



Photon Energy

PHOTON  
ENERGY  
GROUP

# YADNARIE RENEWABLE ENERGY FACILITY

Proposed PV Ultra (Solar Cogeneration)  
and Thermal Hydro Facility

VOLUME 4

## Draft Construction Environmental Management Plan

For Photon Energy AUS SPV 4 Pty Ltd

225 Broadview Road, 4543 Birdseye Highway and  
Lot 28 Pine Corner Road,  
Cleve, South Australia



Prepared by  
**MasterPlan SA Pty Ltd**  
 ABN 30 007 755 277, ISO 9001:2015 Certified  
 33 Carrington Street, Adelaide SA 5000  
 Telephone: 8193 5600, masterplan.com.au



Version	Author	Amendment	Reviewer
Draft 19 August 2024	Julie Jansen MasterPlan		Photon Energy and RayGen
Draft Rev A 18 September 2024	Julie Jansen MasterPlan	Minor Corrections	Photon Energy
Draft Rev B 8 October 2024	Julie Jansen MasterPlan	Minor Corrections	Photon Energy
Final 24 October 2024	Julie Jansen MasterPlan		
Final 28 October 2024	Julie Jansen MasterPlan		

## CONTENTS

<b>1.</b>	<b>Project Description .....</b>	<b>1</b>
<b>2.</b>	<b>Subject Site .....</b>	<b>3</b>
<b>2.1</b>	<b>Legal Description .....</b>	<b>3</b>
<b>2.2</b>	<b>Project Region.....</b>	<b>5</b>
<b>2.3</b>	<b>Climate.....</b>	<b>5</b>
<b>3.</b>	<b>Construction Environmental Management Plan .....</b>	<b>7</b>
<b>3.1</b>	<b>Objective of the Construction Environmental Management Plan .....</b>	<b>7</b>
<b>3.2</b>	<b>Environmental Management Structure and Responsibility.....</b>	<b>7</b>
<b>3.3</b>	<b>Environmental Aspects.....</b>	<b>8</b>
3.3.1	Air Quality.....	8
3.3.2	Cultural Heritage.....	9
3.3.3	Water Quality, Erosion and Sedimentation .....	11
3.3.4	Hazardous Substances.....	12
3.3.5	Noise.....	13
3.3.6	Traffic.....	15
3.3.7	Flora and Fauna.....	15
3.3.8	Weeds and Pest Management.....	16
3.3.9	Fire Prevention and Protection .....	17
<b>4.</b>	<b>CEMP Implementation.....</b>	<b>21</b>
<b>4.1</b>	<b>Structure and Responsibilities .....</b>	<b>21</b>
4.1.1	Responsibilities .....	21
<b>4.2</b>	<b>Training, Awareness and Competence .....</b>	<b>22</b>
4.2.1	Environmental Inductions .....	23
4.2.2	Environmental Awareness Training.....	24
4.2.3	Toolbox Training.....	24
4.2.4	Hours of Work .....	25

<b>5.</b>	<b>Checking and Corrective Action</b> .....	<b>26</b>
<b>5.1</b>	<b>Internal Inspections/Monitoring</b> .....	<b>26</b>
<b>5.2</b>	<b>Control of Measuring and Testing Equipment</b> .....	<b>27</b>
<b>5.3</b>	<b>Reporting</b> .....	<b>27</b>
5.3.1	Weekly Environmental Reports .....	27
5.3.2	Monthly Environmental Reports .....	27
<b>5.4</b>	<b>Auditing</b> .....	<b>28</b>
5.4.1	Internal Audits and Inspections .....	28
<b>5.5</b>	<b>Incident and Non-Conformity</b> .....	<b>28</b>
<b>5.6</b>	<b>Implement Corrective Actions</b> .....	<b>28</b>
<b>5.7</b>	<b>Complaints</b> .....	<b>29</b>
<b>5.8</b>	<b>Emergency Preparedness and Response</b> .....	<b>29</b>
<b>5.9</b>	<b>Document of Records</b> .....	<b>30</b>
<b>6.</b>	<b>Review and Continuous Improvement</b> .....	<b>31</b>

DRAFT

## 1. Project Description

Photon Energy NV (Photon Energy), a global project developer, has developed a strategic partnership with RayGen Resources Pty Ltd (RayGen), with the objective of developing global renewable energy projects suitable for the roll-out of RayGen's unique solar power and electricity storage technology.

Photon Energy propose to utilise RayGen's technology for generation of solar power and energy storage at Yadnarie, west of Cleve on the Eyre Peninsula. The technology proposed and scale of electricity storage is new to the South Australian renewable energy sector and comprises RayGen's proprietary PV Ultra (solar cogeneration) and Thermal Hydro (electro-thermal storage) technologies.

The development proposed by Photon Energy is a facility incorporating 150MW solar generation and 90MW ORC generation with 720 MW hours of storage (8 hours of dispatchable energy), with a 90MW grid connection to the Yadnarie substation or 132kV overhead transmission line, and ancillary infrastructure. Electricity will be supplied to the national electricity grid.

The subject land is located entirely within the District Council of Cleve.

The subject land comprises some 1530 hectares and is bounded by the Birdseye Highway to the north, Pine Corner Road to the west, Broadview Road (in part) to the east and Price Road to the south, as shown on Figure 1 (extract below and in Attachment A).

Located on the southern side of the Birdseye Highway, the proposed development is sited approximately equidistant between the townships of Cleve and Rudall (as shown on the Locality Plan – extract below and in Attachment B). Diagonally opposite the subject land is the Yadnarie sub-station.

The elements to be developed as part of the project include:

- Site area that is significantly less than the size of the subject land (of approximately 1,530 hectares), taking account of the natural land features, infrastructure setbacks and retention of vegetation.
- 150 fields of rotational mirrors (heliostats) orientated north. Each field comprises 273 individual heliostats. Each heliostat is approximately between 2.6 and 5.6 metres above the ground and mounted on a steel post. Heliostat heights will vary throughout the day as they track the sun. Each field has one receiver mounted on a tower 45 metres high. The receiver faces the field of mirrors in a southward direction. Each receiver has electrical switchgear and water pumping infrastructure at the base of its tower. For every two fields, there is one inverter for a total of 75 inverters. It is a 6m (20ft) container shipping container sized electrical device that converts DC power from the receivers to AC power ready for the grid. Three (3) thermal hydro pit units comprising:
- 3 cold pits. Each pit/tank is up to 28,000 square metres with a height above ground level of 3.0 metres and up to 230,000 cubic metres capacity.

- 3 hot pits. Each pit/tank is up to 28,000 square metres with a height above ground level of 3.0 metres and up to 230,000 cubic metres capacity.
- Three Thermal Hydro plants, each comprising:
  - An Organic Rankine Cycle (ORC) engine and generator, with net capacity of 30MW
  - Heat Exchangers
  - Tanks
  - Various pumps
  - Large Chiller and Heat Pump units
  - Connecting pipework.
- Electrical infrastructure including switch rooms and transformers
- Three (3) waste heat pits, each comprising up to 10,000m<sup>2</sup> with a height above ground of 3m and a capacity up to 75,000m<sup>3</sup>.
- Underground electrical cable reticulation on site.
- Switch yard and connection via overhead transmission connection to the Yadnarie substation.
- Emergency venting of ammonia systems, elevated for personnel safety.
- Ammonia handling and disposal systems to support maintenance of the process equipment and pipework.
- Water treatment system with filtrate water stream potentially suitable for alternative uses.
- Operations, maintenance building and compound.
- Temporary construction compound.
- Security fencing around the site.
- Internal access roads.

These elements are shown on the plans prepared by Worley and **enclosed** in the development application.

## 2. Subject Site

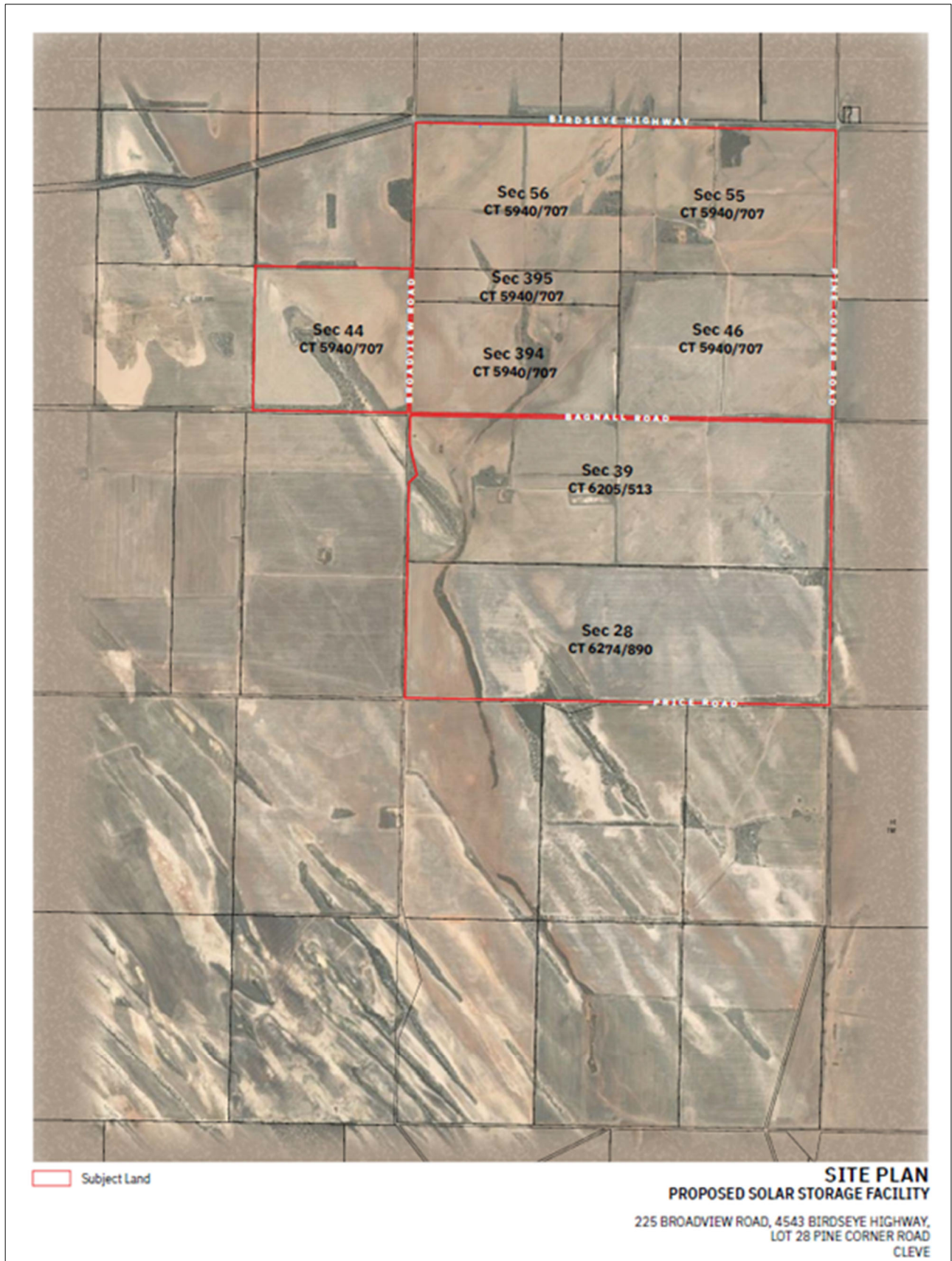
### 2.1 Legal Description

The subject land (shown in the extract below) is addressed as 225 Broadview Road, 4543 Birdseye Highway and Lot 28 Pine Corner Road, Cleve. Legally the subject land incorporates:

- Section 39, Hundred of Yadnarie, in the area named Cleve in Certificate of Title Volume 6205 Folio 513;
- Section 44 Hundred of Yadnarie in the area named Rudall and Sections 46, 55, 56, 394 and 395 Hundred of Yadnarie in the area named Cleve, in Certificate of Title Volume 5940 Folio 707; and
- Section 28, Hundred of Yadnarie, in the area named Cleve, in Certificate of Title Volume 6274 Folio 890

The subject land has historically been utilised for dryland farming with the predominant activity being cropping, with some grazing, which continues on the land. Land uses within the region are also principally primary production (grazing and cropping) and the storage and distribution of agricultural produce.





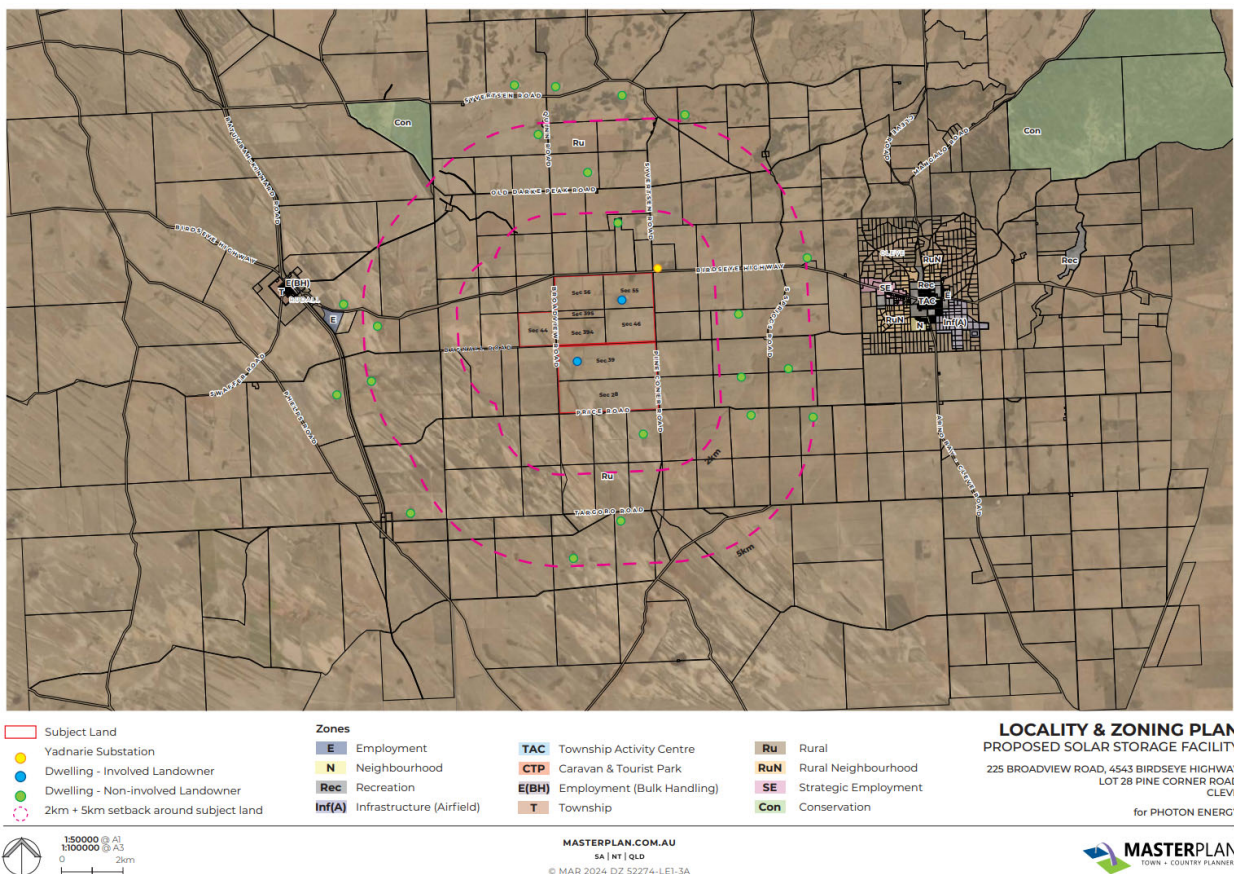


## 2.2 Project Region

The townships of Cleve and Rudall provide residential areas, community, education, recreational and retail/commercial and industrial land uses supporting the farming community.

The locality of the development is characterised by primary production activities, particularly cropping and grazing, along with associated scattered dwellings and farm buildings. Agricultural infrastructure such as grain storage facilities are evident within the locality, as is the Yadnarie substation adjacent the major transport route through traversing the Eyre Peninsula (the Birdseye Highway).

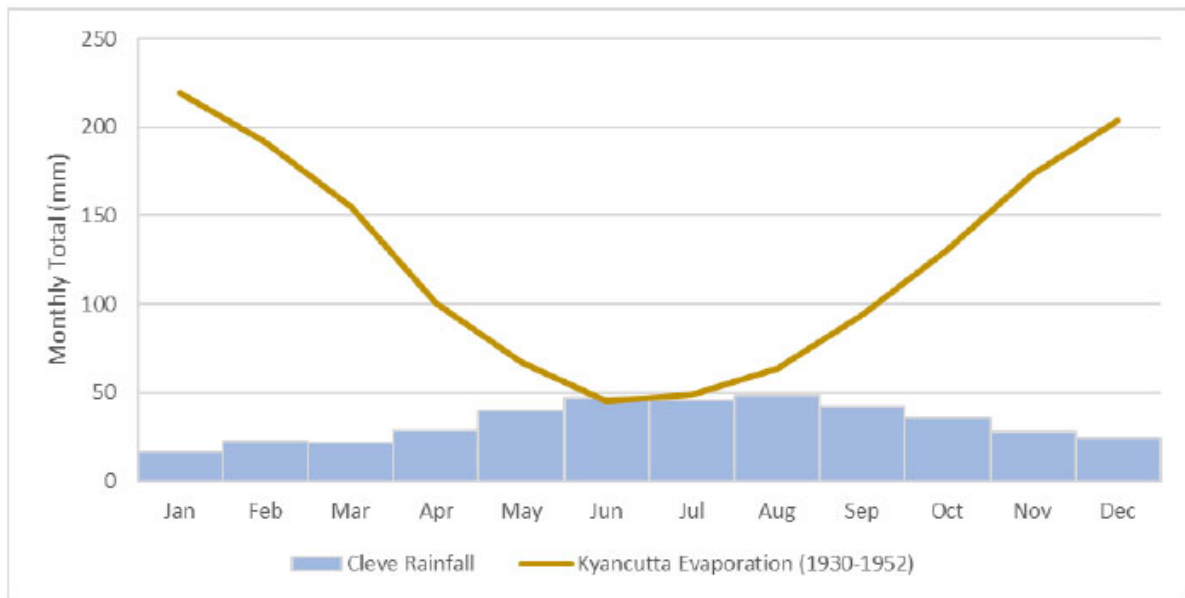
The locality plan shown below illustrates the subject land, its proximity to both Cleve and Rudall, the location of sensitive receivers within the vicinity of the proposed development and the land use zones.



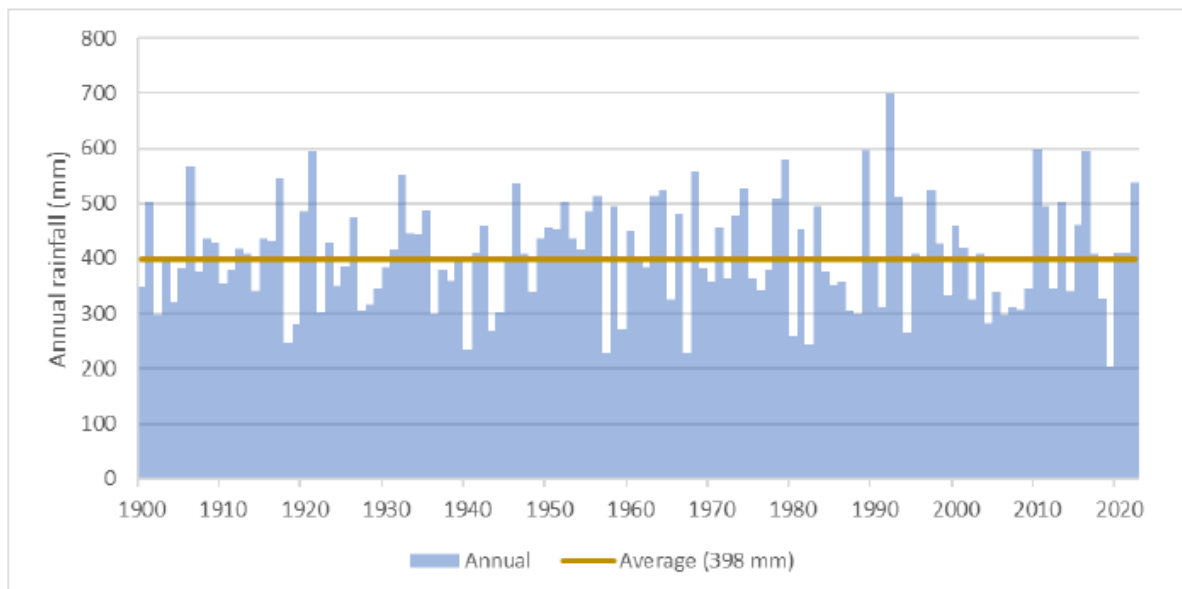
## 2.3 Climate

The Project Area occurs within a temperate climate. Temperatures throughout the summer are hot with warm nights, while winters are mild with cool nights. Both winters and summers are typically dry, with the area experiencing prolonged dry periods interspersed with brief, significant rainfall events.

Cleve is the closest meteorological station to the Project Area. The Project Area experiences an average annual rainfall total of 398 millimetres (mm), spread throughout the year, but wettest between May and September. Rainfall data for Cleve (Bureau of Meteorology ID 018014) is illustrated below:



**Figure 1: Cleve monthly rainfall and evaporation - Source: BoM 2023 in Hydrological Assessment by Worley**



**Figure 2: Cleve annual total rainfall (mm) - Source: Hydrological Assessment by Worley**

### **3. Construction Environmental Management Plan**

#### **3.1 Objective of the Construction Environmental Management Plan**

The objective of the Construction Environmental Management Plan (CEMP) is to describe the potential environmental issues related to the proposed works and the measures which will be undertaken to manage or mitigate any detrimental impacts. The key environmental issues associated with construction of the Yadnarie renewable energy facility are:

- Air quality
- Cultural heritage
- Erosion and sedimentation
- Hazardous substances
- Noise
- Traffic
- Flora and fauna
- Weeds and pest management
- Fire prevention
- Incident management. This CEMP provides guidance in relation to:
  - Minimising environmental impacts during site works.
  - Identification and implementation of measures to minimise potential impacts to off-site receptors during construction.
  - Establishing and implementing practices to inform site workers regarding potential environmental impacts and agreed procedures to mitigate impacts.

#### **3.2 Environmental Management Structure and Responsibility**

The implementation of this CEMP is the responsibility of the chosen construction contractor. The construction contractor may at times delegate responsibility for individual items to its sub-contractors; however, retains overall responsibility for implementation of this CEMP and any changes should the understanding of site conditions change.

The commitment of the construction contractor toward environmental protection and management will be demonstrated by:

- The finalisation of the CEMP prior to construction.
- The final CEMP to be prepared in accordance with the South Australia Environmental Protection Agency (SA EPA) guideline (Ref: EPA 1095/24 Construction environmental management plan – updated April 2024)
- Authorisation of the CEMP by the Project Manager prior to construction.

- The communication of the plan's intent to the workforce through induction, display on notice boards and at project meetings.
- The provision of resources to implement and maintain the CEMP.
- The establishment of measurable objectives and regular reviews to ensure the suitability and effectiveness of the policy to operations.

### 3.3 Environmental Aspects

The potential environmental impacts along with mitigation strategies to minimise potential impacts are outlined **below**.

In assessing the potential off-site environmental impacts, the following should be noted:

- The site of the proposed renewable energy facility comprises farmland which is used predominately for cropping.
- There is an existing 132kV transmission line on the subject land and the proposed connection will transverse private land and road reserves.

The following provides the mechanism for the management of the environment during construction, having specific regard to:

- protection of native fauna
- protection of native flora
- pest plants
- pest animals
- fire prevention and emergency response on-site
- bushfire
- erosion and sediment
- aboriginal cultural heritage
- hazardous substances and spill prevention
- noise
- dust generation

#### 3.3.1 Air Quality

Air Quality	
Objective	Avoid and/or minimise air quality impacts during construction.
Legislation/Policy	<i>Environment Protection Act 1993.</i> <i>Environment Protection Regulations 2009.</i> <i>Environment Protection (Air Quality) Policy 2016.</i> Planning and Design Code (pursuant to the <i>Planning, Development and Infrastructure Act 2016</i> ).
Potential Impacts	Dust during construction from:

Air Quality	
	<ul style="list-style-type: none"> <li>• establishment of access driveways;</li> <li>• establishment of firebreaks;</li> <li>• excavation for pads and footings;</li> <li>• pile driving</li> <li>• excavation of pits</li> <li>• construction of buildings, fences and ancillary infrastructure;</li> <li>• storage of materials; and</li> <li>• construction compound(s).</li> </ul> Dust from vehicle movement. Exhaust fumes from construction vehicles.
<b>Mitigation</b>	Identify dust sensitive locations (residential dwellings etc) prior to construction activities occurring.
	Ensure dust generating activities are mitigated if conditions are not favourable (i.e., strong winds that would release dust off site).
	Dust controls would include the use of suppressants including water spraying as required. Water spraying would extend to access tracks, stockpiles and the sites being excavated for the construction.
	Limit bare earth exposure to that essential to the efficient and effective construction.
	Use vegetation cover, mulch covers, or other suitable methods will be adopted where possible.
	Rehabilitate or allow natural regeneration of bare areas as soon as the area is no longer needed for construction.
	Cover all loose loads for transport to and from the site.
	Maintain sealed public roads free of trafficked soil materials.
	Restrict vehicle travelling speed (<40km/h) on unsealed access tracks, within the site, where possible.
	All vehicles and equipment operated on the site will comply with regulatory emission standards.
	Minimise machinery idling times, as appropriate.

### 3.3.2 Cultural Heritage

Cultural Heritage	
<b>Objective</b>	Mitigate the risk of damage or disturbance of an unknown Aboriginal site or object of significance.
<b>Legislation/Policy</b>	<i>Native Title (South Australia) Act 1994.</i> <i>Aboriginal Heritage Act 1988.</i> <i>Heritage Act 1993.</i> <i>Heritage Places Act 1993.</i>
<b>Potential Impacts</b>	Damage to currently unknown Aboriginal sites, artefacts or archaeological features. There are currently no active native title claims or determinations or Indigenous Land Use Agreements (ILUA) for the project area.
<b>Mitigation &amp; Site Discovery Procedure</b>	Prior to construction review and incorporate the relevant recommendations of the Barngarla Determination Aboriginal Corporation (BDAC) cultural



Cultural Heritage		
	heritage survey (and/or a Cultural Heritage Management Plan) prepared with the first nations people into the final CEMP.	
	During the construction of the project, caution should be taken for all sub-surface disturbances including but not limited to roads, land clearing, construction and underground services.	
	Appropriate induction and awareness training will be given to all construction personnel in regard to Aboriginal Cultural Heritage.	
	Should any archaeological occurrences be located during work on the site, the Construction Contractor must take appropriate action in accordance with the Aboriginal Heritage Act 1988. This will involve implementation of the following procedures should a potential Aboriginal site or object be identified on the site during construction (or ongoing operation):	
<b>Potential Aboriginal Cultural Heritage Identified During Construction</b>		
A potential Aboriginal site has been identified by the work crew.	Cease all work within 50 metres of the discovery. Do not remove or touch anything from the area. Inform the site works manager. Identify whether any soil has been removed from the location and if possible have it returned.	
Site works manager to:	Photograph, with scale (pen, tape measure etc.) the discovered items and the immediate area. Record the location with GPS if possible. Secure and weatherproof the site from further disturbance. Identify any immediate threats to the site (e.g., construction activities, vandalism, water level). Consult with a specialist to determine the nature of the discovery and if there is bone whether it is human or not.	
If material discovered is not an Aboriginal site or object of significance	Work can continue at location.	
<b>If Material Discovered is an Aboriginal Site, Object of Significance or Human Remains</b>		
If bone is identified as human, immediately contact SA Police Tel 13 14 44. The area will be under the control of the SAPOL until further notice.	For other cultural material the archaeologist will manage the process and consult with the Traditional Owners. The Proponent should be involved in the consultation as well.	
	Object can be avoided during works.	Work can continue at location with measures implemented to avoid damage to the site or objects.
	Object cannot be avoided during works.	Refer to the DPS-AAR Aboriginal Heritage Fact Sheet: Discovery of Aboriginal Sites and Objects. Additional requirements will apply.

### 3.3.3 Water Quality, Erosion and Sedimentation

<b>Water Quality, Erosion and Sedimentation</b>	
<b>Objective</b>	Minimise erosion and sediment laden stormwater from leaving the site.
<b>Legislation/Policy</b>	<i>Environment Protection Act 1993.</i> <i>Environment Protection Regulations 2009.</i> <i>Environment Protection (Water Quality) Policy 2015.</i> <i>Stormwater Pollution Prevention, Code of Practice for the Building and Construction Industry.</i> Planning and Design Code (pursuant to the <i>Planning, Development and Infrastructure Act 2016</i> ).
<b>Potential Impacts</b>	Soil erosion can create scarring of the landscape, contaminate watercourses, lead to loss of vegetation and damage infrastructure. Contamination of surface water, including stormwater systems and public nuisance due to soil and materials on public roads.
<b>Mitigation</b>	<p>Minimise the loss of vegetation.</p> <p>Utilise existing driveways/access tracks on site for movement of vehicles wherever possible.</p> <p>Establish new driveways/access tracks with appropriate all-weather surface treatment for utilisation during construction and operation (as required).</p> <p>Grading to minimise earthworks and be consistent with the existing prevailing grade and landforms and to fall to existing drainage lines, to minimise changes to existing flow paths.</p> <p>Implement surface drainage measure to control runoff generated within the site. Existing flow paths and sheet flow conditions will be maintained to the extent practicable, with construction of diversion drains, channels and table drains to be minimised, to:</p> <ul style="list-style-type: none"> <li>• minimise soil erosion potential; and</li> <li>• minimise changes to flow regimes in receiving watercourses.</li> </ul> <p>Implement suitable sediment controls, such as rock rip rap where appropriate to armour earthwork batters and site drainage as needed for scour protection and to achieve stable waterways where flow concentrations cannot be avoided.</p> <p>Implement sediment fencing, hay bales filters, diversion swales and sediment basins, to minimise risk of sediment from earthworks exiting the site.</p> <p>Specific stormwater management measures for the substation area will include:</p> <ul style="list-style-type: none"> <li>• diversion of clean runoff from potentially oil-contaminated areas such as substation;</li> <li>• bunding of potentially oil-contaminated areas in accordance with relevant standards; and</li> <li>• provision of stormwater treatment device(s) to remove oil/grease, hydrocarbons and sediment from runoff prior to discharge to the downstream drainage system.</li> </ul> <p>Prepare a Soil Erosion and Drainage Management Plan (SEDMP) prior to construction with recommendations incorporated into final CEMP.</p> <p>Ensure sediment control measures are maintained regularly to ensure effective operation at all times.</p>

Water Quality, Erosion and Sedimentation	
	Stabilise cleared/constructed areas with suitable pasture grasses (or similar) at the earliest opportunity upon finalisation of the construction.
	Water will not be discharged from excavations unless water quality criteria are satisfied.
	Prior to leaving site, any vehicles driving on the public road should have tyres, wheel arches and tailgates brushed or washed down of dirt or mud as appropriate.
	Intercept and redirect runoff on the site to protect exposed areas.
	Stormwater runoff from buildings and pit lids will be captured in rainwater tanks for use on site, to minimise demand for imported water.
	Onsite substations shall incorporate bunded oil-contaminated areas and treatment devices to remove oil/grease, hydrocarbons and sediment from runoff prior to discharge to downstream drainage system.
	During operation ensure hydrocarbons from onsite substation are not discharged to stormwater system by separating clean and oil-contaminated runoff.
	All wastewater generated by the project during operations will be collected and transported offsite for disposal at a licensed facility; including firewater and any hydrocarbons captured at the substation site, to avoid potential discharge to receiving watercourses.

### 3.3.4 Hazardous Substances

Hazardous Substances	
<b>Objective</b>	Avoid and/or minimise impacts associated with the release of hazardous substances or materials.
<b>Legislation/Policy</b>	<p><i>Environment Protection Act 1993.</i></p> <p><i>Environment Protection Regulations 2009.</i></p> <p>EPA Guidelines for Bunding and Spill Management.</p> <p>Australian Code for the Transport of Dangerous Goods by Road and Rail 7th Ed, AS1940 and AS3833.</p> <p>Safety Data Sheets (SDS) information specific to the substance being handled and stored.</p> <p>AS 1940-2017: The Storage and Handling of Flammable and Combustible Liquids.</p> <p>AS 2022 Anhydrous Ammonia - Storage and Handling</p> <p><i>South Australian Dangerous Substances Act 1979.</i></p> <p><i>South Australian Dangerous Substances (General) Regulation 2017.</i></p>
<b>Potential Impacts</b>	Contamination of the environment with hazardous substances and/or materials.
<b>Mitigation</b>	All hazardous materials and hydrocarbons will be appropriately transported and stored during construction in accordance with relevant guidelines and regulations, to avoid release or impact to the environment. These guidelines primarily include the Australian Code for the Transport of Dangerous Goods by Road and Rail (Edition 7.8 or as updated), AS1940 and AS3833.

Hazardous Substances	
	Reduce onsite storage time of hazardous substances as much as possible. For example, only bring ammonia to site once the plant is constructed and dry commissioning has been completed and the system is ready to be charged with ammonia.
	Adequately supplied spill kits will be kept within the vicinity of the worksite where such hazardous materials are used and stored.
	Appropriate persons should be contacted as soon as practicable following detection of any release or non-conformance.
	HHS storage areas are clearly labelled.
	Site inductions will clearly inform contractors and visitors of HHS storage areas.
	The storage, usage and handling of HHS will be managed stored according to AS 1940 and AS 3833.
	Minor Storage quantities as per AS 1940 on open land will adhere to the following: <ul style="list-style-type: none"> <li>liquid will be kept at least 1.0 metre from any boundary, workshop, dwelling or protected place, body of water, watercourse or environmentally sensitive area;</li> <li>the ground around the store will be kept clear of combustible vegetation or refuse for a distance of at least 3.0 metres; and</li> <li>any potential flow of spillage will be prevented from reaching a protected place, watercourse or property boundary by such means as the use of natural ground slope, or the provision of a diversion channel, kerb or bund.</li> </ul>
	Safety Data Sheets (SDS) will be required for all hazardous chemicals kept on site. Procedures for mitigating specific impacts from materials will be governed by the appropriate SDS.
	A loss of containment of HHS will initially be controlled by bunding. Bunding and compound requirements are defined in section 5.8 of AS 1940. Bunding capacity will be the size of the largest storage vessel plus any fire water over a 20-minute period.
	Employees handling, transporting or utilising hazardous materials will be trained in emergency response procedures for spill events.

### 3.3.5 Noise

Noise	
Objective	Avoid and/or minimise noise and vibration emissions during construction works.
Legislation/Policy	<i>Environment Protection Act 1993.</i> <i>Environment Protection Regulations 2009.</i> <i>Environment Protection (Noise) Policy 2007</i> <i>Environment Protection (Commercial and Industrial Noise) Policy 2023</i> <i>AS2436 – 1981 "Guide to Noise Control on Construction, Maintenance and Demolition Sites".</i> <i>Planning and Design Code (pursuant to the Planning, Development and Infrastructure Act 2016).</i>

Noise	
Potential Impacts	Noise pollution leading to loss of amenity for adjoining residents. Vibration from movement of large machinery and compaction creating nuisance to adjoining residents.
Mitigation	<p>Identify the sensitive noise receptors and plan site establishment in a manner that maximise noise attenuation.</p> <p>Construction activities to be undertaken must be compliant with requirements of the Environment Protection (Commercial and Industrial Noise) Policy 2023</p> <p>The adoption of all reasonable and practicable noise mitigation measures during daytime hours which may include the following:</p> <ul style="list-style-type: none"> <li>• only operating construction plant and associated activities (in outdoor areas) after 7.00 am and before 7.00 pm;</li> <li>• construction of temporary acoustic barriers for activity in close proximity to non-associated stakeholder residences;</li> <li>• the fitting of broadband reversing signals to vehicles which do not leave the site; and</li> <li>• administrative measures such as inspections, scheduling and providing training to establish a noise minimisation culture for the works.</li> </ul> <p>Plan the site establishment and traffic routes to minimise reversing alarms on plant and equipment.</p> <p>Provide an induction for all project team members for noise and vibration management prior to the commencement of works.</p> <p>Ensure all equipment is well maintained and in good working order.</p> <p>Undertake work during standard construction hours (refer Section 4.2.4 below).</p> <p>If generators or such noisy machinery is utilised, locate this equipment as far as practical from the nearest residential premises not located on the site.</p> <p>Plant and equipment not in use to be shut down.</p> <p>Maintain complaints register and respond to any complaints received.</p> <p>The site should be planned to minimise the need for reversing of vehicles.</p> <p>All mechanical plant is to be silenced by the best practical means using current technology. Mechanical plant, including noise-suppression devices, should be maintained to the manufacturer's specifications. Internal combustion engines are to be fitted with a suitable muffler in good repair.</p> <p>Special assessment of vibration risks may be needed, such as for pile-driving or works structurally connected to sensitive premises.</p> <p>All equipment to be operated in appropriate and efficient manner.</p> <p>Simultaneous operations of noisy plant operating adjacent to sensitive receivers will be avoided.</p> <p>Where noise exceeds accepted levels and cannot be avoided, consideration will be given to applying respite periods for nearby residences.</p> <p>Any essential work during the night-time period will be inaudible at dwellings. Inaudibility is defined as not exceeding 30dB(a) outside any dwelling. This may be exceeded in the event of an emergency situation.</p>



### 3.3.6 Traffic

Traffic	
Objective	Avoid and/or minimise impacts associated with construction traffic moving to and from the site on nearby sensitive receptors including residential dwellings, the townships of Cleve and Rudall, and/or flora and fauna.
Legislation/Policy	<i>Road Traffic Act 1961.</i> <i>Road Traffic (Road Rules – Ancillary and Miscellaneous Provisions) Regulations 1999.</i>
Potential Impacts	Disturbance to nearby sensitive receptors including residential dwellings and/or wildlife along the construction haul route to and from site. Possible property damage through vibration impacts along haul route to and from construction site. Accelerated deterioration of local road network. Increased potential for wildlife vehicle strike on haul roads to and from site.
Mitigation	Utilise Birdseye Highway and major local sealed roads for vehicles to and from the site, as practicable. Limit vehicle access to existing access points or those approved as part of the development application to ensure no additional clearance of road side vegetation occurs. Upgrade the intersection of Birdseye Highway and Pine Corner Road in accordance with the Traffic Impact Assessment as contained in the development application. Concurrent with the finalisation of the CEMP, a Traffic Management Plan be prepared to finalise the route for B-Double vehicles and Over-size and Over-mass (OSOM), vehicles with a view of minimising impact on townships, nearby sensitive receivers and unsealed local roads. Minimise movement of construction vehicles to and from the site outside of the hours of 7.00 am to 7.00 pm Monday to Saturday. Traffic movements to occur in accordance with conditions laid out in the Traffic Management Plan.

### 3.3.7 Flora and Fauna

Flora and Fauna	
Objective	Avoid clearance of native vegetation and adverse impact on fauna.
Legislation/Policy	<i>Native Vegetation Act 1991.</i> <i>Native Vegetation Regulations 2015.</i> <i>Environment Protection and Biodiversity Conservation Act 1999.</i> <i>Natural Resources Management Act 2004.</i> <i>National Parks and Wildlife Act 1972.</i> <i>AS4970-2009 Protection of trees on development sites.</i> <i>Planning and Design Code (pursuant to the Planning, Development and Infrastructure Act 2016).</i>
Potential Impacts	Destruction of flora and fauna.
Target	No impact (removal or disturbance) to native vegetation outside of approved clearance boundaries (as contained in the development application/Native Vegetation Data Report).

Flora and Fauna	
Mitigation	Limit vegetation clearing to that required for construction and safety and where possible, retain established trees and native shrub under storeys.
	All vegetation clearing or disturbance is approved and undertaken in compliance with permits and/ or site management plans.
	Any payment into the native vegetation fund is done so in accordance with the relevant assessment methodology and associated standards.
	Disturbed/exposed areas are stabilised and revegetated progressively as appropriate.
	Revegetation and screen landscaping to occur at the earliest opportunity during the construction phase.
	Cease work immediately in relevant areas if any previously unknown threatened flora species are encountered.
	Vegetation clearing methods shall be conducted in a manner that encourages natural regeneration of rootstock, minimises land disturbance and maintains soil stability and line clearance.
	Protect scattered trees adjacent to areas of construction by the following measures (if/as required): <ul style="list-style-type: none"> <li>• Install protective fencing around the identified tree. The fencing should be chain wire panels and compliant with AS4687-2007 Temporary fencing and hoardings.</li> <li>• Shade cloth or similar material should be attached around the fence to reduce dust, other particulates and liquids from entering the protect area</li> <li>• Minimise excavation, construction activity, grade changes, surface treatments or storage material within and adjacent to the tree(s)</li> </ul>

### 3.3.8 Weeds and Pest Management

Weeds and Pest Management	
Objective	Avoid the introduction of new weeds (previously not known to occur in the area). Avoid the spread of declared and environmental weeds. Prevent an increase in pest animal species.
Legislation/Policy	<i>Native Vegetation Act 1991.</i> <i>Native Vegetation Regulations 2015.</i> <i>Environment Protection and Biodiversity Conservation Act 1999.</i> <i>Natural Resources Management Act 2004.</i> <i>National Parks and Wildlife Act 1972.</i>
Potential Impacts	Potential introduction and/or spread of weeds and pest plants.
Target	No increase in weed or pest animal occurrence within or adjacent the Project Area.

Weeds and Pest Management	
Mitigation	Any controlled weeds and pest plants within the existing pasture to be removed or destroyed where possible prior to construction commencing.
	Should any controlled weeds or pest plants be identified, prevent their transmission by vehicles by cleaning vehicles before exiting the site.
	Any incoming or outgoing material will be checked for pest or weed species prior to being transported to and from the subject site.
	Locate equipment and materials storage areas in locations devoid of native vegetation.
	Ensure construction compounds are kept neat and tidy at all times.
	Ensure waste bins are emptied water regularly and covered where evidence of vermin exists.
	Replacement/rehabilitation of disturbed pasture immediately following construction works where appropriate.
	Weed management practices and hygiene procedures will be undertaken in accordance with a Weed/Pathogen Management Plan to ensure that weed species are not introduced to the site or further spread within or off-site.

### 3.3.9 Fire Prevention and Protection

Fire Prevention and Protection	
Objective	To reduce the risk of fire and prevent damage in the event of a bushfire. To prevent or inhibit the outbreak of fire on the land; and <ul style="list-style-type: none"> <li>to prevent or inhibit the spread of fire through the land;</li> <li>to protect property on the land from fire; and</li> <li>to minimise the threat to human life from a fire on the land.</li> </ul>
Legislation/Policy	<i>Bushfire Emergency Services Act, 2005.</i> <i>Planning and Design Code (pursuant to the Planning, Development and Infrastructure Act 2016).</i> <i>Victorian Country Fire Authority – Design Guidelines and Model Requirements – Renewable Energy Facilities (Version 4 August 2023)..</i>
Potential Impacts	Damage to equipment and danger to life.
Mitigation	Appropriate persons should be contacted as soon as practicable following detection of a fire, as detailed in the Emergency Management Plan prepared in coordination with the CFS and Incident Management Plan.
	Vegetation management during the Fire Danger Season (FDS): <ul style="list-style-type: none"> <li>generally maintain grass (ground cover) to no more than 10 centimetres in height and leaf litter no more than 10-millimetres-deep for a distance of 10 metres around buildings;</li> <li>a fuel reduced area of 5.0 metres width should be maintained around the perimeter of power plants, compounds and substation type facilities;</li> <li>there should be no long grass or deep leaf litter in areas where plant and heavy equipment will be working; and</li> <li>all plant and mobile equipment should carry at least one (1) 9 Litre Water Stored Pressure fire extinguisher with a minimum rating of 3A.</li> </ul> <p>In the event of a fire, provision of water supply should be available and easily identifiable by emergency response personnel to avoid hindering fire suppression efforts. The water supply to include:</p>

### Fire Prevention and Protection

- static water storage tanks of appropriate size and location near entry points (if/as required) in consultation with the CFS ;
- 50,000 litre tank at each power block;
- Water storage tanks installed with compliant AS 2419.1-2005;
- Fire hydrant installations – System design, installation and commissioning; and
- Capability of refilling water tanks within 24 hours of use via ‘street’ connection and/or installation for refill by water carrier.

All water supply locations should be marked on a site plan and be available to the CFS.

Emergency vehicle access to incorporate:

- Access gates to be provided on boundary roads;
- A 10 metre wide perimeter fire break;
- Construction of all internal roads to a minimum of 4 metres or trafficable width with a 4 metre vertical clearance;
- all internal roads to be constructed of an all-weather material capable of accommodating a vehicle of 15 tonnes; and
- provision of emergency vehicle access between fields of heliostats.

All vehicle access points should be marked on a site plan and be available to the CFS.

Fire breaks to be established and maintained as follows:

- 10 metre fire break around control rooms, power plants, compounds and substation;
- the area between the fire break and the perimeter fence/vegetation screen will be maintained grass to a maximum, of 100 millimetre length during the fire danger period; and
- Heliostats will be setback from the boundary to ensure that no part is within 10 metres of the Project boundary.

The inverters, substation and operations and maintenance areas are all provided with non-combustible surfaces along with Asset Protection Zones around them that also assist with reducing fire spread.

Vehicle movement within the site shall have a maximum speed of 40km/h.

An Emergency Management Plan will be prepared concurrent with the final CEMP and will include:

- a bushfire management plan that is established prior to commencement of construction;
- exact locations of the dedicated water tanks at site ;
- Standard Operation Procedures (SOP’s) established for management of fire risk;
- the emergency contact number (readily available online and is always attended by trained staff);
- key emergency contacts list and emergency contact protocols are available to the CFS, allowing for clear and timely communications to and from the CFS;
- site mapping with locations of water supply, access information, routes, gates and locks;
- implementing and testing bushfire response plans;
- providing appropriate emergency response training and equipment to all staff and contractors; and

### Fire Prevention and Protection

- during the construction phase, the developer should provide periodical updates to the CFS as the project is progressively built.

Prior to commissioning the facility, operators should offer a familiarisation visit and explanation of emergency procedures to the CFS. Information in relation to the specific hazards and fire suppression requirements of the site should be provided to the CFS during this visit. In addition, a schedule for ongoing site familiarisation to account for changing personnel, site infrastructure and hazards should be developed in conjunction with the local CFS Brigade.

DRAFT



<b>Incident Management</b>	
<b>Objective</b>	To ensure that there is a procedure for managing and reporting incidents should they occur.
<b>Legislation/Policy</b>	<i>Work Health and Safety Regulations, 2012.</i> <i>Work Health and Safety Act, 2012.</i>
<b>Potential Impacts</b>	Reoccurrence of incidents if not managed effectively.
<b>Mitigation</b>	<p>The general procedure to identify and address incidents if they occur is:</p> <ul style="list-style-type: none"> <li>• identify incident or non-conformance;</li> <li>• immediately rectify if safe to do so;</li> <li>• inform appropriate persons, including internal and external stakeholders;</li> <li>• complete incident register and determine appropriate corrective actions; and</li> <li>• implement corrective actions.</li> </ul>

DRAFT

## 4. CEMP Implementation

### 4.1 Structure and Responsibilities

Whilst environmental management is the responsibility of everyone on the Project, various team members have specific roles in relation to environmental management. This section outlines the roles and responsibilities for key environmental personnel.

#### 4.1.1 Responsibilities

##### Project Manager (PM)

The PM has the following particular responsibilities under this CEMP:

- communicate clear expectation in relation to environmental behaviour and performance to the Project team;
- ensuring that the requirements of this CEMP are fully implemented;
- reviewing environmental management reports and plans prepared by the Environment Manager;
- overall coordination and responsibility of dealing with issues and concerns and ensuring a record of all environment related complaints is maintained;
- ensuring that all Site Supervisors are familiar with the CEMP and their responsibilities contained within the plan; and
- delegating authority to act in the event of an emergency and to allocate the required resources.

##### Environment Manager

The Environment Manager has the following responsibilities under this CEMP:

- assist with the development, implementation and monitoring of the CEMP;
- liaison with relevant agencies and authorities;
- co-ordination of specialists as required;
- arranging necessary training of personnel into Project environmental matters;
- reviewing as required construction plans and method statements to check that adequate environmental management measures are incorporated into the planning of particular construction processes;
- establishing and maintaining this CEMP in accordance with the requirements of the contract and such that it complies with all applicable environmental regulations;
- ensuring reports are prepared and submitted to relevant authorities and Project personnel as required; and
- reporting on environmental performance to identified objectives and targets.

##### Site Supervisors

The Site Supervisors have the following responsibilities under this CEMP:

- ensure through the continual daily surveillance of the Project works that subcontractors and all personnel onsite comply with the requirements of the CEMP, plans and environmental procedures;
- have regard to weather conditions when programming daily works activities (for example vegetation removal, excavation works etc);
- report environmental incidents (actual/potential) to the Project Manager, and Environment Manager and assist in resolution;
- participate in any internal or external environmental inspections and audits if requested; and
- carry out maintenance on environmental controls as required.

#### Site Engineers

Site Engineers have the following responsibilities under this CEMP:

- preparation of work type/area specific procedures, Safe Work Method Statements, Vegetation Impact Permits and other relevant documentation in close liaison with the Environment Manager;
- ensuring that Supervisors and sub-contractors are aware of the environmental procedures and the need to effectively implement the procedures;
- supervision of workforce and sub-contractors with respect to environmental compliance;
- monitoring and maintaining the works in conformance with the environmental procedures; and
- managing environmental incidents.

#### Other Personnel Including Sub-Consultants and Subcontractors

Other personnel including sub-consultants and subcontractors have the following responsibilities under this CEMP:

- compliance with site induction requirements for all aspects of environmental management;
- compliance to the CEMP and all plans and procedures as they apply to their operations on the site;
- reporting all environmental incidents to the Supervisor or Site/Project Engineer immediately; and
- following instructions issued by the Project team and supervisory personnel as they relate to environmental management and incidents.

## **4.2 Training, Awareness and Competence**

Four (4) main forms of training will be provided on-site:

- site induction, including roles and responsibilities sheets - introduction to the project and assigned tasks regarding the CEMP;

- environmental awareness training – environmental awareness training will be tailored to the actual site and job description to allow personnel to complete assigned tasks regarding the CEMP;
- bushfire management training; and
- “toolbox” training incorporating occupational health and safety.

Records of induction and training will be kept on a database including the topic of the training carried out, dates, names and trainer details. Inductees will be required to sign-off that they have been informed of the environmental issues and that they understand their responsibilities. The Site Environmental Manager will review the program and monitor its implementation.

#### 4.2.1 Environmental Inductions

Adequate training and instruction will be provided to all personnel to allow them to perform their duties whilst ensuring the environmental impacts associated with the Project are minimal.

The Project Manager will ensure all subcontractor personnel attend an induction, prior to commencement of work.

There will be two (2) levels of induction. Level one will be for visitors, irregular delivery drivers and others who will remain in the company of a fully inducted employee. The level two induction will be required for all permanent employees and subcontractors working on the site. The level two induction will include but will not be limited to the following topics:

- the CEMP (purpose, objectives and key issues);
- legal requirements including applicable legislation, conditions of environmental licences, permits and approvals, due diligence, general environmental duty, and duty to notify and potential consequences of infringements;
- environmental policies;
- environmental management strategies and controls for areas such as erosion and sediment control, water discharge, waterway protection, clearing, fauna rescue, noise, refuelling and waste disposal;
- bushfire management plan;
- promoting awareness of significant environmental issues and personnel responsibilities (such as environmentally sensitive areas, limits of construction, identification of exclusion zones, cultural heritage issues etc);
- reporting of environmental incidents - which will include the type of events to be reported, how an event is reported and to whom the event is reported;
- emergency procedures - which will cover the procedure for an emergency and for evacuation of the site in the event of a catastrophic situation arising; and

- contingency plans – for example for 'hydrocarbon/chemical spills' and the 'discovery of previously unidentified aboriginal heritage sites'. Questions pertaining to environment and heritage will be included in the site induction questionnaire to validate employees' understanding of the induction content.

#### **4.2.2 Environmental Awareness Training**

Staff and sub-contractors working on site will be provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. This training will generally be prepared and delivered by the Site Environmental Manager. Environmental staff and project environmental specialists may also deliver specific environmental training.

#### **4.2.3 Toolbox Training**

A set of toolbox topics will be devised as training a tool for presentation at toolbox meetings to raise awareness of environmental aspects and issues associated with construction projects. Each topic consists of a five-minute information poster/presentation, and discussion session.

Toolbox training will help to ensure that relevant information is communicated to the workforce and that feedback can be provided on issues of interest or concern. Toolbox training will generally be prepared and delivered by the Site Environmental and Quality Manager, Project Engineers or Site Supervisors.

Topics covered include erosion and sediment control, dust, waste management, hydrocarbons, flora / fauna, and any other Project-specific issues such as the efficient use of plant and materials; noise minimisation; protecting waterways and riparian zones; wastewater control; bushfire management; management of contaminated soil; work methods; occupational health and safety and general site issues.

#### 4.2.4 Hours of Work

Having regard to the location of the subject site in a sparsely populated regional area, with most areas of the site well separated from sensitive receivers, and having regard to the scale of the proposed facility, construction activities will occur 24 hours per day, seven days a week. To ensure that the construction activities do not have adverse impacts on sensitive receivers, acoustic assessment of construction activities proposed will be undertaken to determine the specific activities and areas of the site where construction activities need to be limited to the hours of 7.00am to 7.00pm Monday to Saturday.

DRAFT



## **5. Checking and Corrective Action**

A systematic monitoring and measuring process involving inspection and testing fulfils a threefold purpose to:

- ensure conformity to contractual requirements;
- ensure environmental performance complies with legislative requirements and in accordance with Project requirements; and
- provide an ongoing risk management process and early warnings of hazards.

Environmental monitoring and reporting process on this Project shall include:

- monitoring;
- inspections;
- auditing; and
- reporting.

Project team personnel including the Environment Manager, Site/Project Engineers and Site Supervisors, are responsible for undertaking daily monitoring of the Project as well as being involved in formal environmental inspections.

The Environment Manager shall review all sustainability and environmental monitoring results, non-compliance and corrective and preventative actions as they are produced/occur.

Any results outside of relevant limits/targets shall be reported immediately to the Project Manager, who shall take appropriate action and advise appropriate personnel and authorities.

### **5.1 Internal Inspections/Monitoring**

Environmental monitoring programs for water quality, noise, site discharges, as well as matters relating to flora and fauna and heritage, are addressed in sub plans. Additional monitoring may also be required under specific work packages. Each environmental monitoring program includes details on the proposed timing, frequency, locations and responsibility of monitoring and actioning systems so that environmental monitoring information is used to resolve identified problems effectively and quickly. This includes measures for prompt use of monitoring information by Project staff and identification of Project environmental exceedance levels and proposed corrective action and timing to address exceedances.

Further, an Environmental Inspection Checklist will be completed by the Environment Manager for documenting weekly site inspections for the purpose of verifying compliance with the CEMP, licences, permits and approvals.

Where inspection by the Site Environmental Manager or delegate determines that measures are not effective the Project will implement corrective and preventative measures.

## **5.2 Control of Measuring and Testing Equipment**

All inspection, measuring and testing equipment (including newly acquired test equipment) used for inspection and acceptance purposes shall be controlled, calibrated and maintained, as per the relevant manufacturer's specifications. This also includes such equipment used by sub-contractors.

Measuring equipment for inspection and product conformance purposes shall be calibrated at prescribed intervals against certified equipment having a known relationship to nationally recognised standards. Any equipment identified as having doubtful accuracy or precision shall be removed from use and calibrated. Where any inspection, measuring and test equipment is found to be out of calibration, the validity of the previous inspection results shall be assessed and documented.

## **5.3 Reporting**

The Environment Manager is responsible for reporting on the environmental performance of the Project. All formal reports shall be approved by the Project Manager prior to distribution.

### **5.3.1 Weekly Environmental Reports**

The Environment Manager shall record environmental inspections on the environmental inspection checklist and report any environmental observations, trends, observations, improvements, requests, corrections and upcoming events and activities verbally through the weekly construction meeting.

### **5.3.2 Monthly Environmental Reports**

A written environment report, each month shall be compiled by the Environment Manager and included in the Project monthly reporting containing information such as:

- a status of environmental activities such as monitoring and surveillance of controls, inspections, testing and incidents associated with the work during the preceding month;
- environmental good news stories;
- complaints, infringements and penalties incurred;
- all environmental incidents;
- status of environment implementation and document preparation/approval;
- status of all non-conformances, detailing preventative actions taken to prevent reoccurrence of those incidents/non-conformances; and
- the results of environment reviews and audits (internal and external) undertaken during the preceding month.

## **5.4 Auditing**

### **5.4.1 Internal Audits and Inspections**

Internal audits will be completed within the first three (3) months of start-up and thereafter every six (6) months (as a minimum). An audit report register shall be maintained. Internal environmental audits shall include:

- internal audits to ensure implementation of the Project environmental processes; and
- regular surveillance during the construction phase and ensure independent three-monthly audits.

Results of the audit shall be documented and brought to the attention of the personnel having responsibility for the area audited and reported to the Project Manager within five (5) working days of finalisation of the audit. For any observations or non-compliances found, corrective actions shall be recorded in the Environmental Inspection Checklist and addressed in a timely manner.

### **5.4.2 External Audits and Inspections**

External (independent) audits will be undertaken three (3) months from the commencement of construction and then at twelve monthly intervals. All external audits will be undertaken in accordance with ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing.

Results from external audits are to be reviewed by the Project Manager and any necessary corrective actions assigned to ensure appropriate and timely closeout.

## **5.5 Incident and Non-Conformity**

An incident can be defined as an unwanted event which has an adverse effect on the environment. A non-conformance can be defined as a failure to undertake a task in the required manner. This may not lead to an incident, and if this is the case may be considered a near miss.

The manner in which tasks are required be completed is detailed in various Project plans, legislation, Project quality systems, etc.

The incident register must be completed by parties involved in the incident or non-conformance within 24 hours, once immediate required mitigation actions are completed.

This process must include an investigation or review of the incident to identify any further appropriate corrective actions required. Completed incident report forms must be signed by those documenting the report as well as by the Construction or Operations Manager.

## **5.6 Implement Corrective Actions**

Corrective actions identified in the incident investigation and review should be implemented as soon as practicable, undertaken or overseen by the responsible party as listed in the incident register.

## 5.7 Complaints

Complaints from any source (for example, public or government authorities) relating to the environment will be registered using a complaint report and the complaint investigated by the Environmental Manager in consultation with the Project Manager and actions will be taken to enable satisfactory closeout.

An environmental complaints register will be established and maintained by the Environmental Manager who will receive, log, track and respond to complaints within 24 hours. In the case of an emergency, potential pollution/environmental incident or non-compliance, the complaint will be responded to immediately.

The following details will be recorded in the register:

- date and time;
- type of communication (telephone, letter, meeting etc);
- name, address, contact number of complainants;
- nature of complaint;
- action taken in response including who the complaint was referred to (if not resolved immediately); and
- details of any monitoring undertaken to confirm that the complaint has been satisfactorily resolved.

## 5.8 Emergency Preparedness and Response

Appropriate persons should be contacted as soon as practicable following detection of an incident. This includes but is not limited to those listed in the below table.

**Table 2: Emergency Contact Details**

CONTACT	PHONE NUMBER
Project Supervisor	To be determined
Police	131 444 / 000
CFS	000
Ambulance	000
District Council of Cleve	08 8628 2004
Environment Protection Agency	08 8204 2004
Wildlife SA	TBC

### 5.9 Document of Records

Project records, including pertinent subcontractor Project records, shall be maintained to provide evidence of the effective operation of the environmental management system. Such records shall include, but are not limited to:

- correspondence to/from interested parties;
- permits, licenses and approvals;
- induction register and induction training records;
- environmental incidents, non-conformances and complaints;
- inspection reports, checklists, diary entries;
- monitoring results;
- cultural heritage activities;
- waste measurement and tracking records;
- internal and external inspections and audits; and
- any other record identified within the CEMP.

## **6. Review and Continuous Improvement**

This CEMP shall be reviewed every six (6) months or in response to a major environmental incident by the Environment Manager with assistance from the project team. It shall be updated accordingly, and any changes to it shall be communicated to the project team and maintained in a document control register. If any of these changes are to impact the construction staff, they shall be informed of the relevant changes during a toolbox talk.

DRAFT