



South West Loddon Water Supply Project Environmental Management Framework

DRAFT

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Document History and Distribution

Version	Date	Author	Notes
1	20 February 2017	Simon Coutts	First draft submitted to DELWP for comment.
2	7 March 2017	DELWP	First draft incorporating comments from DELWP.
3	21 March 2017	Executive Review	Internal approval as a draft

Term/Acronym	Description
CEMF	Construction Environmental Management Framework
CEMP	Construction Environment Management Plan
CHMP	Cultural Heritage Management Plan
DELWP	Department of Environment, Land, Water and Planning
ECP	Ecological Control Point
EES	Environment Effects Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
EPBC	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
FFG	Flora and Fauna Guarantee Act 1988 (Vic)
GWMWater	Grampians Wimmera Mallee Water
OMP	Offset Management Plan
OMS	Offset Management Strategy
RAPs	Registered Aboriginal Parties
SWLP	South West Loddon Water Supply Project

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1. Purpose

The purpose of this Construction Environmental Management Framework (CEMF) is to describe the means by which Grampians Wimmera Mallee Water (GWMWater) will manage and control potential environmental impacts associated with the construction of the South West Loddon Water Supply Project (SWLP).

The CEMF also addresses additional requirements of the Minister for Planning.

2. Scope and Application

This CEMF, and its subsidiary documents, applies to all works undertaken by GWMWater, its principal contractor and sub-contractors in relation to the construction of the SWLP.

The capital works include the following major components:

- construction of approximately 360 km of trunk mains that will comprise the backbone of the system and will provide the core supply system,
- construction of approximately 1,000 km of smaller diameter distribution pipelines to provide access from the trunk mains to individual properties, and
- ancillary infrastructure including pump stations, storage, meters and valves.

Facilitated works not controlled by this CEMF include:

- on farm landholder pipes, tanks, troughs,
- decommissioning of farm dams, and
- provision of firefighting access points.

GWMWater will work with those best placed to manage and or control the potential environmental impacts of such works.

3. Project Description

The SWLP is a rural pipeline constructed to provide a secure water supply for the south west Loddon region in north-west Victoria.

The economy of the area is based on agriculture, primarily broad acre grain, intensive animal, seed, sheep and wool production. Farmers rely on rain-fed dams to supply their water needs. Recent dry years have undermined this resource and so have challenged the viability of farming properties, due to the higher costs they face from water carting at the same time as lower income from de-stocking.

The raw (untreated) piped water supply will draw on water supplies both from Wimmera Mallee Pipeline storages and from the Waranga Western Channel managed by Goulburn Murray Water. This will expand the Victorian Water Grid and allow interested farming properties and lifestyle property owners to connect to a more secure water supply.

The Project will have the capability to service intensive animal industries that will be attracted to the area due to its location and characteristics. The Project will also provide an alternative raw (untreated) water source to towns currently serviced from the Loddon River (reducing treatment costs during times of poor water quality) and to towns with limited raw water availability for the purposes of enhancing water reliability, recreational and sporting facilities.

Provision of a secure rural water supply to the south west Loddon area will deliver a suite of benefits across triple bottom line outcomes:

- economic from supporting activity and employment in farming and intensive livestock sectors which underpin the viability of the region, and from reducing current reliance on water carting,
- social from creation of a sustainable lifestyle regarding recreation and quality of life in what is an arid climate and from enhancing fire-fighting capacity,
- environmental from a reduction in interception of unregulated waterways from the multiple small on-farm dams for the benefit of regional rivers and wetlands in line with regional priorities, and
- resource management from providing interconnection between the Wimmera-Glenelg system to the West with the larger Goulburn system in north central Victoria.

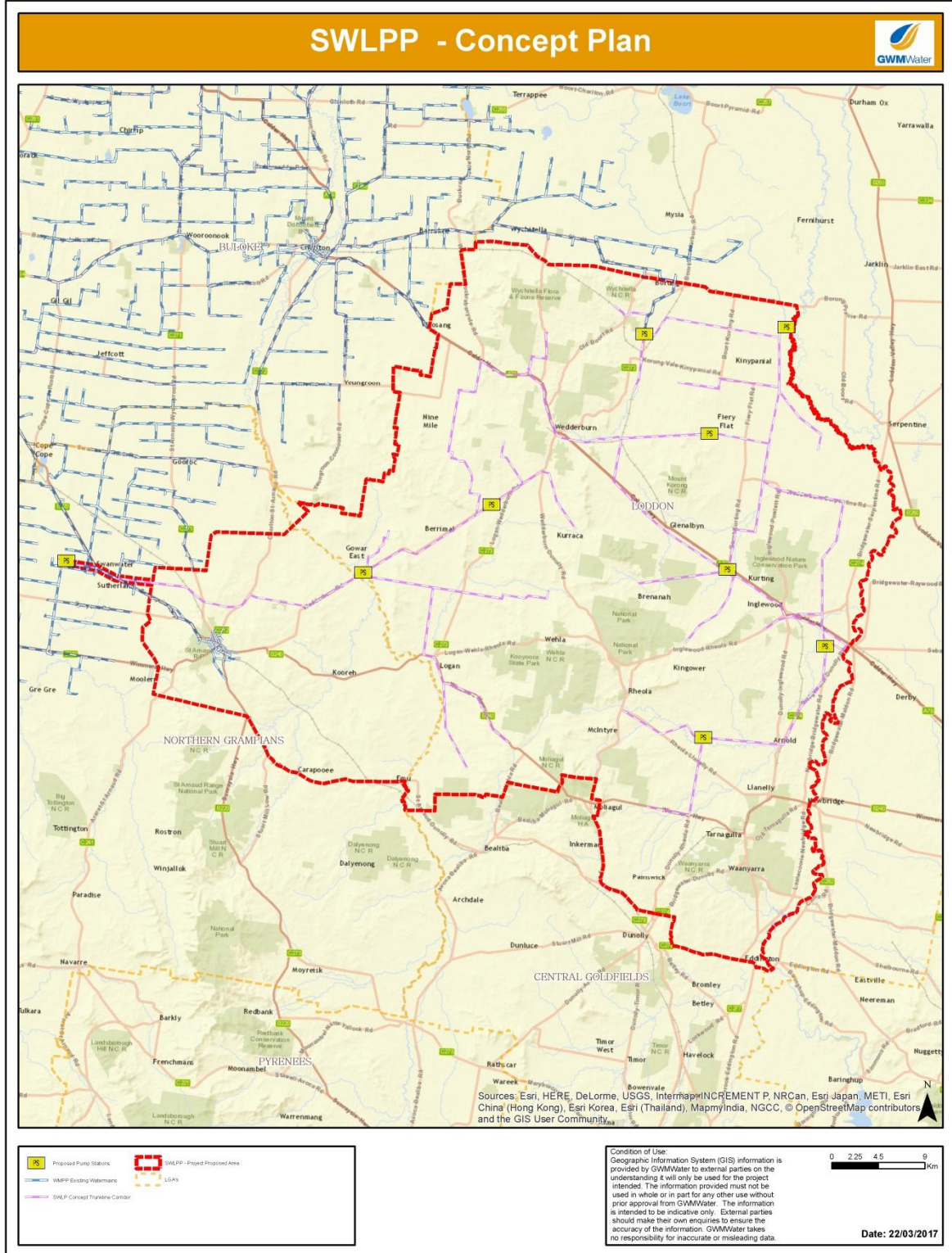
The overall suite of outcomes will generate aggregate benefits for the region across socio-economic and environmental impacts valued at \$114M in present value terms.

3.1 Location

The SWLP is located primarily within the Loddon Shire with a major trunk main connecting to the Wimmera Mallee Pipeline in Northern Grampians Shire. The SWLP area defines the boundary within which all potential environmental impact associated with the SWLP may occur. The wider SWLP area (Figure 1) encompasses almost 3,000 km².

Shown on Figure 1 are notional trunklines to provide an indication of where the primary water supply may be delivered. Water from these trunklines will then feed a network of up to 1,000 km of smaller diameter distribution pipelines that will deliver water to each landholder that connects to the SWLP.

Figure 1 - SWLP Area Overview Map



3.2 Environmental Context

3.2.1. Description of Project Area

The SWLP area consists of bedrock hills of granite and surrounding Cambrian and Ordovician sandstones and metamorphosed areas along the interfaces. On the lower slopes there are outwash gravels and alluvial sediments deposited in valleys. Further from the hills, the valleys give way to rolling plains.

The soil composition is dominated by Sodosols with Chromosols, Vertosols, Dermosols and to a less degree Rudisols.

The elevation of the land varies from 400m at Mt Korong and Mt Kooyoora to 109m at the Loddon River in the north east corner of the study area.

The SWLP is bordered by the Loddon River to the east and the Avoca River in the western section which comprise the two major waterways. Several hundred ephemeral drainage lines and waterways drain into these two river systems. Several thousand of local catchment dams currently restrict the free flow water from entering the two rivers. One of the key objectives of the SWLP is to reduce the reliance of landholders on local catchment dams, thus aiming to minimise the restriction of natural run-off into these waterways.

The vast majority (92.8%) of the project area has been incorporated into the Farming Zone within the relevant Planning Schemes.

Current land use of the upper slopes in the Loddon Shire is generally reserved public land, with some private land comprising bush blocks and areas used for light grazing of domestic livestock.

The lower slopes are a mixture of livestock grazing with some cropping. The lower slopes have in the past been subject to extensive gold mining activity with many of the trees cleared for fuel. The plains have been extensively modified and are largely cleared for agriculture, primarily mixed cropping and grazing.

Areas of rock outcrop and sand (i.e. typically poorer areas for agricultural development) tend to be covered by Box Ironbark forest and woodland. Away from those areas, the area has a large diversity of native grassland of differing quality and extent. Native vegetation is typically restricted to areas free from grazing or shelter belts in private property.

Public land typically contains higher value vegetation, cultural heritage and areas of sensitivity as it is less disturbed or cultivated (2.5% of project area). Some areas of public land are subject to active use through water extraction, grazing licences or timber production whilst other parcels have additional protection provisions that limit the permitted use or activities that can be undertaken. These are typically State Forest, State Park or other listed reserves.

The remaining land is divided evenly into a number of discrete areas for transport, industrial, commercial and residential use.

3.2.2. Areas of potential impact

Collectively, 7.3% of the project area is subject to an overlay that has associated heritage or environmental value that will need to be managed by under this CEMF and its controls.

In addition 45.3% of the project area has an overlay that could be considered a threat to the SWLP (e.g. Land subject to inundation, salinity or erosion). At these locations, additional consideration will be given to the need for management measures to protect project assets, as appropriate.

Major potential impacts that this CEMF will address during the planning, design and construction of the SLWP include:

- native flora and fauna and remnant native vegetation,
- Aboriginal and European heritage,
- works on or adjacent to waterways, and
- private and public landscapes and existing infrastructure.

3.3 Objectives

The objective of the SWLP is to provide a secure, non-potable water supply to the identified area. This will then achieve:

- support for activity and employment in farming and intensive livestock sectors which underpin the viability of the region and from reducing current reliance on water carting,
- creation of a more sustainable lifestyle regarding recreation and quality of life in what is an arid climate and from enhancing fire-fighting capacity,
- reduction of the interception from unregulated waterways from multiple small on-farm dams for the benefit of regional rivers and wetlands, and
- Provision of interconnecting infrastructure to link the Wimmera-Glenelg system to the West with the larger Goulburn system in north central Victoria.

3.4 Stages

In order to deliver the anticipated 1,300 km of construction works in a timely manner, the SWLP will be delivered in a number of stages. Construction will start following the completion of detailed design work and attainment of statutory approvals on a section of works to be determined by GWMWater's contractor.

Design and planning would be undertaken on subsequent stages as construction was in progress on the earlier stages.

Stages will be determined based on the most appropriate method of seeking approvals to commence works. This may include staging by geographic area, identified cultural or environmental sensitivities and/or by different construction activities.

Each stage will require separate approvals, including individual Construction Environmental Management Plans (CEMPs).

3.5 Capital Works

The area of potential disturbance associated with the proposed capital and ancillary works is summarised in Table 1. These estimates are based on a concept design and will be confirmed by detailed design during the early works contract phase of the project.

Table 1 – Capital and Ancillary Works

Works	Length	Width	Other/Comments
Capital works			
Trunk Main (up to)	360 km	15 m	100 mm to 450 mm diameter pipeline underground to a minimum depth of 600 mm
Distribution (up to)	1,000 km	15 m	Up to 100 mm diameter pipes underground to a minimum depth of 600 mm
Pump stations	20 m	30 m	Nine proposed in cleared paddocks
Storage for West Waranga	300 m	300 m	cleared private land adjacent to the channel on the west side of the Loddon River
Air valves and scour valves	10 m	3 m	Above ground infrastructure within the pipeline corridor
Power line extensions	250 m	10 m	Extension to the proposed pump station sites and booster sites (impact area associated with pole placements)
Connection to landholders	10 m	3 m	Up to 633 water meter installations at water supply points
Ancillary works			
Laydown/ storage areas for pipe, machinery and equipment	200 m	185 m	One every 50 km
Access points/ temporary access	10 m	10 m	One every 800 m
Vehicle turn around	40 m	35 m	One every 2 km
Installation of pipeline marker signs	-	-	Negligible impact. To provide a visual above-ground indication of buried infrastructure

3.6 Facilitated Works

The following facilitated activities have been identified that are considered outside the scope of this CEMP.

On-farm works

Landholders are required to arrange their own on-farm infrastructure to cater for three day's water supply (if they don't already have sufficient capacity). This may require the installation of additional storage, troughs and a length of 25 mm to 50 mm poly pipeline in order to deliver water from their connection (metering) point at property boundary.

Firefighting infrastructure

Firefighting standpipes and/or tanks that will be located at strategic points throughout the system for use and access by emergency services personnel during an emergency event. The standpipes may also be used for water carting with GWMWater approval. The location and frequency will be determined by the Country Fire Authority in consultation with local councils

Decommissioning of dams

Whilst not included in the scope of works for the SLWP, landholders may over time decommission local catchment dams as they rely on a more permanent piped water supply.

3.7 Operational Activities

All operational activities on the SWLP will be consistent with GWMWater's operational management systems that ensure the protection environmental assets during planned operational works and contain provision for performance reporting against nominated key performance indicators (KPIs).

The following operational activities have been identified that have the potential to impact environmental assets:

- maintenance and repairs to the system,
- use of water allocations from the Grampians and Waranga channel systems to supply the SWLP, and
- energy use in order to operate the system.

4. Legislative Context

The SWLP is subject to local, State and Commonwealth legislation and policies. Appendix 1 details the legislative and policy context relevant to the SWLP activities.

The SWLP is currently under consideration for referral under the Commonwealth Environment Biodiversity and Conservation Protection Act 1999. Due to the early stages of planning, it is not possible to confirm that the SWLP will not impact on Matters of National Environmental Significance (MNES). While there is no final decision to date as to whether GWMWater will refer, GWMWater is confident that all MNES can be identified and avoided before construction starts.

GWMWater has also referred the SWLP to the Victorian Government under the *Environment Effects Act 1978*.

5. Environmental Commitments

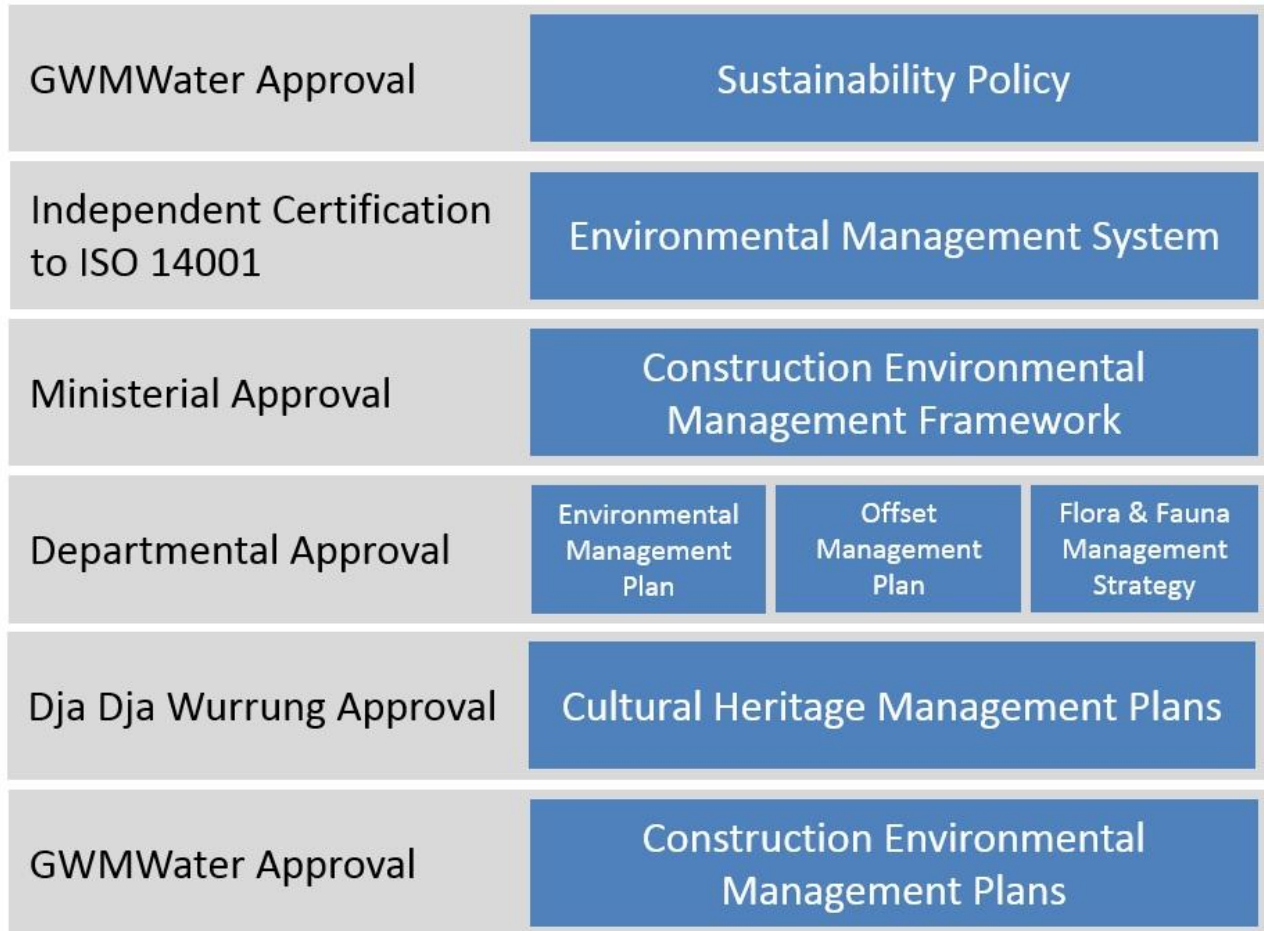
A summary of the major environmental commitments to be addressed by this project is identified in Appendix 2. Appendix 2 also identifies performance requirements related to each impact area along with the reference documentation that address these impact areas in greater detail.

6. Environmental Documents

This CEMF forms part of an integrated set of management documents developed for the SWLP. The structure and approval process for the SWLP environmental management documentation is shown in Figure 2.

As shown, this CEMF is subsidiary to GWMWater's Sustainability Policy and GWMWater's certified Environmental Management System (EMS).

Figure 2 - Structure and approval process for the SLWP environmental management documentation.



6.1 Document Approvals and Review

Table 2 outlines the initial and ongoing approval requirements for all CEMF documentation and subsidiary documents.

Table 2- Approval of environmental documentation

Document	Approval	Timing
Sustainability Policy	GWMWater	Annually
Certification of Environmental Management System (EMS)	Det Norske Veritas	Annual Surveillance audit and 3 yearly certification audit
Construction Environmental Management Framework (CEMF)	Minister for Planning	Prior to commencement of works involving either removal of native vegetation or direct construction activities

Document	Approval	Timing
GWMWater Environmental Management Plan (EMP), including Offset and management Strategy and the Flora and Fauna Management Strategy	Secretary DELWP or delegate	Prior to commencement of works involving either removal of native vegetation or direct construction activities
Cultural Heritage Management Plan	Dja Dja Wurrung Clans Aboriginal Corporation	Prior to commencement of works involving either removal of native vegetation or direct construction activities
Construction Environment Management Plan	GWMWater, verified by a 3 rd party auditor	Prior to commencement of works involving either removal of native vegetation or direct construction activities associated with a particular stage of works

As part of continuous improvement, the GWMWater will periodically review the operation of this CEMF and the subsidiary documents. If modification is required, approval will be sought in accordance with Table 2.

6.2 Sustainability Policy

GWMWater has committed to sustainability as a pillar of business excellence. Our sustainability policy is implemented through our sustainability strategy that enables compliance, the proactive management of risks and innovative solutions.

GWMWater will continually improve business practice and demonstrate regional leadership by integrating the following core sustainability principles throughout the organisation's culture and operations:

- water resources must be conserved and managed for sustainable use and for the benefit of present and future generations,
- decision making processes must be transparent, and encourage and facilitate stakeholder involvement, understanding and shared responsibility for the conservation and management of water resources,
- decisions must effectively integrate both long and short term economic, environmental, and social considerations,
- the need to conserve biological diversity and ecological integrity is a fundamental consideration, and
- where there is a threat of serious or irreversible environmental damage, lack of full scientific certainty will not be used as a reason to delay preventative measures.

6.3 Environmental Management System

GWMWater is certified under *AS/NZS ISO 14001 'Environmental Management Systems'*. All operations and activities for the SWLP will comply with the EMS. GWMWater is also certified under ISO 4801 for occupational health and safety and ISO 9001 for quality management systems.

The successful contractor will also be required to have certification of their EMS and must comply with national occupational safety standards.

GWMWater requires that all activities under the SWLP must comply with applicable Australian standards and best practice.

The EMS consists of policies, procedures and plans which outline how environmental aspects of the project are managed. This CEMF is a key component of the EMS. The EMS is maintained as part of GWMWater's internal systems and therefore does not require approval from the Victorian government.

6.4 Construction Environmental Management Framework

This CEMF provides the framework for environmental management of physical works, including a framework for managing impacts, assigning accountabilities and monitoring, reporting and auditing of relevant activities and environmental outcomes. It provides the environmental commitments, strategies and protocols for undertaking works. Implementation of these is achieved via the EMP and CEMPs.

6.5 Environmental Management Plan

GWMWater will prepare and implement an EMP for the SLWP that is consistent with GWMWater's Sustainability Policy, this CEMF and GWMWater's certified EMS.

The EMP will be developed in order to expand on the performance requirements to specifically address environmental commitments identified in Appendix 2.

The EMP is to include:

- purpose
- scope and description of works
- maps showing the land to which the EMP applies
- relationship to other relevant environmental documents
- legislation and approvals required
- environmental standards or targets to guide management actions and monitoring of works
- strategies or processes to facilitate compliance with any individual site environment controls (e.g. Site Assessment Process, Site Environmental Control Maps)
- risk assessment process
- environmental roles and responsibilities

- communication
- training and induction
- operational control processes
- incident and emergency management
- works handover processes
- notification, monitoring, inspection, auditing and reporting
- continual improvement processes

The EMP will reference cultural heritage, however individual Cultural Heritage Management Plans will be developed separately.

6.6 Flora and Fauna Management

The EMP will address strategies and protocols for the management of flora and fauna, including the management of offsets. The Flora and Fauna Management Strategy contains management requirements for flora and native vegetation, fauna (aquatic and terrestrial), and pests (plants and animals). This strategy will be incorporated into the EMP and includes an Offset Management Strategy (OMS) to outline the offset requirements for the project as required by Victoria's native vegetation clearing and offsetting policy.

Facilitated works, particularly on farm works, are not the responsibility of GWMWater and its contractors. We have prepared a draft information sheet detailing environmental and cultural matters to be considered by landholders planning their on farm reticulation systems.

6.7 Construction Environment Management Plans

A CEMP will be developed for each stage of construction in accordance with the approved CEMF and EMP. GWMWater will require the construction contractor to prepare the CEMP for approval and consider EMP requirements and the following:

- detailed analysis of the existing environment
- ecological survey or Habitat Hectare assessment results, analysis and management recommendations
- native vegetation management requirements
- cultural heritage survey results, analysis and management recommendations
- geotechnical survey results, analysis and management recommendations
- consideration of the North Central Catchment Management Authority waterway requirements
- any other specialist report as identified or required
- project Overview
- legislative requirements
- roles and responsibilities
- construction methodology
- identification of environmental and cultural values
- identification of suitable mitigation measures

- training requirements
- monitoring and reporting requirements

7. Risk Management

Environmental and project risks will be managed throughout the life of the SWLP. The project phases and associated high level environmental risk management strategies are summarised in Table 3.

Table 3 – Risk Management through the project Lifecycle

Project Phase	Risk Context	Strategy	Outcome
Pre-Planning	Project methodology and governance	Define policy and principles, and EMF Risk identification Risk mitigation strategy identification Definition of project area Stakeholder engagement Governance arrangements Tender conditions.	Establish fundamental commitment and methodology to guide all activities throughout the project. The nature of risk and potential impact mitigation strategies are understood. Planning approval submitted.
Expression of Interest	Contractor capability	Educate market of project risk and contracting strategy.	Understanding of market capability. Establishment of pre-qualified tenderers.
Tendering	Selection process.	Selection of capable contractor.	Defined construction methodology. Program for statutory approvals.
Early Works	Design to minimise and offset impact.	Environmental Management Plan Preliminary alignment design Project scheduling Field assessments Offset Management Plan Construction Environment	The area of impact (avoidable and unavoidable) is quantified. Design is amended to achieve least impact under EMF commitments. Extent of required offsets quantified.

Project Phase	Risk Context	Strategy	Outcome
		Management Plan	
Construction	Construction practice. Project supervision.	Construction Environment Management Plan Inspections Audits	Impact is minimised. Contractors are accountable for adherence to CEMP. Lessons learnt are integrated into subsequent stages and projects.
Post-Construction	Site recovery	Inspections Remedial works	Site condition is monitored and maintained.

A more in depth desktop environmental risk assessment has been conducted to inform this CEMF and the early works contract. This environmental risk assessment has determined, as so far as reasonably practicable for a desktop assessment, the likelihood of impacting significant environmental values.

The review considered:

- environment reports commissioned for the SWLP,
- relevant technical information and guidelines,
- legislative and other requirements,
- consultation with key stakeholders (DELWP, North Central CMA, GWMWater, Local Council, Dja Dja Wurrung), and
- views of interested parties.

Site specific risks will be confirmed during the early works contract and included in the EMP and then captured as individual Environmental Control Points (ECPs) within individual CEMPs.

8. Roles and Responsibilities

Table 4 details the respective roles and responsibilities of stakeholders during the construction of the SWLP (e.g. after the CEMF, EMP and associated documentation has been approved).

Table 4 - Project roles and responsibilities during construction

Stakeholder	Key environmental roles and responsibility
GWMWater	<p>GWMWater is the Authority responsible for the delivery of the SWLP including appointing the principal contractor and day-to-day management of the planning and construction phases of the project.</p> <p>GWMWater is responsible for preparing documentation such as this CEMF and the EMP which will detail how the project is delivered to achieve minimal environmental impact.</p> <p>GWMWater will act as sponsor for CHMPs working with Heritage Advisors (appointed by the principal contractor) and Dja Dja Wurrung.</p> <p>GWMWater is responsible for the review and approval of individual CEMPS developed by the Contractor.</p> <p>GWMWater will be responsible for the on-going ownership and operation of the SWLP.</p> <p>GWMWater will inform landholder compliance with legislation where facilitated work is carried out by landholders or their contractors.</p>
Contractor	<p>The contractor will appoint sub-contractors to assist in obtaining all necessary approvals including preparation of cultural heritage management plans, CEMPs and biodiversity reports (see consultants and specialists).</p> <p>The contractor will undertake all capital works in accordance with the SWLP EMP and relevant legislation.</p>
Parks Victoria CMAs DELWP	<p>Parks Victoria, CMAs and DEWLP will provide technical advice as required if they are the relevant land manager for any SWLP works on Crown lands.</p> <p>Parks Victoria, CMAs and DEWLP will assist to clarify relevant legislative, regulatory and policy requirements.</p> <p>DELWP will verify auditor statements and project reports from GWMWater that CEMPs are being complied with in accordance with the CEMF and EMP.</p>
Landholder	<p>Landholders will be responsible for the on-going ownership and operation of the on- farm works. Landholders (or their contractor(s)) will be responsible delivery of works beyond the meter as privately managed works in compliance with legislation and obtaining all necessary approvals.</p>

Stakeholder	Key environmental roles and responsibility
Consultants and Specialists	<p>Consultants and specialist acting as subcontractors to the Contractor will undertake field assessment of construction sites that may impact on listed flora and fauna, native vegetation and Aboriginal cultural heritage.</p> <p>Consultants and specialist will assist in provision of technical advice, and services including training of personnel, site supervisors and contractors to facilitate compliance with CEMF & EMP requirements.</p> <p>Consultants and specialists will audit implementation of CEMF/EMP.</p> <p>Consultants and specialists will provide training of Wildlife Handlers for fauna which presents a threat to humans e.g. snakes in accordance with the contingency protocols set out in the EMP.</p> <p>Consultants and specialists will development of Cultural Heritage Management Plans (CHMP) for approval by Dja Dja Wurrung.</p>

9. Training and Awareness

GWMWater maintains a training matrix which contains training requirements relevant to the SWLP. It records any environmental or cultural heritage training (or briefings) delivered or coordinated by GWMWater or the Contractor.

The SWLP EMP sets out requirements for inductions and training for GWMWater, the Contractors and sub-contracted working on the SWLP.

GWMWater will ensure that all people working on the SWLP will have an appropriate level of awareness of social, cultural and environmental issues relevant to their job. It is expected that all people involved will be able to identify potential risks or hazards and bring those to the attention of site managers in a timely fashion. Similar to OHS programs, everyone will be encouraged to take a stake in minimising the environmental and cultural impact of the SWLP.

10. Auditing

As the owner of all works and activities on the SWLP, GWMWater is committed to ensuring a safe workplace and minimal environmental impact. To this end, GWMWater will undertake a comprehensive auditing program to assess actual impacts and report against planned commitments.

10.1 GWMWater Reporting

GWMWater will report construction activity and compliance with CEMP requirements to DELWP Bendigo office on a monthly basis. This will include ECP and CHMP impacts as well as losses. Reporting will include compliance of all sites that have a native vegetation impact.

It is expected cultural heritage impacts will be assessed in conjunction with Dja Dja Wurrung as part of the staged CHMPs.

10.2 Independent Audits

GWMWater will appoint an independent auditor to assess compliance with CEMPs in accordance with the approved SWLP EMP and CEMF. Audits will evaluate the project's performance on the basis of:

- inspection, internal audit and performance reports prepared by GWMWater and the contractor,
- direct inspection of environmental conditions at any locations potentially impacted by the SWLP's works, and
- any other relevant records or information available to or obtained by the auditor.

The auditor may engage such technical assistance as may be necessary for completing effective audits.

An independent audit will be conducted for each stage of the SWLP or every 8 weeks. The independent auditor is to be appointed as a Natural Resources Auditor by the Environment Protection Authority.

The scope of the audit will be developed in consultation with DELWP.

The independent auditor will present a report of audit findings within 30 days of completion to DELWP.

At the request of the Secretary of DELWP, additional audits may be request to be conducted by the appointed independent auditor at any time and on any matters related to the environmental performance of the SWLP's works, including upon request by the Minister for Planning.

11. Reporting and Notifications

Performance against this CEMF will be reported to government agencies in accordance with Table 5. Notifications of incidents are also included. Internal CEMF reporting content and timing will be developed to suit management needs. Internal reports will contain relevant information regarding the SWLP's performance in its implementation of the CEMF, EMP and CEMPs.

Table 5 - Notification and reporting requirements

Subject	Reporting or notification	
	Agency	Timeframe
EXTERNAL – reporting		
Construction activity and compliance with CEMP requirements	DELWP	Monthly
Audit of the SWLP compliance with CEMP by independent auditor	DELWP	No later than 30 days from completion of audit
Changes to CEMF or EMP documentation	DELWP	As per Table 2.
EXTERNAL – incident notification		
Imminent environmental hazard or pollution event (as defined in Environmental Auditor Guidelines for Conducting Environmental Audits, Publication 953.2, October 2007, EPA, Victoria)	DELWP, EPA, DoEE, GWMWater, CMA, appropriate emergency response agency (as relevant)	As soon as is practicable after becoming aware of the hazard or pollution event. Incident report may be required.
Encounter with native fauna during works, or if native fauna found injured or at risk of injury or death.	Wildlife Victoria, DELWP	In accordance with CEMP
Unauthorised clearance of native vegetation or death of trees in close proximity to SWLP works.	DELWP	Within two working days

Subject	Reporting or notification	
	Agency	Timeframe
If Aboriginal cultural heritage is disturbed by works with CHMP in place.	As per CHMP	As per CHMP
If Aboriginal cultural heritage is identified on site in the course of works, or non-approved impacts occur on Aboriginal cultural heritage, where a CHMP is not in place.	AAV, RAPs	As soon as practicable
If suspected human skeletal remains have been found.	As per CHMP	Immediately
If there are reasonable grounds to believe that the remains could be Aboriginal, then the State Control Centre will be contacted immediately.	Coroner's office and Victorian Police State Control Centre	
Introduction of state prohibited weeds / quarantine issues (introduction of Phylloxera into exclusion zone).	DELWP/DEDJTR	As required

11.1 Non-conformance and Incidents

Non-conformances and incidents are managed through GWMWater's EMS procedures and any relevant processes outlined in the CEMF and the EMP.

Appendices

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Appendix 1: Statutory Requirements

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
<i>Aboriginal Heritage Act, 2006</i>	SWLP constitutes a 'High Impact Activity' within an 'Area of Cultural Heritage Sensitivity' triggering the requirement of a Cultural Heritage Management Plan.	This Act enables the protection, preservation and management of Victoria's Aboriginal (indigenous) heritage through <i>Registered Aboriginal Parties (RAPs)</i> . Under this Act, a Cultural Heritage Management Plan (CHMP) will be required for each stage, prior to the commencement of 'significant ground disturbance' activities.
<i>Catchment and Land Protection Act, 1994 (CaLP Act)</i>	Objective to provide for the control of noxious weeds and pest animals. Works on or affecting waterways will need to be compliant with the requirements of <i>Catchment and Land Protection Act 1989</i> and be consistent with strategies and policies flowing from the Act.	Weed and Pest species will be managed within the Construction Environmental Management Plan (CEMP). Works on Waterways permit will be obtained from North Central Catchment Management Authority as required
<i>Crown Land (Reserves) Act, 1978</i>	Contains provision to reserve land for public purposes.	Licence or consent may be required for Crown land occupation. Will depend on land tenure
<i>Environmental Effects Act, 1978 (EE Act)</i>	Provides for assessment of proposed projects (works) that are capable of having a significant effect on the environment. The Act does this by enabling the Minister administering the <i>Environmental Effects Act 1978</i> to decide that an Environmental Effects Statement should be prepared based on a referral.	Referral lodged March 2017 at the request of DELWP.

Environmental Management Framework

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
<i>Environmental Protection Act, 1970</i>	<p>The Act provides a legal framework to protect the environment in the State of Victoria. It applies to noise emissions and the air, water and land in Victoria and to the discharge of waste from any premises in Victoria.</p> <p>Under the Act are a number of subordinate policies including state environment protection policies (SEPPs) and waste management policies (WMPs). The SWLP will comply with all relevant SEPPs and WMPs.</p>	<p>Principles of the Act will be adopted during planning, design, construction and operation of the SWLP. Waste, Noise, Vibration and Air Quality Management will be managed within the CEMP</p>
<i>Environment Protection and Biodiversity Conservation Act, 1999 (Cth)</i>	<p>Provides protection against 'significant impact' on Matters of National Environmental Significance (MNES). The Minister evaluates whether the proposed SWLP (Action) should be considered a 'Controlled Action' or 'Not a Controlled Action' based on a referral by the project Proponent.</p>	<p>Pre-referral meeting held on 8 March, 2017. Planned referral Q3 2017, if required.</p>
<i>Fisheries Act 1995</i>	<p>The <i>Fisheries Act 1995</i> provides the legislative framework for the regulation, management and conservation of Victorian fisheries including aquatic habitats.</p>	<p>Permit required to take, injure, damage, destroy, possess, keep or display for reward any declared protected aquatic biota. Listed protected aquatic species include all fish or aquatic invertebrates listed under the <i>Flora and Fauna Guarantee Act 1988</i>.</p>

Environmental Management Framework

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
<p><i>Flora and Fauna Guarantee Act, 1988 (FFG Act)</i></p>	<p>Enables legal and administrative structure to enable and promote the conservation of Victoria's native flora and fauna and to provide for a choice of procedures which can be used for the conservation, management or control of flora and fauna and the management of potentially threatening processes</p>	<p>The FFG Act is the primary Act for the protection of threatened native flora and fauna within Victoria. The FFG Act provides safeguards for the following:</p> <ul style="list-style-type: none"> •Threatened native flora and fauna; •Threatened communities of native flora and fauna; •Protected flora; •Potentially threatening processes. <p>The FFG Act applies to all public land. Permits are required under the FFG Act for the taking of listed (threatened or protected) species in these areas. Proponent is required to manage any threatening process listed under the FFG Act. Appropriate controls to manage the effects of the construction will be implemented.</p> <p>The extent to which this will be required will be determined during the design and assessment phase of the work.</p>
<p><i>Heritage Act, 1995</i></p>	<p>The main purposes of this Act are—</p> <ol style="list-style-type: none"> (a) to provide for the protection and conservation of places and objects of cultural heritage significance and the registration of such places and objects; (b) to establish a Heritage Council; and (c) to establish a Victorian Heritage Register. 	<p>Cultural Heritage assessment will be undertaken as part of the Early Works Contract phase of the SWLP. Areas and Places of Heritage value will be avoided where possible and otherwise minimised to a level that is acceptable.</p>

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
<i>Native Title Act, 1993</i>	The main objects of this Act are: (a) to provide for the recognition and protection of native title; and (b) to establish ways in which future dealings affecting native title may proceed and to set standards for those dealings; and (c) to establish a mechanism for determining claims to native title; and (d) to provide for, or permit, the validation of past acts, and intermediate period acts, invalidated because of the existence of native title.	Compliance is reached via the requirements of section 24 of the <i>Native Title Act 1993</i>
<i>Planning and Environment Act, 1987</i>	The Planning and Environment Act, 1987 establishes key controls for the planning of use, development and protection of land in Victoria. Native vegetation removal is managed through the provisions of the Act. All works need to be permissible under the Act and consistent with relevant planning requirements. The purpose of this Act is to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians.	GWMWater propose to seek a Ministerial Planning Scheme Amendment under S20(4) of the Act in order to obtain planning consent to construct the SWLP.
<i>Traditional Owner Settlement Act 2010</i>	The Victorian Department of Justice and Regulation is the lead agency. Existing MoU between Dja Dja Wurrung Clans Aboriginal Corporation and GWMWater.	Compliance for land use activities is reached via the requirements of the Dja Dja Wurrung Land Use Activity Agreement (LUAA) that exists between the Dja Dja Wurrung Clans Aboriginal Corporation and the State of Victoria, prepared under the State <i>Traditional Owner Settlement Act 2010</i> .

Environmental Management Framework

Act/Policy/Strategy	Relevance to the SWLP	GMMWater Reference
<i>Water Act, 1989</i>	<p>Any works which intercept waterways and their floodplains must be undertaken in accordance with the requirements of the <i>Water Act 1989</i>.</p> <p>All works will need to be compliant with the requirements of the <i>Water Act 1989</i> and associated Ministerial Determinations.</p>	<p>Planning, Design, Construction and Operation of the SWLP will be consistent with the purposes of the Act</p> <p>Works on a waterway permits will be sought during the Early Works Contract phase of the SWLP following confirmation of proposed alignments in consultation with the North Central Catchment Management Authority.</p>
<i>Wildlife Act 1975</i>	<p>The Wildlife Act establishes the framework for the protection of the State's native wildlife.</p> <p>The inspection, removal or relocation of fauna species for the SWLP would require a permit under the Wildlife Act 1975.</p>	<p>Approval is required to remove habitat for fauna (if not already covered by approval to remove native vegetation).</p>
<p>Loddon Planning Scheme</p> <p>Northern Grampians Planning Scheme</p>	<p>Planning, design, construction and operation of the SWLP will be consistent with the objectives and strategies of the following clauses:</p> <p>Clause 12.01-1: Environmental and Landscape Values; Biodiversity – Protection of Biodiversity</p> <p>Clause 12.01-2: Environmental and Landscape Values; Biodiversity – Native Vegetation Management</p> <p>Clause 12.04-1: Environmental and Landscape Values; Significant Environments and Landscapes - Environmentally Sensitive Areas</p> <p>Clause 12.04-2: Environmental and Landscape Values; Significant Environments and Landscapes - Landscapes</p> <p>Clause 13: Environmental Risks</p> <p>Clause 14.02-1: Natural Resource Management; Water – Catchment planning and management</p> <p>Clause 14.02-2: Natural Resource Management; Water – Water Quality</p> <p>Clause 14.02-3: Natural Resource Management; Water – Water Conservation</p>	<p>Planning Scheme Amendment will apply for pipelines however local council permits required for ancillary works. Native vegetation offsets may also be required here along with Habitat Hectares assessment and Offset Management Plans.</p>

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
	<p>Clause 19.03-2: Infrastructure; Water supply, sewerage and drainage</p> <p>Clause 22.01: Heritage</p> <p>Clause 22.02: Drainage and Flooding</p> <p>Clause 22.05: Development In Rural Areas</p> <p>Clause 35: Rural Zones</p> <p>Clause 36: Public Land Zones</p> <p>Clause 42.01: Environment Significance Overlay</p> <p>Clause 42.02 Vegetation Protection Overlay</p> <p>Clause 43.01: Heritage Overlay</p> <p>Clause 44.01: Erosion Management Overlay</p> <p>Clause 44.02: Salinity Management Overlay</p> <p>Clause 44.03: Floodway Overlay</p> <p>Clause 44.04: Land Subject to Inundation Overlay</p> <p>Clause 44.06: Bushfire Management Overlay</p> <p>Clause 52.17: Native Vegetation</p> <p>In addition, the following Planning Scheme Clarifications are provided:</p> <p>Clause 52.03: Specific Sites and Exclusions</p> <p>Proposed Planning Scheme Amendment would introduce an incorporated document to the Schedule of this clause (one in each Planning Scheme).</p> <p>Clause 74: Land Use Terms</p> <p>Installation of the pipeline would constitute a 'minor utility installation'. Ancillary buildings and structures would be considered 'utility installations'.</p>	
<p><i>Catchment management strategies and river health strategies</i></p>	<p>Works must be consistent with the following strategies:</p> <p>North Central Regional Catchment Management Strategy.</p> <p>North Central Regional River Health Strategy.</p>	<p>Maintain NCCMA on Project Steering Committee and liaise with them regarding any inconsistency with local or regional strategies.</p>

Act/Policy/Strategy	Relevance to the SWLP	GWMWater Reference
<i>Industrial Waste Management Policy (Waste Acid Sulphate Soils)</i>	Acid sulfate soils need to be identified, managed and disposed in accordance with EPA Publication 655 and the IWMP.	Incorporate requirement in CEMPs
<i>State Environment Protection Policy (Waters of Victoria)</i>	Chemicals and hazardous substances must not be stored in or adjacent to surface waters, drainage lines or floodplains, and must be prevented from coming into contact with surface waters. Bunding and containment of chemicals and hazardous substances must accord with the EPA Victoria Bunding Guidelines Publication 347 (December 1992).	Incorporate requirement in CEMPs
<i>Victoria's native vegetation clearing and offsetting policy</i>	<p>The SWLP will comply with the requirements set out in the State's native vegetation clearing and offset policy.</p> <p>The key underpinning strategies are:</p> <ul style="list-style-type: none"> • Avoiding the removal of native vegetation where possible • Minimising impacts on Victoria's biodiversity from the removal of native vegetation • Where native vegetation is permitted to be removed, ensuring it is offset in a manner that makes a contribution to Victoria's biodiversity that is equivalent to the contribution made by the native vegetation to be removed. 	Incorporate requirement in CEMPs, reporting and Offset Management Plan

Appendix 2: Environmental Commitments and Performance Requirements

Environmental Matters and Commitments	Item	Performance Requirements	Reference
1. <i>Flora and native vegetation</i>	1.1	<i>Flora and Fauna Management Strategy</i>	Flora and Fauna Management Strategy
1A. <i>Comply with Victoria's Permitted clearing of native vegetation – Biodiversity assessment guidelines</i>		Prepare and implement a Flora and Fauna Management Strategy and an Offset Management Plan, inclusive of native vegetation considerations. The strategy will be prepared to the satisfaction of the Minister for Planning.	Offset Management Plans
1B. <i>Avoid and/or minimise the loss of threatened flora species</i>		Where impacts can't be avoided, write conditions into CEMPs	SWLP EMP CEMPs
2. <i>Fauna – aquatic and terrestrial</i>	2.1	<i>Flora and Fauna Management Strategy</i>	Flora and Fauna Management Strategy
2A. <i>Avoid and/or minimise impacts on FFG and EPBC listed threatened fauna species</i>		Prepare and implement a Flora and Fauna Management Strategy. The strategy will be prepared to the satisfaction of the Minister for Planning.	SWLP EMP
2B. <i>Avoid and/or minimise impacts on native fish species</i>		Where impacts can't be avoided, write conditions into CEMPs	CEMPs
2C. <i>Avoid and/or minimise impacts on habitat for native fauna species</i>			
3. <i>Wetlands and waterways</i>	3.1	<i>Interactions with wetlands and waterways</i>	SWLP EMP
3A. <i>Protect surface water regimes and quality consistent with relevant Regional Catchment Management Strategies and River Health Strategies</i>		Identify and assess potential interactions with wetlands and waterways from construction. Design construction activities to minimise interactions with wetlands and waterways. Utilise horizontal directional drilling where ever potential impact is identified Apply for Works on Waterways Permits for all crossings	CEMPs

Environmental Matters and Commitments	Item	Performance Requirements	Reference
<p>3B. Avoid and/or minimise erosion and sedimentation leading to impacts on water quality</p> <p>3C. Avoid and/or minimise the generation and prevent the discharge of turbid and contaminated water from construction activities into waterways and local stormwater systems.</p>	3.2	<p><i>Comply with relevant requirements</i></p> <p>Comply with the State Environment Protection Policy (Waters of Victoria), Works on Waterways permits and relevant Catchment Management Strategies and River Health Strategies:</p> <ul style="list-style-type: none"> · North Central Regional Catchment Management Strategies · North Central River Health Strategies 	
	3.3	<p><i>Stormwater, drainage, erosion and sedimentation management</i></p> <p>All works will be carried out in accordance with the EPA Publication No. 275 Construction Techniques for Sediment Pollution Control (May 1991).</p>	
	3.4	<p><i>Wastewater Discharge</i></p> <p>Horizontal Directional Drilling slurry would be managed in accordance with approved Works on Waterways permits.</p>	
	3.5	<p><i>Materials management</i></p> <p>No storage of chemicals or hazardous substances in or adjacent to surface waters, drainage lines or floodplains. Prevent chemicals or hazardous substances from coming into contact with surface waters. Bunding and containment of chemicals and hazardous substances will accord with the EPA Victoria Bunding Guidelines Publication 347 (December 1992).</p>	
	4.1	<p><i>Cultural Heritage Management Plan</i></p> <p>Prepare and implement a Cultural Heritage Management Plan (CHMP) for each stage of the SWLP. A CHMP will be prepared to the satisfaction of the Registered Aboriginal Party prior to construction commencing.</p>	<p>Cultural Heritage Management Plan</p> <p>CEMPs</p>
4. Cultural heritage			
4A. Protect cultural heritage sites and items, which may be located within and near construction sites.			

Environmental Matters and Commitments	Item	Performance Requirements	Reference
5. Acid sulfate soils 5A. Identify and appropriately manage acid sulfate soils so as to prevent environmental impacts	5.1	<i>Identification of acid sulfate soils</i> Identify and where practicable avoid disturbing areas of potential and actual acid sulfate soils.	SWLP EMP CEMPs
	5.2	<i>Management of acid sulfate soils</i> Manage potential and actual acid sulfate soils in accordance with relevant legislation, standards and guidelines including the waste hierarchy. Comply with EPA's <i>Industrial Waste Management Policy</i> (Waste Acid Sulfate Soils) and EPA Publication 655, <i>Acid Sulfate Soil and Rock</i> .	
6. Flooding and drainage 6A. Ensure any changes to flooding and drainage regimes are consistent with the relevant Regional Catchment Management Strategies	6.1	<i>Flooding and drainage management</i> Identify and where practicable avoid disturbing existing flooding and drainage patterns during construction. Where disturbance of existing flooding and drainage systems is unavoidable, consult with relevant authorities and obtain relevant approvals, prior to commencement of works. If temporary drainage works required, these works will be designed to isolate construction runoff from catchment runoff and avoid disturbing existing flooding and drainage systems where practical. Temporary works will be removed following completion of construction and existing flooding and drainage systems reinstated, where the modified flooding and drainage system is not part of the final design.	SWLP EMP CEMPs
		7.1	<i>Flora and Fauna Management Strategy</i> Prepare and implement a Flora and Fauna Management Strategy. The strategy will be prepared to the satisfaction of the Minister for Planning.
7. Pest plants and animals 7A. Minimise introduction and spread of pest plants and animals consistent with the relevant Regional Catchment Strategies			

Environmental Matters and Commitments	Item	Performance Requirements	Reference
<i>7B. Prevent the spread of animal borne, plant borne or soil borne diseases attributable to the capital works activities</i>			
<i>8 Amenity Impacts</i>	8.1	<i>Amenity impact management</i> Manage amenity impacts (dust, noise, vibration, etc) on local roads, road users and adjacent landholders/businesses and residents during in accordance with the EPA Environmental Guidelines for Major Construction Sites.	SWLP EMP
<i>8A. To minimise the amenity impacts resulting from capital works activities</i>			CEMPs
<i>9 Reinstatement</i>	9.1	<i>Site handover protocol</i> Maintain and handover work sites post- construction to GWMWater in a condition agreed in the Site Handover Protocol.	SWLP EMP
<i>9A. Handover work sites in a condition satisfactory to GWMWater.</i>			CEMPs

Appendix 3: Flora and Fauna Management Strategy

Purpose and objectives

The purpose of this Flora and Fauna Management Strategy is to describe the means by which the GWMWater will manage and control the potential impacts on listed flora and fauna and native vegetation from construction works associated with the SWLP.

The objectives of the Flora and Fauna Management Strategy are to avoid, minimise and offset impacts to listed native flora and fauna and the loss of remnant native vegetation. In particular, the strategy seeks to:

- avoid any potentially significant impacts to Matters of National Environmental Significance (MNES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) in delivery of the SWLP's CEMF/EMP construction activities,
- avoid where practicable or minimise the loss of remnant vegetation, including threatened flora as listed under the EPBC Act and the *Flora and Fauna Guarantee Act 1988* (FFG Act),
- avoid or minimise impacts on aquatic and terrestrial fauna and their habitats listed under EPBC Act and the FFG Act from the SWLP, and
- outline the native vegetation offset process where loss occurs as a result of the SWLP works.

Environmental documentation

This strategy forms part of the CEMF for the SWLP.

Key documents associated with management of flora and fauna include:

- Environmental Management Plan,
- Construction Environment Management Plans,
- relevant technical assessments, and
- Offset Management Plans.

Listed flora and fauna species

Risk assessment for listed flora and fauna

A desktop risk assessment was carried out to assess potential for impacts on listed flora and fauna across a notional 40m trunk main corridor within the SWLP area.

Data extracts from the Victorian Biodiversity Atlas (VBA) have been based on a 5km search buffer surrounding the SWLP area. A 1km buffer was applied to the SWLP Area for the EPBC Protected Matters Search Tool (PMST). The extensive search areas applied during the flora and fauna database search are used to compensate for a potential lack of historical surveys within the SWLP area and its immediate surrounds. This approach also allows for the identification of mobile species such as birds which may have the potential to interact with the SWLP area on an intermittent and opportunistic manner. Analysis of this data has taken into consideration the ecological value and attributes of the SWLP area when compared to the broader landscape.

An assessment has been undertaken to assess the likelihood of Commonwealth and State listed threatened species occurring within proximity of the SWLP area based on desktop information. This method considers the habitat requirements of threatened species, as identified by desktop searches, along with how recently the species has been recorded within the search extent and quantities of past records.

The following criteria were applied to determine the likelihood of species occurring within the SWLP area.

- Known: Species recorded within the SWLP area within the last 5 years,
- Likely: Species recorded within or near the project in last 20 years and suitable habitat is likely to occur within the SWLP area,
- Possible: Species recorded within or near the SWLP area with records >20 years old and/or little/low quality suitable habitat occurs within the SWLP area, and
- Unlikely: Very old records (>40 years) and/or little/low/no suitable habitat within the SWLP area and/or other reason the species is unlikely to occur.

Listed Flora and Potential Impacts

The SWLP has the potential to impact on listed flora through:

- approved or accidental removal of vegetation to facilitate vehicle access and construction works,
- grading of top soil,
- placement of stockpiles, materials and chemicals, and
- introduction of weeds and diseases.

A desktop review of threatened flora species historically recorded within 5 km of the SWLP area as well as flora species identified by the EPBC Act Protected Matters Search Tool was undertaken. This identified 110 flora species. An assessment of the likelihood of species occurring within and surrounding the SWLP area was undertaken using criteria stated above. This assessment identified one FFG Act listed species as known to occur within the SWLP area. A further four EPBC Act species and 11 FFG Act listed species are considered likely to occur within and surrounding the SWLP area. Three EPBC Act species and eight FFG Act listed species are also considered 'possible' to occur within and surrounding the SWLP area.

Additionally, 93 threatened flora species have been historically recorded within 5 km of the SWLP area. Records include 44 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013), 22 FFG Act listed species and 9 EPBC Act listed species.

Based on the findings of the threatened flora analysis, it is known that one flora species listed under the FFG Act is known to occur within the SWLP area. This is Kamarooka Mallee *Eucalyptus froggattii*, a Mallee tree to 9 m tall identified by its dark, rough box-type bark and glossy crown. This species has been recorded 27 times within 5 km of the SWLP area with the most recent recording in 2012 within the Wedderburn – Serpentine road reserve within the SWLP area. It is likely this species may occur elsewhere within the

SWLP area. The species is restricted to Mallee-type vegetation in central and western parts of Victoria.

A threatened flora analysis identified a further four EPBC Act species and 11 FFG Act listed species that are considered likely to occur within and surrounding the SWLP area. These species include:

Threatened flora analysis within the SWLP area

Common Name	Scientific Name	EPBC	FFG
Buloke	<i>Allocasuarina luehmannii</i>		L
Dainty Phebalium	<i>Phebalium festivum</i>		L
Grey Grass-tree	<i>Xanthorrhoea glauca subsp. angustifolia</i>		L
Kamarooka Mallee	<i>Eucalyptus froggattii</i>		L
Spiny Rice-flower	<i>Pimelea spinescens subsp. spinescens</i>	CR	L
Stiff Groundsel	<i>Senecio behrianus</i>	EN	L
Striped Water-milfoil	<i>Myriophyllum striatum</i>		L
Velvet Daisy-bush	<i>Olearia pannosa subsp. cardiophylla</i>		L
Whipstick Westringia	<i>Westringia crassifolia</i>	EN	L
Whorled Zieria	<i>Zieria aspalathoides subsp. aspalathoides</i>		L
Yellow-lip Spider-orchid	<i>Caladenia xanthochila</i>	EN	L

Listed Threatened Fauna and Potential Impacts

The listed fauna species in the SWLP area occur across a wide range of habitats and vegetation communities. The SWLP has the potential to impact on listed fauna through:

- approved and accidental removal of vegetation and habitat to facilitate vehicle access, construction, and decommissioning works,
- grading of top soil,
- placement of stockpiles, materials and chemicals,
- introduction of weeds and diseases,
- accidental injury or mortality (during habitat removal or passing of vehicles)
- accidental spills of chemicals, oils, soil etc., and
- disruption to normal species activity.

A desktop review of threatened fauna species historically recorded within 5 km of the SWLP area as well as fauna species identified by the EPBC Act Protected Matters Search Tool was undertaken. This identified 77 fauna species. An assessment of the likelihood of species occurring within and surrounding the SWLP area was undertaken using criteria stated in the above. This assessment identified five EPBC Act listed species and 15 FFG Act listed species are considered likely to occur within and surrounding the SWLP area.

A further five EPBC Act species and 12 FFG Act listed species are considered possible to occur within and surrounding the SWLP area.

Additionally, sixty-one threatened fauna species have been historically recorded within 5 km of the SWLP area. Records include 49 species listed under the Victorian Rare or Threatened Species (VROTS) advisory lists (DEPI 2013), 28 FFG Act listed species and 8 EPBC Act listed species.

Based on the findings of the threatened fauna analysis, two fauna species listed under the FFG Act are known to occur within the SWLP area and have been recorded within the last 20 years. These are:

- Crested Bellbird *Oreoica gutturalis gutturalis*, and
- Hooded Robin *Melanodryas cucullata cucullata*.

The Barking Owl has been recorded within the SWLP area greater than 20 years ago.

The Crested Bellbird is a medium-sized bird. It is endemic to mainland Australia and occurs from semi-arid coastlines to the Australian interior. This species has been recorded 98 times within 5km of the SWLP area with the most recent recording in 2006. The species has been recorded once within the SWLP area in 1999 adjacent to Brenenhah – Kurting Road. After reviewing this record, it appears likely that the sighting occurred within the adjoining road reserve, not within the SWLP area. It is likely this species may frequent habitat elsewhere within the SWLP area. The species is found in eucalypt woodlands, spinifex, acacia scrublands and saltbush plains or dunes.

The Hooded Robin is a medium-large sized bird. It is found all over mainland Australia, except for on the Nullarbor Plain, south of the Kimberley Ranges Cape York, eastern Gulf of Carpentaria or inland around the Simpson Desert. This species has been recorded 101 times within 5km of the SWLP area with the most recent recording in 2010. The species has been recorded once within the SWLP area in 1999 adjacent to Brenenhah – Kurting Road. After reviewing this record, it appears likely that the sighting occurred within the adjoining road reserve, not within the SWLP area. It is likely this species may frequent habitat elsewhere within the SWLP area. The species is found in lightly timbered woodland, mainly dominated by a eucalypts and/or acacia.

A threatened fauna analysis identified five EPBC Act species and 15 FFG Act listed species that are considered likely to occur within and surrounding the SWLP area. These species include:

Threatened Fauna Analysis within the SWLP area

Common Name	Scientific Name	EPBC	FFG
Brolga	<i>Grus rubicunda</i>		L
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>		L
Crested Bellbird	<i>Oreoica gutturalis gutturalis</i>		L

Common Name	Scientific Name	EPBC	FFG
Diamond Firetail	<i>Stagonopleura guttata</i>		L
Golden Sun Moth	<i>Synemon plana</i>	CR	L
Grey-crowned Babbler	<i>Pomatostomus temporalis temporalis</i>		L
Hooded Robin	<i>Melanodryas cucullata cucullata</i>		L
Intermediate Egret	<i>Ardea intermedia</i>		L
Malleefowl	<i>Leipoa ocellata</i>	VU	L
Painted Honeyeater	<i>Grantiella picta</i>	VU	L
Plains-wanderer	<i>Pedionomus torquatus</i>	CR	L
Powerful Owl	<i>Ninox strenua</i>		L
Speckled Warbler	<i>Chthonicola sagittatus</i>		L
Swift Parrot	<i>Lathamus discolor</i>	EN	L
White-throated Needletail	<i>Hirundapus caudacutus</i>		L

Notwithstanding these desktop assessments, on-ground surveys of the preferred route alignment will be required to determine the presence or absence of any threatened flora and fauna. These will be expanded upon in the EMP and detailed in CEMPs.

Site Specific Management Measures

The site assessment process is carried out prior to construction to identify environmental constraints to construction. It will be used in the design of the works and the site management to avoid flora, fauna and native vegetation or to minimise impacts where it is not possible to avoid them. This process is to be outlined in the EMP. Relevant management measures identified in the EMP for each stage will be identified as Ecological Control Points in the CEMP.

Where the site assessment process identifies the potential for a significant impact to MNES, the works will be redesigned or abandoned to avoid that impact.

Management measures for flora, fauna, native vegetation and weeds have been developed for implementation pre-, post- and during construction and will be recorded in the EMP.

If the SWLP impacts on a listed flora or fauna species or ecological community, the SWLP will act in accordance with the approved EMP and/or CEMP or Offset Management Plan. Where potential impacts are not covered by these documents, will seek advice from the DELWP on the need for threatened species or community offset measures.

Appendix 4: Offset Management Strategy

This Offset Management Strategy (OMS) outlines the SWLP's approach to meeting its obligations under Victoria's native vegetation clearing and offsetting policy.

Estimate of native vegetation loss

Upon detailed design and approval of the CEMP for a stage, a forecast of the likely loss of native vegetation and potential offset requirements (calculated in accordance with the guidelines) in order to inform planning for and securing of offsets. This forecast is reviewed prior to commencement of each construction stage.

Overview of avoidance, minimisation and offset strategies

Clearance of native vegetation will be avoided and minimised as described below.

Avoidance and minimisation

The site assessment process outlined in the EMP is the mechanism used to avoid clearance of native vegetation during construction.

The EMP also contains relevant management measures to minimise loss and damage to native vegetation.

Offsetting

All native vegetation removals will be offset to comply with Victoria's native vegetation clearing and offsetting policy. An Offset Management Plan will be prepared in line with policy requirements prior to commencement of each CEMP being approved.

Achieving No Net Loss

The SWLP implements a multi-step program to assess native vegetation losses. This allows for the efficient assessment of native vegetation and ensures that appropriate endorsements for removals are obtained from DELWP in line with policy requirements. The process is detailed in the EMP.

Collating data on native vegetation losses for the preceding construction stage

Adequate records of native vegetation removal will be maintained for the SWLP.

Information recorded by works crews as to the removal of native vegetation are compiled and results submitted to the GWMWater's environmental officer for inclusion within the OMP.

Results of audits and or inspections are considered and where results identify inconsistencies with information submitted by works crews, removal figures are amended in line with the recommendations of the inspection or audits.

All removals are compiled into tables as required by DELWP to be included within the OMP.

Sourcing suitable offsets

The SWLP has developed a pool of offsets that meet the requirements of the previous native vegetation framework, Victoria's Native Vegetation Management – A Framework for Action. This was to ensure that offset requirements were met in a timely manner.

The pool is periodically reviewed against forecast offset requirements.

A register of all offset credits owned by GWMWater is maintained, including where offsets have been allocated to account for native vegetation losses associated with completed works.

First and third party offsets are sporadically purchased on an as needs basis, if offsets are not available within the existing pool to meet requirements.

Where suitable offsets are not available through any of the methods mentioned, DELWP is consulted as to an appropriate solution for meeting approval requirements of the SWLP.

Finalising the OMP

An OMP for a stage of works is prepared by the GWMWater in accordance with the DELWP template. The OMP outlines the suitability of the offsets including:

- clearing site details,
- vegetation approved for removal,
- loss targets,
- description of offset site(s),
- like-for-like or relevant quality matching criteria,
- quantification of gains available on offset site(s), and
- allocation of native vegetation credits.

All offsets required to account for native vegetation losses for a stage will be included within the OMP for that stage and are allocated through the DELWP Native Vegetation Credit Register. Allocated credit statements are appended to the end of the prepared OMP.

Each OMP is approved for submission to DELWP by the GWMWater's Project Manager. Any additional offset reporting or notifications will be prepared in agreement with DELWP.