon request/ in line with contract requirements.</p> <p>Participate in audits arranged by VMFRP or regulators to assess contractor compliance with the EMF, CEMP, and associated work method statements, other plans required by the EMF, statutory approvals, regulations or project contracts, and take corrective action where necessary</p> <p>Maintain all relevant records (as required by the EMF, CEMP, approvals and contract documentation) and provide to the VMFRP or auditor on request.</p> <p>Prior to commencement of work, ensure that all sub-contractors have complied with the EMF, CEMP and other plans.</p> <p>Review of sub-contractors' performance against the EMF and CEMP, requiring corrective action to be taken as necessary.</p> <p>Notify VMFRP of externally reportable events (refer to Section 7.7)</p>
<b>Operator(s) – more detailed roles and responsibilities provided in EWMP</b>	
Waterway manager	<p>Develop Environmental Water Management Plan including assessing the water regime requirements of sites to identify environmental watering needs to meet agreed objectives</p> <p>Propose annual environmental watering actions to the Victorian Environmental Water Holder (VEWH) and implement the VEWH environmental watering decisions.</p> <p>Report on environmental water management activities undertaken.</p>
Asset owner	<p>Operate and maintain VMFRP assets to deliver environmental water in accordance with the Environmental Water Management Plan</p> <p>Comply with statutory approval requirements relevant to the operation of sites.</p>
Storage and resource manager	<p>Work with the VEWH and waterway managers in planning the delivery of environmental water.</p> <p>Operate water supply infrastructure such as dams and irrigation distribution systems to deliver environmental water.</p>
Land manager	<p>Where agreed, participate in the periodic review of relevant EWMPs.</p> <p>Manage and report on other relevant catchment management and risk management actions required due to the implementation of environmental water.</p> <p>Implement management actions and monitoring assigned to the land manager as outlined in environmental risk registers and EWMP.</p> <p>Manage public land to minimise operational risks and impacts associated with site access, fire, introduction and spread of weeds and pest management</p>

## 4. Statutory requirements and approvals

This section provides a list of the key Commonwealth and State (Victoria and New South Wales) statutory approvals that may be required for construction and operation of the VMFRP. In addition to obtaining necessary approvals, all relevant legislation must be complied with during construction and operation of VMFRP.

### 4.1 Potential assessment and approval requirements

A range of assessments and primary approvals may be required for the VMFRP sites including:

- Referral and potentially approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) for potential impacts on Matters of National Environmental Significance and on Commonwealth land
- Referral and potentially assessment under the *Environment Effects Act 1978*
- A planning scheme amendment or planning permit under the *Planning and Environment Act 1987* for development, use and native vegetation removal
- An approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006*
- Assessment and approval under the *Environment Planning and Assessment Act 1979* (NSW)
- Aboriginal Heritage Impact Permit under the *National Parks and Wildlife Act 1974* (NSW).

Other approvals that may be required for specific activities and works include, but may not be limited to:

- Consent to undertake works in a National Park and other parks included in the schedules of the *National Parks Act 1975*
- A licence to take and use water under the *Water Act 1989*
- A permit to undertake works on waterways under the *Water Act 1989*
- A permit to take protected flora on Crown land under the *Flora and Fauna Guarantee Act 1988*
- A permit to take protected fauna and remove soil from Nature Conservation Reserves under the *Wildlife Act 1975*
- Approval to dig a quarry for borrow material under the *Mineral Resources (Sustainable Development) Act 1990*
- A permit under the *Heritage Act 1997* to remove, disturb or destroy historical archaeology or sites on the Victorian Heritage Register
- A permit for dredging or reclamation under the *Fisheries Management Act 1994* (NSW).

In addition, reserve creation, leases or licenses may be required, for example under the *Crown Land Reserves Act 1978* and the *Crown Land Management Act 2016* (NSW), depending on land tenure. This will be considered on a parcel by parcel basis.

Approval requirements and responsibilities for obtaining these will be confirmed and obtained during the project planning phase, prior to the commencement of work.

### 4.2 Other environmental legislation

In addition to requirements for statutory approvals, a range of other Acts, regulations and policies will apply and need to be complied with. In particular this will include the Victorian *Environment Protection Act 1970* and *Environment Protection Amendment Act 2018* and subordinate regulations, policies and guidelines.

The *Environment Protection Amendment Act 2017* (The EP Amendment Act) comes into force on 1 July 2020 and introduces a number of significant changes to Victoria's environmental protection laws. Central to the EP Amendment Act is the general environmental duty (GED) that applies to all Victorians and requires that: 'a

person who is engaging in an activity that may give rise to risk of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable. GED aligns closely with the risk management practices and processes provided in AS/NZS ISO 14001 and AS ISO 31000 as there is a strong focus on identifying and managing risks in alignment with their likelihood and consequence before they cause harm, shifting the focus of assessment and enforcement to prevention. The EP Amendment Act also includes a wider range of penalties for breaches of the Act and GED.

New regulations and Environment Reference Standards (ERS) proposed to support the EP Amendment Act were released for Public Comment in September and October 2019. Public submissions will be reviewed by the EPA and partner agencies and the new regulations and other supporting documentation, such as the ERS, will be released prior to 1 July 2020. Given the significant changes that are provided in the EP Amendment Act and supporting instruments, additional information on the revised regulatory and guidance as applicable to this project and EMF will be added as it becomes available.

## 5. Environmental risk assessment

An environmental risk assessment process is being applied for each of the nine VMFRP environmental works projects to identify key risks associated with the construction and operation to the social, environmental and cultural values of the sites, and to develop mitigation measures to reduce these risks. This section outlines the approach to environmental risk assessment.

### 5.1 Planning and approvals phase assessments

Risk assessments for the VMFRP were initially prepared as part of the Business Case submissions for each of the nine sites in 2014. The risk assessments for the east sites (Gunbower National Park and Guttrum and Benwell Forest) were prepared based on the framework adopted by the North Central CMA, while the assessments for the Central and West sites (remaining sites) were based on the framework adopted by the Mallee CMA.

In the time period since the Business Case submissions for the nine sites, the VMFRP has decided to adopt LMW's corporate risk criteria and matrix as the basis for current and future risk assessments. This decision was made on the basis that LMW is the entity responsible to the State (DELWP) for delivery of VMFRP, with the other agencies (e.g. GMW, North Central CMA, Mallee CMA and PV) providing services to LMW. Adopting one risk criteria and matrix also enables a consistent approach across all sites.

Accordingly, the existing Business Case risk assessments will be reviewed as part of the projects design and approvals process and updated to reflect:

- The LMW consequence and likelihood criteria and risk matrix
- Current legislation
- Experience from environmental watering projects that are now operational, including standard risk management and mitigation measures.

Consistent with the above approach, the existing risks identified from one Mallee CMA site (Lindsay Island), and the two North Central CMA sites (Gunbower National Park and Guttrum and Benwell Forest) have been transferred into the LMW risk matrix template and a workshop review completed of these revised risk registers with representatives of VMFRP and the consultant team. The risk assessment workshop resulted in a revaluation of some existing risks (based on recent operational experience), identified new risks for inclusion and also identified some risks that were considered no longer applicable. VMFRP plans to utilise the refined risk management and mitigation measures identified from the update of the site registers (for the Mallee CMA and North Central CMA sites) to review and update the risk registers for the remaining projects. All risk registers will be reviewed on a regular basis in response to specialist investigations and as part of the ongoing project design and approvals process.

### 5.2 Construction impacts and risk management

Construction of the environmental works may result in the risk of impacts such as:

- Disturbance of threatened or listed species or communities of environmental significance
- Removal of native flora due to site clearance requirements
- Disturbance or damage of cultural heritage sites
- Disruption to local recreation amenities or economic activities during construction
- Importation of pest species
- Spillages of fuel and other construction related materials
- Bush fire from machinery and construction yard ignition sources
- Disturbance or damage of historic heritage sites



- Increased traffic on local roads
- Noise and vibration disturbances
- Dust generation
- Sediment runoff from land disturbance
- Temporary reductions in local amenity
- Importation of contaminated fill material.

Contractors will be required to develop a risk management process for use throughout the project construction phase as part of their EMS and CEMP. The CEMP will include a risk assessment that captures as a minimum, the requirements of this EMF and the VMFRP EMP and any other risks and impacts identified prior to project commencement. Contractors will document risks within an environmental risk register which would be regularly reviewed and updated in response to, where relevant, changes to design, construction, work methods, new technology, legislation and policy, or the occurrence of incidents or complaints.

Prior to commencing work on any new project site, a detailed assessment of environmental risks associated with specific work activities and construction methods must be carried out by the construction contractor. This assessment must consider, but not be limited to, the potential environmental impacts identified above. Risk assessment and management processes must be consistent with AS ISO 31000:2018 Risk management - Guidelines.

A specific control program for reducing environmental risks to acceptable levels must also be developed. Details of control measures to address identified environmental risks must include, but not be limited to:

- Engineering controls and construction techniques to be implemented to protect the environment.
- Work procedures and methods to address identified environmental risks.
- Drawings and plans which clearly show locations of and design specifications for environmental controls.

### 5.3 Operational impacts and risk management

Operation of the proposed water regime (e.g. increased inundation of floodplain) and may result in the risk of impacts such as:

- Increased abundance of pest fish species (e.g. Common Carp, Goldfish, Tench, Gambusia, Oriental Weatherloach and Redfin Perch)
- Stranding of endangered, threatened or at-risk fish species (e.g. Murray Cod)
- Stranding and isolation of fish species on floodplain
- Inundation of cultural heritage sites
- Inundation of historic heritage sites
- Impacts on water quality (e.g. blackwater and Dissolved Oxygen) and salinity risks downstream
- Increased colonisation by invasive native species (e.g. Giant Rush)
- Encroachment of River Red Gums in wetland environments
- Reduced connectivity with Murray River
- Loss of access to floodplain for tourism and recreational activities during environmental watering
- Increase in fire frequency, extent and intensity
- Third party impacts associated with private land flooding should the levees fail
- Increased terrestrial pest species (e.g. pigs, kangaroos)
- Inundation of apiculture sites
- Increased mosquito and fly populations

- Reduced access to culturally important sites during environmental watering.

The risks and impacts would be taken into account and managed through the Environmental Watering Management Plans and Operational Plans prepared for each site, as well as the Operators' existing management systems and procedures.

## 6. Environmental management documentation

The EMF will be implemented through environmental management documentation that will be prepared by VMFRP and by the Contractors and Operators. These plans will also be designed to address requirements of relevant legislation and project approvals.

This EMF requires the preparation of environmental management systems and other project specific documentation by VMFRP, Contractors and Operators to control and monitor environmental risks and impacts during the pre-construction and construction phase of the program. Environmental management documentation must comply with this EMF and relevant legislation, approval conditions, and contractual requirements. As discussed in Section 1.2, environmental management requirements for the operational phase will be primarily detailed in the site EWMPs as well as the operators existing management systems, processes and procedures.

Figure 6.1 presents an overview of the key environmental management documentation and the relationship to other EMF components.

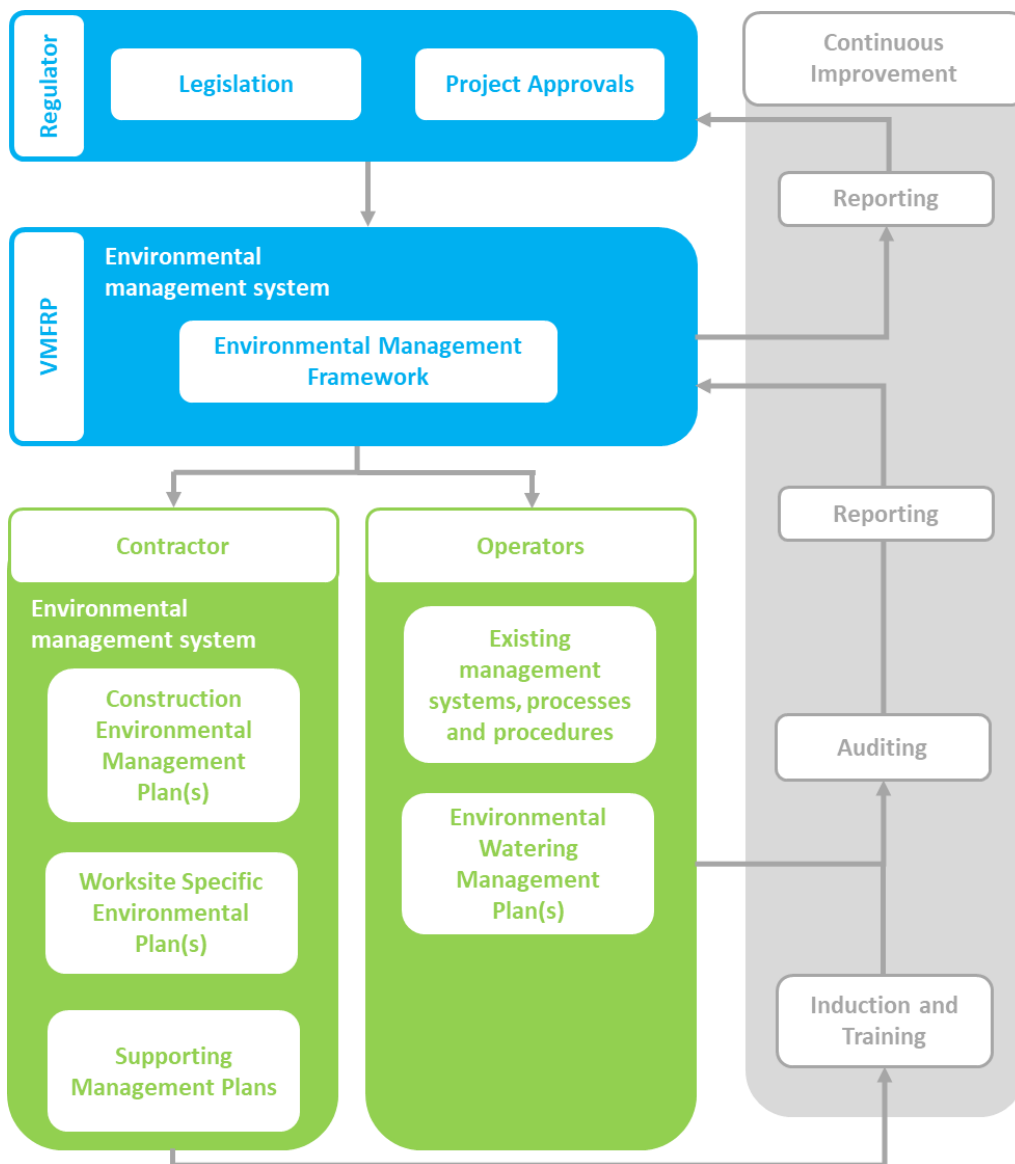


Figure 6.1: Key environmental management documentation

## 6.1 Environmental management system

The construction of VMFRP would be carried out in accordance with an EMS prepared by the Contractor that conforms to AS/NZS ISO 14001:2016. The EMS will contain organisation level policies, plans, procedures and activities to provide a systematic method of managing the environmental aspects of the project.

## 6.2 Management plans

Specific management plans that will be employed during the construction and operational phases of the VMFRP are summarised in Table 6.1. All plans and documents will adopt an adaptive management approach in recognition of both the lifespan of the project and the need to incorporate up-to-date project designs, risk assessments and regulations and requirements in the final construction and operation approach.

Table 6.1: Program and project specific management plans to be developed

Document title	Program wide / Project specific	Prepare	Review and/or approve
<b>Construction phase</b>			
Construction Environmental Management Plan(s) (CEMP)	Project specific/ Contractor specific.	Contractor	Review - VMFRP and program partners as required Approve – VMFRP
Worksite Specific Environmental Management Plan (SEMP)	Project specific/ Contractor specific	Contractor	Review - VMFRP and program partners as required Approve – VMFRP
Cultural Heritage Management Plan (CHMP)	Project specific	VMFRP	Review/approve - Aboriginal Victoria (AV)/ Relevant Registered Aboriginal Party (RAP)
<b>Operational phase</b>			
Environmental Water Management Plan (EWMP)	Project specific	Waterway Manager	VMFRP and DELWP

The key environmental management documents outlined in Table 6.1 and their required content are outlined below. All management plans are required to be developed and approved prior to commencement of the activities covered by the plans.

## 6.3 Construction phase

### 6.3.1 Construction environmental management plan

The Contractor will be required to prepare a CEMP for the relevant environmental works projects, which is compliant with this EMF, is based on AS/NZS ISO 14001 *Environmental management systems – Requirements with guidance for use* and includes:

- The project's environmental management system, procedures and processes as discussed in this section, including all project forms and registers
- A project environmental risk assessment and control program (refer Section 5)

- A legal and other compliance obligations register, including details of approvals, permits, agreements and/or licences for the various stages of work (including but not limited to those listed in Section 4)
- Environmental objectives and how they will be achieved
- Clear delegation of roles and responsibilities (i.e. within the Contractor's project team)
- Worksite specific plans that comply with the requirements in Section 6.3.2
- Relevant environmental procedures and work instructions, incorporating and addressing the mitigation measures described in this EMF (Section 6.3.5);
- Procedures for inspections, environmental monitoring and evaluation and internal auditing (Section 7).
- Procedures for managing complaints and responding to non-conformances and implementing corrective and preventative actions (Section 7.4)
- Environmental incident and emergency response procedures (Section 7.5)
- Requirements for competence (i.e., minimum experience and educational requirements for key roles), awareness (via communication) and training
- Procedures for control of documents and records
- Requirements for review of the CEMP, including Management Review
- A checklist that demonstrates that each requirement of this EMF has been addressed in the preparation of the CEMP. The checklist must be completed and signed by the Contractor's Environmental Manager.

The contractor may choose to develop one CEMP for each environmental works project or its entire package of works (e.g. multiple sites).

A CEMP(s) will be developed based on the detailed design and the construction methodology proposed by each Contractor. The Contractor shall not commence any work on site (including mobilisation of plant/equipment or survey) until such time as the CEMP has been approved by VMFRP. The program partners (e.g. DELWP, CMAs, LMW, GMW and PV may also participate in the review of the CEMP.

### **6.3.2 Worksite specific environmental management plan (sub-plan of CEMP)**

Prior to the commencement of work at any environmental works project site, the Contractor is to provide detailed environmental plans that include information regarding the management of environmental risks at that site. They must be consistent with the CEMP requirements and address any statutory requirements or conditions. They will include:

- A detailed risk assessment for all construction activities and mitigation measures or actions to manage the identified risks;
- Documentation (including plans/drawings), which clearly show locations of and design specifications for environmental controls including but not limited to:
  - Protection/management of cultural heritage sites
  - Protection/ management of native vegetation (e.g. significant trees, threatened communities or species)
  - Erosion and Sediment Control Plan;
  - Fencing (e.g. Defining site limits, protection of sites within the construction footprint);
  - Sensitive noise receptors;
  - Dewatering and management of dirty water;
  - Refuelling and plant maintenance procedures
  - Protection of flora and fauna; and

- Site accommodation and amenities including parking areas, compounds, access points, storage areas, stockpiles, waste management, concrete washouts
- Details of the procedure for reviewing and amending the plan as works progress.
- Procedure for the inspection and maintenance of controls.
- Procedure for monitoring the effectiveness of the controls.

SEMPs will be developed based on the detailed design and the construction methodology proposed by each Contractor. The Contractor shall not commence any work on site (including mobilisation of plant/equipment or survey) until such time as the relevant SEMP has been approved by VMFRP. The program partners (e.g. DELWP, CMAs, LMW, GMW and PV) may also participate in the review of the SEMP.

### 6.3.3 Cultural heritage management plan

VMFRP is currently preparing Cultural Heritage Management Plans for each site for approval by the relevant Registered Aboriginal Party or Aboriginal Victoria. All requirements in the approved Cultural Heritage Management Plans must be complied with.

### 6.3.4 Supporting management plans (construction)

Depending on the outcomes of the statutory approvals, the Contractor(s) may also be required to develop and implement the following supporting management plans as part of their CEMP:

- Fire Management Plan and Site Evacuation Plan
- Erosion and Sediment Control Plans
- Fire Management Plan and Site Evacuation Plan
- Flora and Fauna Management Plan
- Hazardous Substance Management Plan
- Noise Management Plan
- Traffic Management Plan.

### 6.3.5 Mitigation measures

Mitigation measures have been proposed to avoid or minimise environmental risks and impacts associated with construction works for VMFRP. Currently construction mitigation measures have derived the relevant The Living Murray (TLM) Environmental Management Plans (GHD 2011, GHD 2013) to provide consistency across all projects, and with consideration to the scope of works for the Hattah Lakes North Project. These measures will evolve in response to project approvals, engagement with relevant stakeholders and regulators, and specialist assessments and risks and impact assessments carried out for the VMFRP sites.

In addition to the mitigation measures described below, specific recommendations provided in specialist assessments would also be implemented, and incorporated where relevant into the CEMP and worksite specific environmental management plans.

Some of the mitigation measures proposed require ongoing consultation with key program and project stakeholders throughout their development and implementation to address stakeholder requirements. Many of the mitigation measures are also reliant on the involvement of other parties in their implementation, particularly where there are effects to be managed across State borders or where regulatory approval sits with another organisation (e.g. DELWP, PV, Council). This engagement will typically involve the use of meetings (both on and off-site), correspondence, document peer review and workshops.

As part of the wider adaptive management approach to this EMF, these mitigation measures will be subject to regular review through the reporting and auditing processes described in Section 7.

Table 6.2: General mitigation measures for construction phase of VMFRP environmental works

Reference	Requirement	Timing and Frequency	Responsibility
<b>Planning, pre-construction and site set up</b>			
CMM1	<p><b><i>Minimise impacts through detailed design and construction</i></b> Through refinement of the detailed design, the project shall to the extent practicable, minimise the construction footprint and impacts on the environment through:</p> <ul style="list-style-type: none"> <li>i. Siting of proposed structures primarily along or immediately adjacent to existing access tracks and other previously disturbed areas.</li> <li>ii. Designing containment banks (including guardrails) and batters in consultation with Parks Victoria to minimise extent of native vegetation removal and other construction impacts.</li> <li>iii. Removal of redundant structures in consultation with Parks Victoria, where the removal is deemed the most appropriate action to minimise adverse environmental, heritage and visual effects.</li> </ul>	Pre-construction and during construction	VMFRP
CMM2	<p><b><i>Site rehabilitation protocol</i></b></p> <ul style="list-style-type: none"> <li>iv. Photographs of each site are to be taken prior to the commencement of construction works and stored for future reference.</li> <li>v. Photographs taken at site prior to works being undertaken should be provided to VMFRP and the relevant land manager, this will assist in identifying if re-establishment/ revegetation of the site has been successful.</li> </ul>	Pre-construction	Contractor
	<ul style="list-style-type: none"> <li>vi. In all areas, where soil is to be disturbed and reinstated, except existing roads, the topsoil should be scraped and stored separately to all other soil with a separation of no less than 1 m.</li> <li>vii. Provide infrastructure (e.g. gates) where suitable to facilitate temporary restrictions on public access along certain access tracks during higher risk periods (e.g. flooding) and to provide Parks Victoria with operational flexibility to restrict access to parts of the national parks where deemed necessary to provide rest and recovery from visitation.</li> <li>viii. Where additional distinct soil horizons are to be disturbed, soil from separate horizons should be stored separately.</li> </ul>	During construction	Contractor
CMM3	<p><b><i>Nearby residents and landholder notifications</i></b> Notify affected residents and landholders of changes to traffic conditions and access to property for duration of the works. Nearby residents are to be notified at least seven days in advance of works commencing of the nature, duration, and hours of work if they are likely to be impacted by construction activities (i.e., due to noise, vibration, access, traffic).</p>	Pre-construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
CMM4	<p><b>Disruption to other stakeholders</b></p> <p>Construction works must be planned in consultation with Parks Victoria and/or the land manager to minimise disruption to park users and commercial operations during construction.</p>	Pre-construction and during construction	Contractor
CMM5	<p><b>Management of impacts to sensitive receivers</b></p> <p>Design of proposed structures to be sympathetic to the surrounding landscape and consistent with Parks Victoria infrastructure design guidelines.</p>	Pre-construction	VMFRP
CMM6	<p><b>Noise management plan</b></p> <ol style="list-style-type: none"> <li>i. Prepare and implement a Noise Management Plan as part of the CEMP to show how construction will be carried out to minimise the impact of noise from operations on adjacent properties. This could include operational controls such as: <ul style="list-style-type: none"> <li>• substituting noisy activities with an alternative process where available;</li> <li>• restricting times when noisy work is carried out; and</li> <li>• consultation with affected residents</li> </ul> </li> <li>ii. Notify the land owner/manager and nearby residences of any planned and unavoidable out of hours works at least five days in advance.</li> </ol>	Pre-construction and during construction	Contractor
CMM7	<p><b>Noise Mitigation Measures</b></p> <ol style="list-style-type: none"> <li>i. Implement appropriate measures to minimise noise consistent with EPA publications; Noise Control Guidelines (EPA Publication 1254,) and Environmental Guidelines for Major Construction Sites (EPA Publication 480) and AS 2436 Guide to Noise Control on Construction Maintenance and Demolition Sites.</li> <li>ii. All construction plant and equipment used on the works must, in addition to other requirements, be: <ul style="list-style-type: none"> <li>• fitted with properly maintained noise suppression devices in accordance with the manufacturer's recommendations;</li> <li>• be maintained and operated in accordance with manufacturer's recommendations</li> <li>• switched off when not in use.</li> <li>• Advise local residents when unavoidable out-of-hours work will occur</li> <li>• Schedule deliveries to the site so that disruption to local amenity is minimised.</li> </ul> </li> <li>iii. All noise and vibration complaints are to be investigated and corrective actions implemented as required.</li> </ol>	Pre-construction and during construction	Contractor



Reference	Requirement	Timing and Frequency	Responsibility
CMM8	<p><b><i>Vibration management</i></b></p> <p>Potential impacts to structures from ground vibration impacts shall be assessed, where construction occurs within 50 m of a building or where works are assessed as posing a risk to structures, prior to commencement of works. Procedures shall be in place to minimise vibration impacts to buildings and human health and to avoid damage or disruption to third parties.</p>	Pre-construction	
CMM9	<p><b><i>Traffic management plan</i></b></p> <p>i. A Traffic Management Plan must be prepared and approved in accordance with the <i>Road Management Act 2004</i> and implemented. The plan must be prepared by a suitably qualified and experienced traffic engineer.</p> <p>ii. The Contractor must liaise with the land manager and the relevant Council in the preparation of the Traffic Management Plan. Evidence of this consultation must form part of the plan.</p> <p>iii. Site access points and roads are to be located so as to minimise the impact on nearby residences, cultural heritage sites and flora and fauna habitat.</p>	Pre-construction	Contractor
	<p>iv. All vehicles and plant must only operate on existing tracks and in areas marked as parking areas or construction zones.</p> <p>v. Deliveries to the site are to be scheduled to minimise disruptions to local amenity and traffic.</p>	During construction	Contractor
CMM10	<p><b><i>Fire Management</i></b></p> <p>i. Unless specifically approved, no fires shall be lit in the open.</p> <p>ii. At all times comply with the Forest (Fire Protection) Regulations 2014, <i>Forests Act 1958</i> and <i>Country Fire Authority Act 1958</i>.</p> <p>iii. Take responsibility for any damage to fences, trees, grass, cultivation, buildings or other property caused by fires lit, whether intentionally or not, for any purpose in connection with works for the project.</p> <p>iv. Ensure firefighting equipment is provided, as required, to ensure the safety of people and property. For the purposes of fire protection and as a minimum, the following equipment must be available for use at the site during the installation of the infrastructure and at other times during maintenance or repair works involving welding, grinding or other works that may generate a spark or pose a fire risk;</p> <ul style="list-style-type: none"> <li>• 1 x rake hoe per operational crew member;</li> <li>• 1 x knapsack spray (15 litre minimum) per two (2) operational crew members;</li> <li>• 1 x 200 litre container of water, with provision to transfer water to knapsack; and</li> </ul>	Pre-construction and during construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<ul style="list-style-type: none"> <li>• 1 x fire extinguisher of not less than 2 kg total capacity for the extinguishment of class B (petroleum) fires for each item of plant (including trucks)</li> </ul> <p>v. All items of plant used during proclaimed high fire danger periods that could discharge sparks must be fitted with spark arresters. No cutting, welding, grinding or other activities likely to generate fires must be undertaken in the open on “total fire ban” days.</p> <p>vi. When there is a risk of fire being caused by “hot work” (such as welding, thermal or oxygen cutting, heating or other fire producing or spark producing operations) ensure that all personnel are adequately trained with regard to fire prevention, safety and basic firefighting skills. All such personnel and vehicles involved in such activities shall be adequately equipped with firefighting equipment and safety gear.</p> <p>vii. If the land manager or PV Contact Officer authorised to require closure of the site during periods of extreme fire danger, serves notice on the supervisor requiring works to be halted due to extreme fire danger, the contractor must stop work immediately and must comply with any reasonable directions of the Park Manager or Contact Officer in relation to the moving of equipment in order to allow the passage of fire fighting vehicles.</p> <p>viii. Develop and implement a plan to manage bushfire risks in consultation with the land manager and Country Fire Authority.</p>		
<p><b>CMM11</b></p>	<p><b><i>Rainfall and flood events</i></b></p> <p>i. Contingency plans must be developed and implemented for rainfall and flood events. The contingency plan should include:</p> <ul style="list-style-type: none"> <li>• Measures to prevent stormwater from entering the excavated areas;</li> <li>• Details of controls to be installed when rainfall is forecast to prevent impacts to exposed areas;</li> <li>• Requirements for siting of facilities</li> <li>• Clean up procedures;</li> <li>• Flood warning systems</li> <li>• Procedures for notification of relevant authorities if a pollution event were to occur; and</li> <li>• A monitoring plan to access and if required improve the effectiveness of sediment control measures during flood events.</li> </ul>	<p>Pre-construction and during construction</p>	<p>Contractor</p>
<p><b>CMM12</b></p>	<p><b><i>Fencing and Designated Work Zones</i></b></p> <p>i. The designated construction work zone area is to be minimised. Designated work zones will be established for</p>	<p>Pre-construction</p>	<p>VMFRP</p>

Reference	Requirement	Timing and Frequency	Responsibility
	each site to avoid 'sensitive' habitats (including areas containing threatened flora and cultural sites).		
	<ul style="list-style-type: none"> <li>ii. Designated works zones are to be marked with high visibility fencing around ecologically sensitive areas prior to commencement of construction activities and maintained throughout the project. Fencing requirements for each site are set out in the site specific measures.</li> <li>iii. Any fencing requirements associated with protection of cultural heritage sites are additional to these requirements and outlined in the site specific CHMPs.</li> <li>iv. All trees identified to be retained within the designated work zone are to be fenced around with paraweb. The radius shall be the tree protection zone.</li> </ul>	Pre-construction	Contractor
	<ul style="list-style-type: none"> <li>v. There shall be no impacts permitted outside the designated work zones except as otherwise permitted in this document.</li> </ul>	During construction	Contractor
<b>Management of flora and fauna</b>			
<b>CMM13</b>	<p><b><i>Flora and fauna management plan</i></b></p> <p>Develop and implement a Flora and Fauna Management Plan as part of the CEMP that contains requirements to avoid, mitigate and manage impacts to flora and fauna values and particularly threatened species and describing the habitat pre-clearance and clearance process. As a minimum the plan must address the requirements described in measures CMM16-CMM24</p>	Pre-construction	Contractor
<b>CMM14</b>	<p><b><i>Marking of vegetation to be removed</i></b></p> <p>Vegetation to be removed is to be clearly marked for removal. VMFRP shall review and approve vegetation removal prior to any vegetation being removed. Vegetation to be removed is to be no greater than that provided for in the Native Vegetation Removal report.</p>	Prior to any vegetation removal	Contractor
<b>CMM15</b>	<p><b><i>Pre-clearance Fauna Surveys and Activities</i></b></p> <ul style="list-style-type: none"> <li>i. Pre-clearance surveys are to be done in two Stages – Stage 1, will involve the fauna pre-clearance survey 24 hrs prior to native vegetation removal, followed by the subsequent removal of the native vegetation (excluding hollowing bearing trees, limbs or logs) ; Stage 2, will involve hollow-bearing tree removal a minimum of 48 hrs following the removal of native vegetation in Stage 1</li> </ul> <p><b><u>Stage 1 - Fauna pre-clearance survey:</u></b></p> <ul style="list-style-type: none"> <li>i. Within the 24 hours before the removal of any patch of native vegetation, the Project Ecologist will thoroughly search the patch of ground-layer vegetation and capture and remove any ground-dwelling fauna species located from within the area. The emphasis will be on capturing fauna species that are less mobile, and therefore less able to avoid injury or death during the process of</li> </ul>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<p>vegetation removal. Captured native fauna will be moved to suitable adjacent habitat using the protocols outlined in DELWPs translocation of wildlife protocols (<a href="https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife">https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife</a>). The level of effort used to search for fauna within the area to be cleared will be determined by the Project Ecologist;</p> <ul style="list-style-type: none"> <li>ii. The Project Ecologist shall identify all hollow bearing trees, limbs and logs, both standing and lying on the ground. All hollow bearing trees and logs are to be clearly marked and protected by paraweb. The radius shall be 3 m (minimum) from the base of the tree/log</li> <li>iii. If threatened species are detected during this process, seek advice on appropriate protocol to follow from DELWP and VMFRP.</li> <li>iv. If the timing of vegetation removal is delayed (i.e., it will be more than 24 hours between the search for animals and the commencement of vegetation clearance), then the Project Ecologist must conduct a new search of the area prior to the commencement of vegetation clearance;</li> <li>v. Threatened species will be recorded and reported to DELWP;</li> </ul> <p><u>Stage 2 – Remove Native Vegetation other than Hollow Bearing Trees, Limbs or Logs</u></p> <p><u>Stage 3 – Removal of Hollow Bearing Trees, Limbs or Logs</u></p> <ul style="list-style-type: none"> <li>i. The above-ground biomass surrounding all hollow-bearing trees, limbs and logs will be removed at least 48 hours prior to the hollow-bearing tree, limb or log being removed to encourage vacating of the area by fauna species (i.e. Stage 2).</li> <li>ii. When at least 48 hours has passed since clearing all the surrounding above-ground biomass, the hollow-bearing tree, limb or log can be removed in the following sequential manner:</li> <li>iii. The removal of hollow-bearing trees, limbs or logs will occur from mid-afternoon onwards to ensure that captured fauna do not need to be held for long periods during the day, prior to release (particularly nocturnal species);</li> <li>iv. Prior to moving any hollow-bearing trees, limbs or logs, a hard object (e.g., hammer, crowbar, excavator bucket—depending on size and strength of tree, limb or log) will be used to knock on the tree, limb or log for a period of 2-3 minutes, to encourage fauna to exit. Sticks, poles or other similar hand-held objects will also be used to hit the trunk of the tree at various points, to encourage animals to vacate the tree. The tree, limb or log will be</li> </ul>		

Reference	Requirement	Timing and Frequency	Responsibility
	<p>observed for at least 10 minutes prior to completing the next action;</p> <ul style="list-style-type: none"> <li>v. In short segments, any hollow-bearing sections of the tree will be cut away and brought to the ground;</li> <li>vi. When the hollow-bearing section is being cut down, Project Ecologist will be standing nearby (but at a safe distance). When the hollow-bearing section is down, and the contractor says that it is safe to proceed, the Project Ecologist will examine the fallen hollow-bearing section for any animals that may be present (uninjured, injured or deceased) and apply the capture and removal protocol outlined in DELWPs translocation of wildlife protocols (<a href="https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife">https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife</a>) if necessary;</li> <li>vii. All hollow-bearing sections are to remain in situ for a minimum period of 48 hrs (but not more than a period of two working weeks) prior to being moved to an area of suitable habitat (undisturbed by construction activities) within 1 km of the current location (identified by the Project Environmental Ecologist). Allowing the hollow section to remain on the ground for a restricted period will provide fauna the opportunity to vacate of their own accord (e.g. insectivorous bats) and will minimise the risk of subsequent re-colonisation by ground-dwelling fauna. All of these activities would be done in consultation with the Project Ecologist.</li> </ul>		
CMM16	<p><b><i>Tree removal</i></b></p> <ul style="list-style-type: none"> <li>i. Tree felling within tree protection zone (at least 12 times the diameter of tree at breast height and a minimum of 2 m) and all lopping works must be supervised by a person with a Certificate III in Horticulture (Arboriculture)</li> </ul>	During construction	Contractor
CMM17	<p><b><i>Storage and replacement of removed trees, limbs and logs (other than hollow bearing)</i></b></p> <ul style="list-style-type: none"> <li>i. Disposal of cleared timber (excluding hollowing bearing trees, logs and limbs) to be undertaken in accordance with Land Manager requirements and may include management measures to reuse materials on and offsite.</li> </ul>	During construction	Contractor
CMM18	<p><b><i>Monitoring of excavations</i></b></p> <p>An excavation will be deemed as anything deeper than 0.3 m and greater than 0.25 m<sup>2</sup> in area;</p> <ul style="list-style-type: none"> <li>i. Refugia (appropriate types of refugia to be agreed on with Project Ecologist, shall be placed in the floor of the excavation at a frequency of one shelter per 100 m<sup>2</sup> at the end of the work shift</li> <li>ii. Each morning, prior to the commencement of construction, all excavations that had been left open overnight will be thoroughly searched (including refugia) by the Project Ecologist for the presence of native fauna.</li> </ul>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<ul style="list-style-type: none"> <li>iii. The search will occur each morning within the first 3 hours after sunrise;</li> <li>iv. Should construction and inspections cease for a period of 24 hrs or more and excavations remain open, sloped fauna exit points (no steeper than 2:1) shall be provided around at least 25 % of the perimeter of the excavation or fauna proof fencing shall be installed;</li> <li>v. The Fauna-proof Fencing will:                             <ul style="list-style-type: none"> <li>a) Extend at least 50 cm above ground level,</li> <li>b) Be comprised of solid material (e.g. silt fencing),</li> <li>c) Be relatively taut, and</li> <li>d) Have the base of the fence buried, weighed down or otherwise secured against the ground to prevent animals moving underneath.</li> </ul> </li> <li>vi. <u>Contractors shall not handle any fauna at all</u>, but should contact the Project Ecologist to attend the site and carry out the protocols outlined in DELWPs translocation of wildlife protocols                              (<a href="https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife">https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife</a>);</li> </ul>		
<p><b>CMM19</b></p>	<p><b><i>Identification of native fauna</i></b></p> <ul style="list-style-type: none"> <li>i. The Project Ecologist will be immediately informed of the presence of native fauna in or within close proximity to the designated work zone. The Project Ecologist will determine if the animal is at any risk of injury or mortality from construction activities;</li> <li>ii. If it is determined by the Project Ecologist that none of the construction activities are likely to increase the risk of injury, mortality or stress to the animal, the construction activities can continue and the fauna species will be monitored to make sure it doesn't enter parts of the construction that could potentially result in the injury or death of the animal;</li> <li>iii. If the Project Ecologist determines that some or all of the construction activities are likely to increase the risk of injury, mortality or stress to the animal, then the Project Ecologist shall 'capture and release' the animal in accordance with the measures identified in DELWPs translocation of wildlife protocols                              (<a href="https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife">https://www.wildlife.vic.gov.au/managing-wildlife/translocation-of-wildlife</a>).. Construction activities will be monitored closely to ensure that it does not impact the animal at risk in the time leading up to its capture and removal from site.</li> </ul>	<p>During construction</p>	<p>Contractor</p>
<p><b>CMM20</b></p>	<p><b><i>Protection of threatened flora</i></b></p> <ul style="list-style-type: none"> <li>i. Threatened flora species listed under the FFG Act and EPBC Act not permitted to be removed, must be fenced off with temporary 1 metre high orange barrier mesh</li> </ul>	<p>Pre-construction and</p>	<p>Contractor</p>

Reference	Requirement	Timing and Frequency	Responsibility
	<p>medium-heavy weight prior to construction commencing.</p> <p>ii. Fencing must be checked on a weekly basis and the population monitored on a monthly basis.</p> <p>iii. All staff onsite should be made aware through inductions and/ or signage of the presence of threatened species and how to identify the species.</p>	during construction	
<b>CMM21</b>	<p><b><i>Identification of additional threatened flora species</i></b></p> <p>i. If any threatened flora species additional to those already identified in site plans (i.e. listed as threatened under the EPBC Act, or the FFG Act) are found within the construction area the Project Ecologist will be notified. The number and location of individuals will be recorded and DELWP will be advised.</p>	During construction	Contractor
<b>Management of heritage</b>			
<b>CMM22</b>	<p><b><i>Cultural Heritage</i></b></p> <p>The contractor must maintain a copy of the approved CHMP on site at all times. All requirements of the CHMP must be complied with.</p>	Pre-construction and during construction	Contractor
<b>CMM23</b>	<p><b><i>Historical heritage</i></b></p> <p>Historical heritage awareness training should be completed as part of the site induction for personnel and/or contractors prior to the commencement of construction works to provide:</p> <p>i. an understanding of where all heritage places are located within or adjacent to the project area</p> <p>ii. an understanding of the potential heritage places that may be impacted during the project</p> <p>iii. the procedures required to be undertaken in the event of discovery of historical heritage material, features or deposits, or the discovery of human remains (see CMM21).</p>	Pre-construction and during construction	Contractor
<b>CMM24</b>	<p><b><i>Identification of additional historic heritage</i></b></p> <p>All historical archaeological sites in Victoria older than 75 years are protected by the Heritage Act 2017, whether they are recorded on the VHI or not. It is an offence to knowingly or negligently deface, damage, or otherwise interfere with an archaeological site without obtaining the appropriate consent from the Executive Director of Heritage Victoria (HV). Under Section 127 of the Heritage Act 2017, if an archaeological site is discovered during construction or excavation on any land, the person in charge of the construction or excavation must as soon as practicable report the discovery to HV. If any unexpected</p>	During construction	Contractor



Reference	Requirement	Timing and Frequency	Responsibility
	<p>archaeological sites are uncovered during construction works, the following procedure must be followed:</p> <p><b>STOP</b></p> <ul style="list-style-type: none"> <li>• Stop any activity which may impact on the discovery</li> <li>• Ensure that other people working in the area are aware of it and have also stopped work in the area</li> <li>• Protect the artefacts or site by erecting temporary fencing or other suitable barrier</li> </ul> <p><b>ADVISE</b></p> <ul style="list-style-type: none"> <li>• A supervisor or the cultural heritage consultant must be consulted if they are on site</li> <li>• Supervisors are to advise HV where the discovery was made and provide a description or photograph of the discovery</li> </ul> <p><b>MANAGE</b></p> <ul style="list-style-type: none"> <li>• HV, the onsite heritage consultant or supervisor will advise on how to manage the discovery</li> <li>• Management of the discovery may involve protection, recovery, recording or removal of the artefacts or features and is likely to require Consent to Damage from HV.</li> </ul>		
<b>Vehicle hygiene, weed and disease management</b>			
<b>CMM25</b>	<p><i>Hygiene requirements for entry to sites</i></p> <ol style="list-style-type: none"> <li>i. Practice vehicle hygiene to avoid spread of weeds especially following works in weed contaminated areas. Under the Catchment and Land Protection Act 1994 (Sect. 71) a person needs to ensure they maintain vehicle hygiene when moving any equipment or machinery onto or along a roadway. Transport of weeds or weed seeds is an offence</li> <li>ii. All vehicles and personnel must enter the site at the designated entry points and access is limited to existing access tracks, unless otherwise agreed with the land manager and with routes clearly defined, adhered to and documented within a site access plan.</li> <li>iii. All earth moving equipment and vehicles that have been involved with the stripping and handling of topsoil outside the site must be free of soil and plant material prior to entering the site</li> <li>iv. If contact with noxious weeds by any earthmoving plant, equipment and vehicles is unavoidable prior to entering the site, physical removal is required. Complete regular physical clean downs on all machinery i.e. shovel clean-down.</li> <li>v. A log of all machinery associated with the project entering the park from outside the site, and disinfecting</li> </ol>	During construction	Contractor



Reference	Requirement	Timing and Frequency	Responsibility
	<p>and/or cleaning measures undertaken must be maintained.</p> <p>vi. Persons, vehicles and equipment not complying with these requirements will not be permitted entry to the site.</p>		
<b>CMM26</b>	<p><b><i>Import of soil and gravel</i></b></p> <p>i. All soil and gravel to be imported into the site must be weed free and from sites approved by the PV Contact Officer/ land manager.</p> <p>ii. Vehicles carrying soil must be covered during transport to prevent soil loss.</p> <p>iii. All clay or sub-soil imported into the site should be sourced from no less than 25 cm below the natural soil surface to prevent the import of weed propagules.</p> <p>iv. PV Contact Officer/ land manager to approve locations of any borrow pits used for the import of soil and gravel.</p>	During construction	Contractor
<b>CMM27</b>	<p><b><i>Weed management</i></b></p> <p>i. Develop basic on-site weed identification skills and on-site awareness of the impacts of noxious weeds</p> <p>ii. Identify weeds in project footprint prior to works based on those known to occur in the project area.</p> <p>iii. If weeds are disturbed / removed, appropriately bury weeds on site or at dispose of at a licensed receiving facility</p> <p>iv. Soil and spoil must be covered during transport and disposed of in an approved location.</p>	During construction	Contractor
<b>Storage and handling of chemicals and fuels</b>			
<b>CMM28</b>	<p><b><i>Storage of Chemicals and Fuels</i></b></p> <p>i. No bulk chemicals, fuels or oils are to be stored on site.</p> <p>ii. Storage on site of small quantities required for small tools, equipment and machinery is acceptable so long as it is contained within a mobile, aboveground spill containment unit. The containment unit must be covered to avoid filling with stormwater.</p> <p>iii. Minimise the quantity of fuel and chemicals present on site at all times.</p> <p>iv. Maintain bunds, and vandal prevention systems around any storage units to standards specified in the EPA Publication 1698 Liquid storage and handling guidelines, 2018.</p> <p>v. Designated construction equipment wash down and refuelling areas should contain sufficient bunding and contamination control measures to prevent spills entering waterways.</p> <p>vi. Vehicles leaking fuel or oils are not permitted to enter the site.</p>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	vii. Machinery is to be checked daily to ensure there are no oil, fuel or other liquids leaking.		
<b>CMM29</b>	<p><b>Refuelling</b></p> <ul style="list-style-type: none"> <li>i. All personnel responsible for refuelling machinery on the site are to be trained in the re-fuelling protocols and spill response procedures prior to commencing work on site.</li> <li>ii. Refuelling shall not take place within 30 metres of a drainage line, waterway, stormwater inlet or other sensitive area, where practical. In the case of tracked, stationary or barge mounted machinery, this requirement may be relaxed so long as appropriate control measures such as portable spill trays and spill kits are in place.</li> <li>iii. The person responsible for refuelling shall be in direct control of the fuelling operation at all times. Under no circumstances is the refuelling allowed to occur unattended.</li> <li>iv. Other than machinery listed above in 21(ii), mobile vehicles are to be refuelled within a designated refuelling area that has a 200 mm gravel base. No more than one designated refuelling area is to be established at each work zone. A fuel spill kit is to be kept at each refuelling area. The kit is to be maintained in good condition at all times</li> <li>v. Other than machinery and vehicles that are broken down, servicing and repair of machinery is to be undertaken in a designated area that has a 200 mm gravel base. A fuel spill kit is to be kept at each maintenance area. The kit is to be maintained in good condition at all times.</li> </ul>	During construction	Contractor
<b>CMM30</b>	<p><b>Spill response</b></p> <ul style="list-style-type: none"> <li>i. Hydrocarbon spill kits are to be present on site at all times and easily accessible. Personnel are to be trained in the use of spill kits.</li> <li>ii. Immediately contain and clean up any fuel or chemical spills and report them to the contract supervisor at VMFRP (who is to report them to the land manager).</li> <li>iii. All spills or leaks of fuels or chemicals are to be cleaned up and the site remediated to original condition.</li> <li>iv. Any machinery working over water on a barge shall be contained by a temporary bund.</li> </ul>	During construction	Contractor
<b>Waste management</b>			
<b>CMM31</b>	<p><b>Waste minimisation</b></p> <ul style="list-style-type: none"> <li>i. Select construction materials that minimise packaging and favour recycled products.</li> </ul>	Pre-construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
CMM32	<p><b><i>On-site waste management</i></b></p> <ul style="list-style-type: none"> <li>i. All waste material generated in the workplace or in the field should be placed in secure and correctly labelled containers.</li> <li>ii. Recycling and waste bins with secure lids are to be provided within easy access of staff.</li> <li>iii. Construction wastes are to be segregated and recycled where possible</li> <li>iv. Domestic rubbish, including food waste and general litter must be controlled to minimise contamination or attraction of pest animals, and disposed of at a licensed waste disposal site.</li> <li>v. On-site waste management arrangements, including arrangements and location of site amenities such as portaloos, must be acceptable to the land manager.</li> </ul>	During construction	Contractor
CMM33	<p><b><i>Waste disposal</i></b></p> <ul style="list-style-type: none"> <li>i. All wastes are to be removed from site and disposed to an appropriately licensed facility or recycled.</li> <li>ii. All waste fuels, oils and chemicals must be removed from the site by an EPA licensed contractor and disposed at an EPA licensed facility.</li> <li>iii. Burning of wastes is prohibited.</li> </ul>	During and post construction	Contractor
CMM34	<p><b><i>Concrete Washout and Excess Concrete Disposal</i></b></p> <ul style="list-style-type: none"> <li>i. Water used to rinse the bowl of agitators delivering concrete to site cannot be disposed of within the Park/ Reserve.</li> <li>ii. Water used to wash the chutes on agitators delivering concrete or flushing concrete pump lines may be disposed of in purpose built wash down areas.</li> <li>iii. The wash-down area should be located a minimum of 50 m from any natural watercourse.</li> <li>iv. The wash-down area should slope towards appropriately constructed sediment controls.</li> <li>v. Ensure that all personnel are aware that a wash-down area is available on-site. It should be clearly signposted.</li> <li>vi. The wash-down area must be located with appropriate sediment controls. These should be inspected and maintained regularly and be repaired or replaced as necessary.</li> <li>vii. To minimise the amount of wash-down water generated, scrape excess concrete off the equipment before it is washed.</li> <li>viii. Place excess concrete into a site receptacle designated for concrete.</li> <li>ix. The wash-down area should drain to a low point where water is allowed to percolate through geotextile fabric into the soil. The settled and hardened concrete residue</li> </ul>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<p>on the ground must be allowed to set and must be placed in a designated concrete/masonry recycling bin on-site prior to disposal offsite.</p>		
<b>Earthworks and construction activities</b>			
<p><b>CMM35</b></p>	<p><b><i>Earthworks</i></b></p> <ol style="list-style-type: none"> <li>i. Construction machinery shall be selected for each section of the project to ensure minimal damage to adjacent vegetation. The machinery choice shall be discussed and agreed with the Superintendent prior to its use on the works of this Contract.</li> <li>ii. Plan works to minimise the area of cleared land and the length of time that land will be exposed.</li> <li>iii. Following rainfall, the contractor will consult with the land manager regarding the trafficability of roads and tracks and schedule for recommencing work. In addition: <ul style="list-style-type: none"> <li>• No new tracks around boggy areas are permitted.</li> <li>• No new drainage lines or cut off drains are to be constructed.</li> <li>• Blading off wet material on the tracks resulting in (1) windrows on the outer edge and (2) widening of the track is not permitted.</li> </ul> </li> <li>iv. Contingency plans must be developed and implemented for rainfall and flood events. The contingency plan should include: <ul style="list-style-type: none"> <li>• Measures to ensure that stormwater is unable to enter the excavated areas;</li> <li>• Details of controls to be installed when rainfall is forecast to ensure that exposed areas are not impacted;</li> <li>• Requirements for siting of facilities;</li> <li>• Clean up procedures;</li> <li>• Flood warning systems;</li> <li>• Procedures for notification of relevant authorities if a pollution event were to occur; and</li> <li>• A monitoring plan to assess the effectiveness of sediment control measures during flood events.</li> </ul> </li> </ol>	<p>Pre-construction and during construction</p>	<p>Contractor</p>
<p><b>CMM36</b></p>	<p><b><i>Contaminated and waste soil</i></b></p> <p>The contractor must develop and implement measures as part of their CEMP to minimise risks and impacts associated with contaminated and waste soil, including but not limited to:</p> <ol style="list-style-type: none"> <li>v. Requirements for classification of soil to be excavated prior to works commencing in accordance with Australian Standard AS 4482.1:2005 Guide to the investigation and sampling of sites with potentially contaminated soil and EPA requirements including the EPA Victoria Industrial Waste Resource Guidelines)</li> </ol>	<p>Pre-construction and during construction</p>	

Reference	Requirement	Timing and Frequency	Responsibility
	<ul style="list-style-type: none"> <li>vi. A procedure for managing unexpected encounters of contaminated material (including asbestos) including soil sampling and classification processes, stop work processes, notification and reporting requirements;</li> <li>vii. A procedure for the handling, storage and disposal of contaminated material;</li> <li>viii. Storage and stockpiling of suspected or contaminated soils in clearly identifiable, separate stockpiles within the construction footprint in accordance with EPA guidelines, dependent on the classification of the contaminated material</li> <li>ix. Safe work practices to protect the health and safety of workers, visitors and the public.</li> <li>x. Transport by appropriately certified contractors with waste transport certificates completed and copies of records, tracking the movement of contaminated material, to be maintained and available for inspection.</li> <li>xi. Waste classification (including soil and slurry), sampling and disposal to be carried out in accordance with EPA Industrial Waste Resource Guidelines and associated publications, including but not limited to:                             <ul style="list-style-type: none"> <li>a. Industrial Waste Resource Guidelines 702 – Soil Sampling</li> <li>b. AS 4482.1 Guide to the investigation and sampling of sites with potentially contaminated soil</li> <li>c. Industrial Waste Resource Guidelines 611.2 – Asbestos transport and disposal</li> <li>d. Industrial Waste Resource Guidelines 621 –Soil Hazard Classification and Management</li> <li>e. Industrial Waste Resource Guidelines 600.2 – Waste Categorisation</li> <li>f. EPA Publication 480 - Environmental Guidelines for Major Construction Sites</li> </ul> </li> </ul>		
<p><b>CMM37</b></p>	<p><b><i>Acid sulfate soil</i></b></p> <p>The Contractor must develop and implement as part of their CEMP requirements and methods to identify and minimise impacts from disturbance of acid sulfate soil in accordance with the Industrial Waste Management Policy (Waste Acid Sulfate Soils), EPA Victoria Publication 655.1 Acid Sulfate Soil and Rock, and the Department of Sustainability and Environment’s Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soil. These should include where relevant, but not be limited to:</p> <ul style="list-style-type: none"> <li>i. Characterising acid sulfate soil and rock prior to excavation</li> </ul>	<p>Pre-construction and during construction</p>	

Reference	Requirement	Timing and Frequency	Responsibility
	<ul style="list-style-type: none"> <li>ii. Developing appropriate stockpile areas including lining, covering and runoff collection to prevent release of acid to the environment</li> <li>iii. Identifying suitable sites for re-use or management or disposal of acid sulfate soil and rock</li> <li>iv. Preventing oxidation that could lead to acid formation if possible through cover and/or scheduling practices, or addition of neutralising compounds.</li> </ul>		
<b>CMM38</b>	<p><b><i>Earthworks on waterways</i></b></p> <ul style="list-style-type: none"> <li>i. If machinery is required to access the waterway it should do so via designated tracks or work areas and only when works make this unavoidable.</li> <li>ii. If the waterway channel needs to be accessed with machinery, access should occur at a single point, where possible, to minimise impact to the banks.</li> <li>iii. Existing crossings should be used to move equipment across the waterway. If there is no crossing and a waterway must be crossed, machinery should be carefully 'walked' across the waterway.</li> <li>iv. If frequent crossings are required, a pad of clean rock should be laid at a shallow point of the waterway to make a temporary crossing.</li> <li>v. Temporary crossings should be removed entirely when works have finished.</li> <li>vi. Removal of snags or woody debris from a worksite within a known waterway should be avoided as far as possible. If removal is required, snags will be relocated immediately downstream of the worksite. Site rehabilitation and contouring is to be done as soon as each section of work has been completed to allow natural regeneration.</li> </ul>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
CMM39	<p><b><i>Site drainage, sediment and erosion controls</i></b></p> <ul style="list-style-type: none"> <li>i. Design the arrangement of structures, containment banks and spillways to minimise the potential for erosion over a broad range of flow and tailwater conditions, by sizing and placing structures and spillways to pass flows in a manner which is consistent with the natural flow distribution and the hydraulic capacity of the multiple flow paths.</li> <li>ii. Erosion and Sediment Control Plans (E&amp;SC Plan) shall be prepared and implemented for all worksites. These plans will be prepared by a person suitably trained, qualified and experienced in the preparation of E&amp;SC Plans. Details of the person responsible for preparing E&amp;SC Plans are to be included in the CEMP.</li> <li>iii. Runoff /silt movement from earthworks shall be controlled within the worksite area.</li> <li>iv. Identify existing and proposed site drainage patterns by assessing the topography of the site and identifying drainage points.</li> <li>v. Consider the controls required around the perimeter of all stockpiles and all temporary works (e.g. compounds).</li> <li>vi. Install temporary erosion control measures appropriate for the site such as sedimentation fences, diversion drains and sediment traps (e.g. sediment traps, sandbags and rock/geofabric). Note: The use of hay bales is not permitted.</li> <li>vii. Sediment traps and/or fences are to be installed where there is a risk of sedimentation or chemical or oil spills into waterways and drainage lines.</li> <li>viii. Fill or excavated material is not to be stockpiled in flood prone areas including adjacent the river, creeks or waterways. Soil stockpile sites to be situated so that they are secure from a 1 in 10 year flood level and have effective sediment control works to contain any runoff</li> <li>ix. Temporary erosion controls should remain in place until long-term erosion control methods are established and functioning.</li> <li>x. Minimise the area of exposed ground by conducting excavation in stages and progressively rehabilitating the area.</li> <li>xi. Conduct weekly inspections of all sediment and erosion control measures while construction on site is occurring and until reinstatement measures are established. Checks should occur immediately (ie within 12 hrs) after rain events exceeding 5 mm.</li> </ul>	Pre-construction and during construction	VMFRP (i) / Contractor (ii-xi)
CMM40	<p><b><i>Stockpile management</i></b></p> <p>Disturbed soil is to be stored for reinstatement following construction as follows:</p>	During construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<ul style="list-style-type: none"> <li>i. All soil should be stored in mounded piles or windrows at locations where they are unlikely to be further impacted and will not be disturbed by either foot or vehicle traffic until reinstatement;</li> <li>ii. Designated locations for soil stockpiles should be determined at each site location prior to disturbance to prevent excess handling of material;</li> <li>iii. Soil should be stored not less than 20 m from any known waterway, drainage line or floodway. In addition, sediment controls (e.g. silt fence) shall be placed along the downslope perimeter/toe of all stockpiles on site;</li> <li>iv. In all areas, where soil is to be disturbed and reinstated, except existing roads, the topsoil should be scraped and stored separately to all other soil;</li> <li>v. Where additional distinct soil horizons are to be disturbed, soil from separate horizons should be stored separately;</li> <li>vi. Slopes of soil stockpiles should not have a slope greater than 1:1;</li> <li>vii. If dust is generated from a soil stockpile, the stockpile should be wetted down or covered to control the emission.</li> </ul>		
<p><b>CMM4.1</b></p>	<p><b><i>Dust management</i></b></p> <p>The Contractor must develop and implement measures as part of their CEMP to minimise dust generation and associated impacts, including:</p> <ul style="list-style-type: none"> <li>i. Dust suppression measures such as watering, or other dust mitigation techniques, and a protocol for when and how these would be applied</li> <li>ii. Enforce vehicle speed limits of no more than 40 km/hr with consideration to dust generated by vehicles.</li> <li>iii. Trucks transporting loose material to and from the site shall be covered immediately after loading to prevent the emission of excessive dust from the site.</li> <li>iv. The tailgates of all trucks leaving site must be securely fixed prior to loading or immediately after unloading to prevent loss of materials.</li> <li>v. Ensure all vehicles, machinery, and other equipment to be used on site are fitted with appropriate emissions control and maintained to the manufacturer’s standards.</li> <li>vi. Minimise the number of stockpiles, and the area and the time stockpiles are exposed.</li> <li>vii. Minimise dust emissions from stockpiles through stockpile location and protection (covering or dust suppression).</li> <li>viii. Installing wind fences where appropriate.</li> </ul>	<p>During construction</p>	<p>Contractor</p>



Reference	Requirement	Timing and Frequency	Responsibility
CMM42	<p><b>Structure decommissioning</b></p> <p>If structures are no longer required, a decommissioning and rehabilitation plan would be developed in consultation with Parks Victoria, which may involve removal of redundant structures where removal is deemed most appropriate to minimise adverse environmental, heritage and visual effects</p>	Pre, during and post construction	Contractor
CMM43	<p><b>Complaints response procedure</b></p> <p>All dust and odour complaints are to be investigated and corrective actions implemented as required.</p>	During construction	Contractor
<b>Cofferdam and dewatering</b>			
CMM44	<p><b>Construction of cofferdam</b></p> <ul style="list-style-type: none"> <li>i. Construction machinery should be selected for each cofferdam construction to minimise damage to the waterway and riparian zone. The machinery choice shall be discussed and agreed with VMFRP prior to its use on the works.</li> <li>ii. Cofferdam size should be no greater than the minimum required to undertake the task.</li> <li>iii. Bed and bank stability must be managed to minimise erosion and reduce sedimentation. The area of bed and bank disturbed by the activities must be stabilised regardless of previous stability works</li> <li>iv. The extent and duration of bare surface exposure must be minimised, and protected from weathering, rain drop impact, and water runoff.</li> <li>v. Where practicable, sediment must be captured and retained on-site.</li> <li>vi. Constructed drainage and discharge structures must not alter the natural bed and bank profile.</li> <li>vii. Discharge infrastructure must divert water around areas of disturbance where practicable to avoid further reduction in water quality.</li> </ul>	Pre and during construction	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
CMM45	<p><b><i>Dewatering</i></b></p> <ul style="list-style-type: none"> <li>i. Seek to minimise the total volume and rate of groundwater extracted for construction purposes.</li> <li>ii. Discharge and receiving water quality must be monitored for turbidity and electrical conductivity (EC) during all dewatering activities. Water quality objectives should be set to align with SEPP (WoV) indicators for the region. If the receiving waters are already in exceedance of SEPP indicators the objective should be that the discharged turbidity and EC levels are within 25% of the receiving levels.</li> <li>iii. If water quality is within objectives dewatering can commence and clean water discharged to the receiving waterway.</li> <li>iv. If water quality is outside the objective, dewatering can commence but the discharge water must be diverted to an appropriate treatment area until treated and meeting required objectives.</li> <li>v. Baseline water quality must be monitored in the cofferdam and in the receiving waterway before the commencement of dewatering.</li> <li>vi. Discharge water quality must be monitored every 2 hours after the commencement of dewatering.</li> <li>vii. Response strategies must be developed in the event that cofferdam discharges fail to meet the water quality objectives. These remedial measures may include: <ul style="list-style-type: none"> <li>• Cessation of dewatering until an appropriate response plan has been enacted;</li> <li>• Water that does not meet water quality objectives must be diverted into a water management system or through sediment control measures before releases;</li> <li>• If excessive sediment has built up in the cofferdam and is causing damage or excessive downstream sediment loads, dewatering must cease, the excess sediment removed and appropriately treated/ disposed of.</li> </ul> </li> <li>viii. In the event where groundwater seepage results in a significant volume of water, prepare a groundwater dewatering plan to document minimisation, reuse, monitoring and disposal options.</li> <li>ix. Do not dispose of groundwater from construction activities to land.</li> </ul>	Pre and during dewatering	Contractor
CMM46	<p><b><i>Removal of cofferdam</i></b></p> <ul style="list-style-type: none"> <li>i. Cofferdam should not be removed until instream work areas have been fully stabilised.</li> </ul>	Post construction (of works	Contractor

Reference	Requirement	Timing and Frequency	Responsibility
	<p>ii. Removal of the cofferdam and dewatering infrastructure to be undertaken in a staged process as follows:</p> <ul style="list-style-type: none"> <li>• Install silt control structure/s downstream of cofferdam;</li> <li>• Flood the cofferdam while maintaining the flume;</li> <li>• Monitor turbidity and EC in the cofferdam while it is still isolated from the main waterway flow;</li> <li>• If turbidity or EC exceed set objectives, dewater the site and re-flood;</li> <li>• If turbidity and EC are within objectives, begin to partially remove the cofferdam walls at the downstream end, remove small sections at a time over a period of a few days;</li> <li>• Once all cofferdam structures have been removed undertake any remaining stabilisation works.</li> </ul>	<p>requiring coffer dam)</p>	
<b>Site pack up and remediation</b>			
<b>CMM47</b>	<p><b><i>Removal of fencing</i></b></p> <p>i. All protective fences must be removed after all construction activities have been completed at the site. Any 'fauna-proof' components of the fence will be removed after all of the open holes in an area have been filled and compacted.</p>	<p>Post construction</p>	<p>Contractor</p>
<b>CMM48</b>	<p><b><i>Site re-establishment</i></b></p> <p>i. Following construction works, soil is to be reinstated to mimic the contours of the site prior to construction, unless the aim of construction was to alter the land profile (e.g. creek bed excavations). The following methods should be followed:</p> <ul style="list-style-type: none"> <li>• Photographs of the site taken prior to works should be consulted;</li> <li>• Where soil has been compacted due to construction works, and is not required to maintain structural integrity of works, then the soil should be ripped with narrow tynes to a depth of 50 mm. Ripping that involves the mixing of soil profiles is to be avoided;</li> <li>• Subsoil is to be reinstated first, with separate horizons restored in layers consistent with the surrounding soil profile. Any remaining subsoil should be removed and disposed of off-site, or at a site within the Park under direction from PV / the land manager.</li> <li>• Vegetation (through natural regeneration) should be established as soon as possible after soil reinstatement to prevent risks of erosion;</li> <li>• Topsoil shall not be compacted when reinstated. All top soil should be used in site reinstatement</li> </ul>	<p>Post construction</p>	<p>Contractor</p>

Reference	Requirement	Timing and Frequency	Responsibility
CMM49	<p><b><i>Post-construction site inspection</i></b></p> <p>Within one year of site re-establishment, the site shall be inspected by representatives from the respective land manager, DELWP and VMFRP. This inspection shall:</p> <ol style="list-style-type: none"> <li>i. Identify whether re-instatement/regeneration of the site has been successful;</li> <li>ii. If required, identify any additional works that are required to achieve satisfactory re-instatement/revegetation;</li> <li>iii. If required, identify a timeline for any additional works to be undertaken, including additional inspections.</li> </ol>	Post construction	VMFRP/ Land Manager

## 6.4 Operational phase

### 6.4.1 Environmental water management plan

As described in Section 2.5, operational management of the VMFRP environmental works projects and their water regime will be guided by the preparation of an EWMP developed by the relevant Catchment Management Authority. Development of the EWMPs will occur during the project planning phase and will be updated to reflect relevant statutory and approval requirements and any changes to operations/and or maintenance as required.

Implementation of the EWMP will also be guided by the Victorian environmental watering program planning and management framework (Figure 6.2) and will include:

- Management objectives and water regime requirements for the site. These have already been developed as part of the VMFRP Business Cases.
- Management measures, including adaptive management, to manage the risks associated with the proposed water regimes. General risks have been discussed in Section 5.3 and proposed management actions in Section 7. Site specific actions will be refined through the development of the EWMPs and roles and responsibilities assigned.
- Contingency measures to be undertaken if a risk was realised (e.g. low water quality).
- Operational requirements for delivery of environmental water. This will include the operation of the Murray River and irrigation system to deliver water to the VMFRP environmental works project sites through associated infrastructure.
- Procedures for environmental monitoring (long term and intervention), auditing and reporting. This will include identification of the monitoring that is required to inform adaptive management and implementation of contingency actions and to assess the environmental response as a result of the changed water regimes. These will be further refined through the development of the EWMPs and a monitoring program developed and implemented.
- Roles and responsibilities for the operation and management of the site. These will be assigned as part of process for developing the EWMPs.

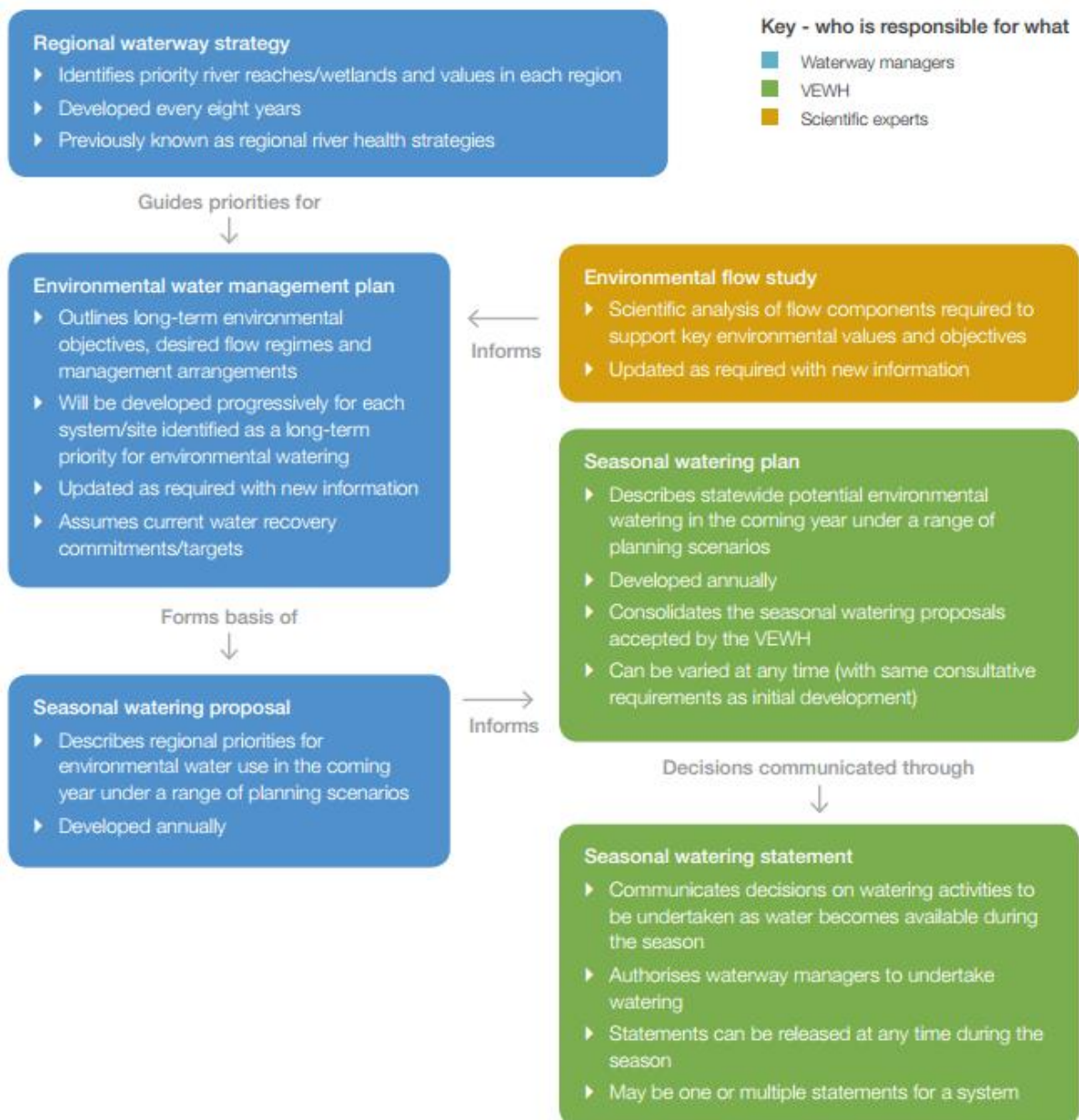


Figure 6.2: Victorian environmental watering program planning framework (Source: VEWB, 2016)

## 6.5 Change management

Given the adaptive management approach employed for the development and implementation of this EMF, it is necessary that an appropriate change management process is imposed. Revisions to the VMFRP, Contractor and Operator’s environmental management documentation may be required as a result of changes in activities and work practices, results of monitoring, changes to legislation, risks, or as a result of findings from internal or external audits, incidents or complaints.

The roles and responsibilities for the review and approval of the updated EMF and associated documentation is detailed in Section 3 and Section 6.2. Note that these roles and responsibilities for document review and approval would be updated and refined, potentially on a project by project basis, to reflect the requirements of statutory approvals and their conditions.

Table 6.3: Document approval roles and responsibilities

Document title	Document owner	Approver
Environmental Management Framework (EMF)	VMFRP	Program partners and, if required, regulators
Construction Environmental Management Plan (CEMP)	Contractor	VMFRP and program partners
Worksite Specific Environmental Management Plans (SEMPs)	Contractor	VMFRP and program partners
Environmental Water Management Plan (EWMP)	Waterway manager	VMFRP and program partners

## 7. Implementation and environmental compliance

The following section details requirements for implementing, monitoring, recording, reporting and auditing environmental performance and the project's compliance with the EMF. Accurate recording and assessment of the project's environmental performance is critical to achieving stated objectives.

All parties involved in implementing this EMF will also be required to undertake monitoring, as well as contribute to the reporting and auditing of the project. These requirements outlined in the section below apply during construction and will be incorporated into agreements with the project's Contractor(s).

The Operators will also be required to undertake monitoring, reporting and auditing, however these requirements will be outlined in the EWMP.

### 7.1 Training and induction

#### 7.1.1 General

All personnel must be competent, including having completed necessary qualifications, training and induction requirements to perform their responsibilities relating to the implementation of the EMF, CEMP, SEMP and supporting documents (e.g. CHMP).

#### 7.1.2 Contractors

The Contractors and their subcontractors must keep record of all training and inductions. A general environmental induction must be conducted for all contractor staff that covers responsibilities for environmental management and environmental management requirements of the project. This must include a briefing by:

- The relevant public land manager (e.g. PV, DELWP) for works on public land where applicable
- Cultural Heritage advisor and indigenous stakeholders where required about heritage sensitivities relevant to the site, and as required by the CHMP.

Training and induction of contractor staff and subcontractors must also include site specific environmental management responsibilities and requirements including:

- Purpose, objectives and environmental management measures of the CEMP, this should include key issues at the site (e.g. cultural heritage, erosion, threatened species protection) to be managed
- Environmental due diligence and duty of care
- Conditions of environmental licences, permits and approvals
- Environmental emergency plans
- Reporting process for environmental harm/incidents.

Where threatened species are to be protected at a site, the Contractor shall provide the relevant identification information (e.g. photographs) to inductees and clearly sign the potential presence of the relevant threatened species at the site (e.g. at site office). The induction will also include clear actions to take if threatened flora or fauna are found within the construction areas.

### 7.2 Monitoring and review

#### 7.2.1 General

Monitoring and review requirements will be documented as part of the CEMP(s) and relevant management plans. The frequency of monitoring and parameters subject to monitoring will be developed in consultation with relevant stakeholders and with recognition to the sensitivity of the local receiving environment. Contractors will



also be required to evaluate the results from monitoring, to assess ongoing compliance and facilities continuous improvement.

In addition VMFRP will carry out regular, on-site surveillance of the Contractors' activities.

Operational monitoring and review requirements will be detailed in the site specific EWMPs.

### 7.2.2 Contractors

Each CEMP prepared for the VMFRP will be required to include an environmental monitoring program to assess effectiveness of controls and compliance with environmental management requirements. The frequency of monitoring and the project parameters subject to this monitoring will be developed as part of the CEMP, in consultation with key stakeholders and with recognition to the sensitivity of the local receiving environment.

As a minimum the contractor's Project Environmental Representative will be required to complete a weekly inspection program of construction works. The inspections will include CHMP compliance, stormwater, sediment, drainage, watercourse, flora and fauna, dust, waste (excavated material, groundwater and other materials) and noise and vibration controls. The date and time of inspections will be recorded as well as comments on any non-compliance with the CEMP and corrective or remedial action taken. Copies of inspections records will be provided to VMFRP.

Contractors will regularly review the CEMP(s) for currency and adequacy and update this where required to reflect any changes in activities, legislation or environmental risks, and to address any incidents, non-compliance or audit findings. Any updates to the CEMP(s) will require sign-off by VMFRP prior to these taking effect. The Contractor will be responsible for ensuring that any engaged sub-consultants are compliant with the CEMP(s).

## 7.3 Complaints and enquiries

### 7.3.1 General

VMFRP will develop a Stakeholder Management Plan that describes the approach to engaging with stakeholders, including the community. This will include the process for responding to public complaints and enquiries.

### 7.3.2 Contractors

The Contractor shall appoint a nominated representative to whom all public complaints and enquiries will be directed.

The Contractor shall have in place a documented procedure for responding to and documenting community complaints and enquiries. This procedure should include and comply with the following:

- Within one (1) working day of receiving a complaint about any environmental issue, including pollution, arising from the work under the contract, supply a written report to VMFRP detailing the complaint and the action taken to alleviate the problem.
- Within 5 working days provide a final report to VMFRP with proposed measures to prevent the occurrence of a similar incident.
- Keep a register of all such complaints, together with the following records:
  - a) date, time and nature of complaint;
  - b) type of communication (telephone, letter, meeting, etc);
  - c) name, address, contact number of complainant;
  - d) nature of complaint;
  - e) action taken in response; and



- f) any monitoring to confirm that the complaint has been satisfactorily resolved.

## 7.4 Non-conformances, corrective and preventative actions

### 7.4.1 General

The process for managing and reporting non-conformances with this EMF will be defined through the approvals process in consultation with relevant regulators. Corrective and preventative action will be taken to address identified non-conformances and records maintained.

### 7.4.2 Contractors

Contractors' CEMPs will include a procedure for recording and responding to non-conformances. Non-conformances with the CEMP, e.g. monitoring results identify an exceedance, or a non-conformance with procedures or controls is identified through an internal or external audit/surveillance) will be immediately reported to VMFRP.

In the event of a non-conformance, the non-conformance will be investigated and a remedial and corrective action proposed by the Contractor. The remedial and corrective action will be approved by VMFRP. The investigation will include identifying the:

- Cause, extent and responsibility of the non-conformance
- Remedial actions necessary
- Corrective/preventative actions necessary
- The effectiveness of controls will be removed.

All remedial and corrective actions taken will be documented and reported on a non-conformance report. This shall be provided to VMFRP and the relevant land manager with 24 hours of having raised the non-conformance with VMFRP.

Non-conformance control must apply to containment measures, clean-up and restoration of the environment as well as rectification of deficient environmental protection measures.

## 7.5 Incident management

### 7.5.1 General

The VMFRP EMP is the guiding document for reporting environmental incident and close calls. This includes incident reporting, investigation, preventative and corrective action and incident review processes. Examples of incidents include (but are not limited to) a hazardous substance or chemical spill, the accidental discharge of turbid stormwater, generation of excessive dust or noise, injury to fauna or damage to protected vegetation or cultural heritage sites.

### 7.5.2 Contractors

Contractors' CEMPs must include details of appropriate environmental incident and emergency response procedures and how all employees, sub-contractors and visitors will be made aware of these procedures. Emergency incident and response procedures must be kept onsite and available for review by site staff and relevant authorities, including, but not necessarily limited to LMW or their nominated representative, EPA and Worksafe Victoria.

The Contractor must develop environmental emergency response procedures to an adequate standard to address (but not be limited to) the following emergency situations:

- Chemical or fuel spill

- Chemical fire
- Fire and bushfire
- Flooding and severe storms
- Incident involving heavy machinery (i.e., collision, roll-over, etc.)
- Other emergencies
- Native fauna strike, injury or death associated with construction works.

These must include details of:

- A list of the contractor's key emergency response personnel showing responsibilities and contact details including all-hours telephone numbers
- Details of emergency services (e.g. ambulance, fire brigade, spill clean-up services)
- Communications strategy (internal and external)
- Details of containment measures to be taken in the event of emergency situations
- Location on site of the register and information on hazardous materials including Material Safety Data Sheets (MSDS).

All incidents must be reported to VMFRP and corrective and preventative actions taken in accordance with this EMF and the Contractor's CEMP.

## **7.6 Control of documented information**

### **7.6.1 General**

All documents and records must be managed so that they can be easily identified, stored, protected, retrieved, retained and disposed appropriately.

### **7.6.2 Contractors**

Records must be kept for a period of seven years and be legible, identifiable and traceable.

The following documented information, including records, will be kept:

- Project approvals, licences and permits
- Copies of drawings and plans showing environmental controls
- Current site contact list
- Induction and training records and competency assessments
- Site inspection records
- Waste transport certificates
- Records of complaints and communications
- Monthly reports
- Audit reports
- Records of non-conformances, incidents and emergencies, including corrective actions taken
- Records of management review
- Other documents as may be required to demonstrate compliance with this EMF, CEMP, permits, approvals and legislation

## 7.7 Reporting

### 7.7.1 General

VMFRP requirements for external reporting will be defined through the approvals process in consultation with relevant regulators. External reporting requirements will include as a minimum:

- Notification to Aboriginal Victoria, the land manager (e.g. PV and/or DELWP) if a potential Aboriginal site or artefact is identified
- Notification to Heritage Victoria, the land manager (e.g. PV and/or DELWP) if a heritage artefact is discovered
- Notification to the land manager (e.g. PV and/or DELWP) if contaminated soils are discovered.

As detailed in Section 4.2, a range of other Acts, regulations and policies will also apply to projects and need to be complied with including any reporting requirements. These will be confirmed as part of the approvals process for each project.

The EWMPs will outline reporting requirements during operation of the project infrastructure.

### 7.7.2 Contractors

The Contractors will be required to provide regular reports to VMFRP on environmental performance as a condition of contract. Reporting shall include:

- Site inspection records including commentary on the effectiveness of environmental and cultural heritage controls
- Results from internal and external audits
- Details of any non-compliances or corrective actions
- Progress of work with commentary on upcoming risks and how they will be managed/controlled.

## 7.8 Communications

### 7.8.1 General

VMRFP and its partner agencies and stakeholders will communicate regularly throughout the pre-construction and construction phases of the project. Specific reporting and communication requirements will be added to the EMF as required by permits and approvals and through contract arrangements, where applicable.

Regular meetings will be held between VMRFP and the Contractor(s) during construction. Environmental management will be an agenda at these meetings

### 7.8.2 External communications

VMRFP is responsible for liaison with external agencies. Contractor(s) will be required to maintain written records of contact with members of the project team, public agency or authority representatives and members of the community and direct enquiries to VMRFP.

## 7.9 Auditing

### 7.9.1 General

VMRFP will arrange for regular audits to be undertaken of the Contractor to assess compliance with this EMF, the CEMP, SEMPs, relevant legislation and approval conditions during construction. All audits will be required to be carried out by suitably qualified, experienced auditors who are independent of the activity being carried out.

These audits will consider:

- Compliance with this EMF
- Compliance with mitigation measures, environmental management plans and documents submitted with the project statutory approvals
- Responses to non-conformances, incidents and complaints received
- The environmental effects caused by any non-conformances
- Effective implementation of monitoring programs
- Previous audit outcomes
- Changes to regulations and environmental standards
- Compliance with approval conditions.

A key contributor to these audits will be accurate record keeping on works, effects and non-conformances during construction. Evidence to be considered during audits will include:

- Site inspection reports
- Records of soil importation and waste removal
- Records of any accidental spills
- Records of any accidentally discovered heritage or cultural items
- Records of any accidentally discovered contaminated materials
- Ecological surveys
- Meeting minutes
- Stakeholder communications and feedback
- Health and safety/accident records.

### 7.9.2 Contractors

Contractors will be required to prepare an internal audit program for their works to the satisfaction of VMFRP.

All audits will be required to be carried out by suitably qualified, experienced auditors who are independent of the activity being carried out. Results of all audits and reviews must be reported to VMFRP with corrective action implemented promptly where deficiencies are identified.

## 7.10 Review

### 7.10.1 General

This EMF will be reviewed and updated to reflect approvals received, changes to legislation and guidelines, and, to any changes in the project construction requirements and environmental management issues prior to site works commencing.

### 7.10.2 Contractor

The Contractor(s) will be required to update their CEMP(s), SEMP(s), and other related documents on a periodic basis throughout the project at a frequency agreed with VMFRP and detailed in their CEMP, and, in the event of:

- Significant changes to actual or planned onsite works (i.e., changes in plans, clearance areas, traffic access points, etc.)
- New or revised planning, approval or regulatory requirements relevant to the scope of works
- Following a notifiable incident

- To address non-compliances and recommendations of internal or external inspection or audit reports.

### 7.10.3 Management review

AS/NZS ISO 14001 requires 'Top Management' to demonstrate leadership and commitment with respect to environmental management. As part of this requirement, 'Top Management' are required to be involved in the review of environmental management systems at planned intervals so that it continues to be suitable, adequate and effective.

VMFRP will conduct management reviews, which directly involve upper management on a scheduled basis. The frequency of this engagement will be determined during the planning, approvals and pre-construction phase based on risk and may vary in frequency during the construction phase dependent on risk and the nature of works at sites.

This EMF will be updated to stipulate the frequency of management reviews throughout the pre-construction and construction phase, to address the requirements provided in section 9.3 of AS/NZS ISO 14001.

## 8. References

- DELWP (2019a). Victorian Basin Plan Environmental Works Projects Regulatory Approvals Strategy. February 2019. Prepared by Department of Environment, Land, Water and Planning.
- DELWP (2019b). Offset projects: Murray-Darling Basin Plan. Accessed at <https://www.water.vic.gov.au/mdb/achievements-murray-darling-basin-plan/offset-projects>.
- GHD (2011). Hattah Lakes Environmental Flows Study – Environmental Management Plan. February 2013. Prepared for Goulburn-Murray Water.
- GHD (2013). Lindsay Island Stage 1 Works – Environmental Management Plan. February 2013. Prepared for SA Water.
- Mallee CMA (2015a). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Lindsay Island Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015b). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Wallpolla Island Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015c). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Hattah Lakes North Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015d). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Belsar-Yungera Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015e). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Burra Creek Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015f). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Nyah Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Mallee CMA (2015g). Sustainable Diversion Limit Adjustment. Phase 2 Assessment - Supply Measure Business Case: Vinifera Floodplain Management Project. Mallee CMA and Department of Environment and Primary Industries.
- Murray-Darling Basin Authority (2018). Rivers, Wetlands and Floodplains. Accessed at <https://www.mdba.gov.au/discover-basin/environment/rivers-wetlands-floodplains>
- Murray-Darling Basin Authority (2019a). Basin-wide environmental watering strategy, Murray–Darling Basin Authority Canberra, 2019. CC BY 4.0.
- Murray-Darling Basin Authority (2019b). Sustainable Diversion Limits Adjustment Mechanisms. Accessed at <https://www.mdba.gov.au/basin-plan-roll-out/sustainable-diversion-limits/sdlam>
- Murray-Darling Basin Ministerial Council (2002). Murray-Darling Basin Floodplain Management Strategy August 2002. MDBC Publication No. 36/04

North Central CMA (2014a). Guttrum and Benwell Forests Environmental Works Project – Sustainable Diversion Limit Adjustment. Phase 2 Assessment – Supply Measure Business Case.

North Central CMA (2014b). Gunbower National Park Environmental Works Project – Sustainable Diversion Limit Adjustment. Phase 2 Assessment – Supply Measure Business Case.

R8 Joint Venture (2019). Victoria Murray Floodplain Restoration Project: Design Criteria – General. Report for VMFRP.

Seran and BL&A (2018). Basin Environmental Works. Review of environmental approvals requirements. Revision 0.

VMFRP (2019a). Victorian Murray Floodplain Restoration Project – Environmental Management Plan. July 2019.

VMFRP (2019b). Victorian Murray Floodplain Restoration Project Website. Accessed at <https://www.vmfrp.com.au/>.

