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**NEOEN**



GE Renewable Energy



Title of the Report

WASTE MANAGEMENT PLAN



# **Waste Management Plan**

**Goyder Wind Farm**

**Green Light Contractors, Elecnor  
Group**



succession  
ecology

## PROJECT SPECIFICATION

<b>Document to:</b>	Green Light Contractors, Elecnor Group
<b>Project Manager:</b>	Briony Horner
<b>Prepared by:</b>	Briony Horner and Rebecca Phyland
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Succession Ecology staff involved in this project were:

- Rebecca Phyland (Research and Drafting)
- Briony Horner (Management and Review)

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## ACRONYMS

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<b>CEMP</b>	Construction Environment Management
<b>DNF</b>	Decision notification form
<b>EPA Act</b>	Environment Protection Act (SA)
<b>EWMS</b>	Environmental Work Method Statement
<b>GLC</b>	Green Light Contractors
<b>GWF</b>	Goyder Wind Farm
<b>MW</b>	Mega Watts
<b>PV</b>	Photo Voltaic
<b>VENM</b>	Virgin Excavated Natural Material
<b>WMP</b>	Waste Management Plan

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# 1. INTRODUCTION

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## 1.1 Background

The Goyder South Hybrid Renewable Energy Facility, to be developed south of Burra (Figure 1), is a hybrid power station comprising up to 1,200MW of wind generation, up to 600MW of solar PV generation and up to 900MW/1,800MWh of battery storage. As well as providing a significant injection of renewable energy generation for the State, the proposed connection point near Robertstown means that the project's large-scale battery would be in an ideal position to inject emergency power and fault current into the South Australian grid in the event of a fault impacting the proposed SA-NSW interconnector and enable the continued stable operation of the South Australian grid in any subsequent separation from the NSW grid.

Neoen Australia Pty Ltd has sought Development Authorisation for the Goyder South Hybrid Renewable Energy Facility (Goyder South) pursuant to section 49 of the *Planning, Development and Infrastructure Act 2016* (SA). Approval was issued by the South Australian Minister for Planning and Local Government and Planning, dated 3 March 2021. Neoen is also submitting applications under the relevant legislation as a concurrent process with the Development Application to address all regulatory requirements for the project.

The project has been divided into three separate stages, each comprising 400MW wind, 200MW solar and 300MW/600MWh storage. The size and composition of each stage depends on the size and type of the demand from electricity customers. This will be communicated through approved engineering plans prior to site works commencing for each stage. Given the scale of the project stages, the development timeframes will be structured on a 'rolling' basis with construction of the entire project to be completed within 12 years from the date of the approval.

*Green Light Contractors* (The Contractor) have been engaged as the Contractor to carry out the Goyder Wind Farm (GWF) aspect of this development, being Stage 1 (Figure 2). These works will be divided into two stages (1A and 1B), 38 and 37 turbines respectively.

A Construction Environmental Management Plan (CEMP) has been developed for GWF Stage 1 in response to legislative and approval requirements. This document outlines the environmental management and mitigation measures, associated with the construction phase of the project. The primary objective of the CEMP is to reduce any associated adverse environmental impacts and satisfy regulatory requirements. It provides a framework for actions, responsibilities and protocols associated with environmental management with which the Proponent and their Contractors are required to adhere. A series of sub-plans (including this Waste Management Plan) describes additional details for implementation of mitigation actions on the project site.

## 1.2 Purpose

This Waste Management Plan (WMP) describes the potential wastes generated from the construction phase of the GWF Stage 1 and provides a framework for its management. It addresses general waste, contamination issues and hazardous waste management. Where wastes are expected to be generated during construction mitigation and/or management measures are described and will be implemented by the GLC to avoid or minimise any potential impacts to human and environmental values.

## 1.3 Objectives

The objectives of this plan are to:

- Identify the relevant legislative and regulatory requirements guiding waste management strategies.
- Describe the waste streams expected to be generated during construction.
- Define the waste management hierarchy to be used and identify the management measures that will be implemented to support this hierarchy.

- Develop a waste management performance metric with nominated standards and indicators to be identified in an auditing schedule.

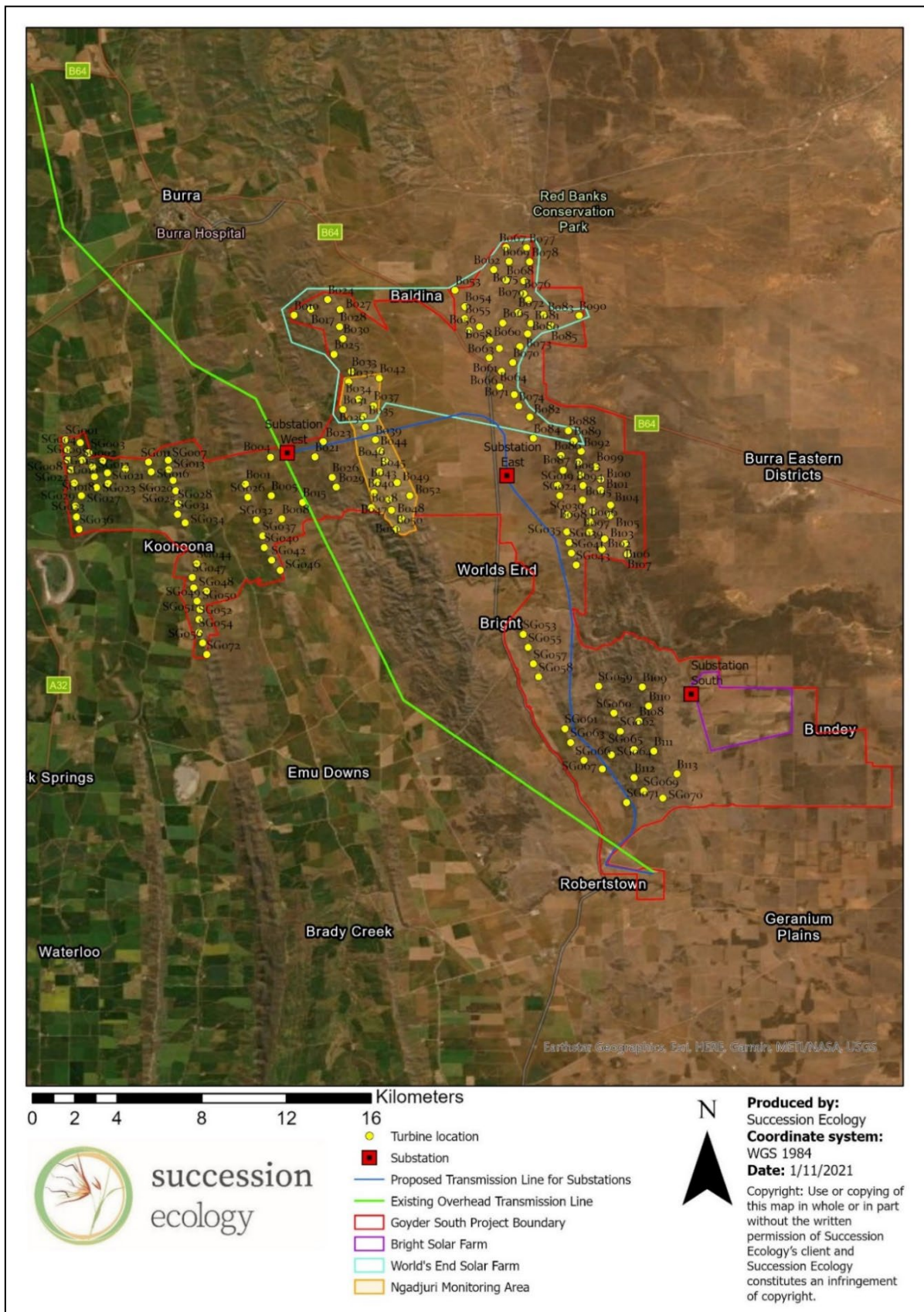


Figure 1: The Goyder South Hybrid Renewable Energy Facility, located south of Burra, including wind, solar and battery storage.



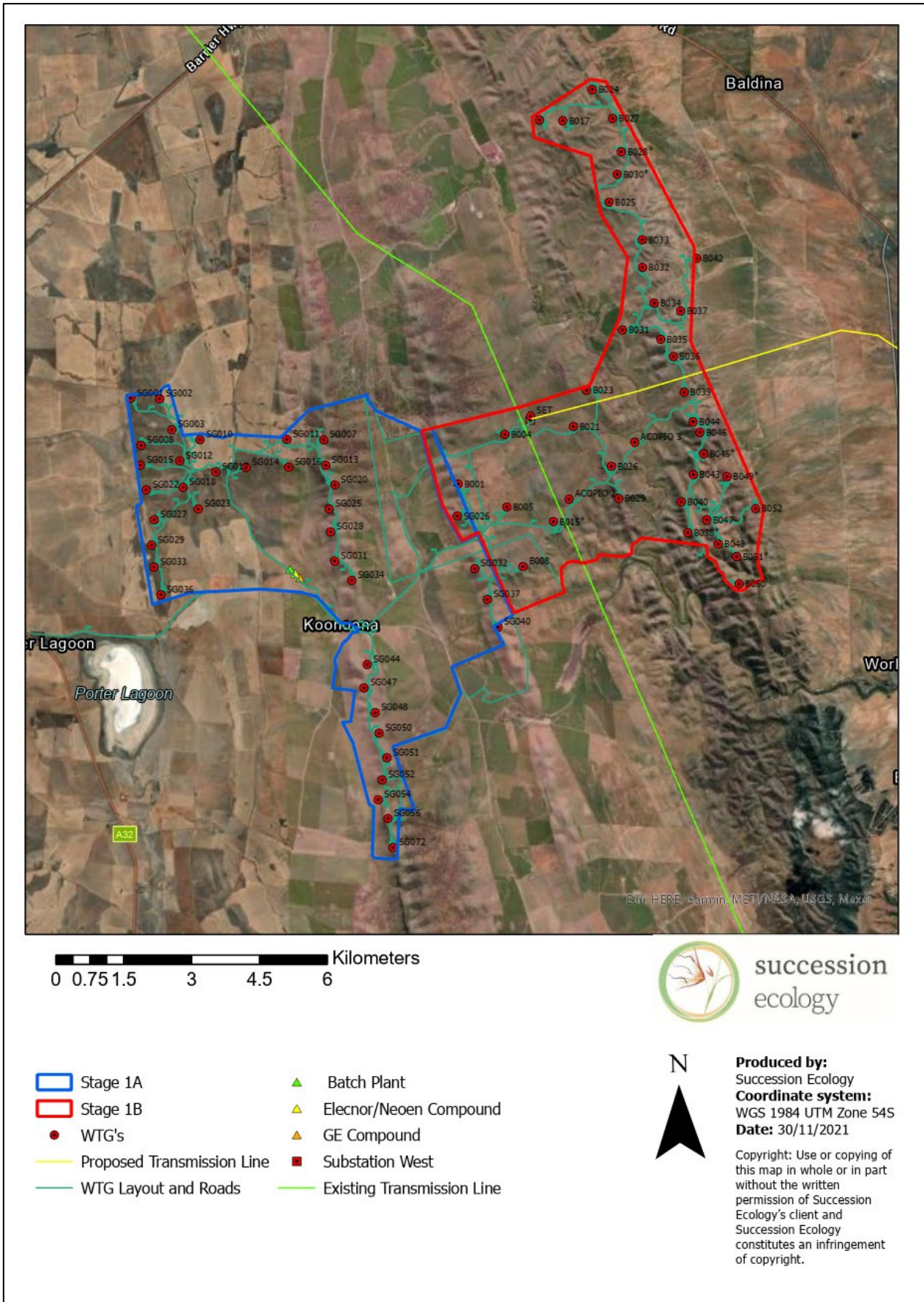


Figure 2: Goyder Wind Farm Project Area and Proposed Turbine Layout.

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## 2. WASTE MANAGEMENT REQUIREMENTS

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### 2.1 Regulatory and Legislative Requirements

Waste management during the construction of the GWF Stage 1 is governed by regulatory requirements (Table 1) and commitments within Neoen's Development Application and the Decision Notification (DNF) Conditions for the GWF Stage 1 as issued by the South Australian Minister for Planning and Local Government and Planning, dated 3 March 2021.

Table 1: Legislation and standards used to inform the CEMP.

Element	Legislative and other requirements
Waste Management	<p><i>Environment Protection Act 1993 (EPA Act) (SA)</i></p> <p><i>Environment Protection (Waste to Resources) Policy 2010 (SA)</i></p> <p><i>South Australian Public Health (Wastewater Regulations) 2013 (SA)</i></p> <p>DNF condition 20: No waste will be buried on-site nor burnt on-site.</p> <p>DNF condition 21: Fuels, chemicals, lubricants and any other hazardous materials likely to cause environmental harm will be contained on-site in an appropriately banded containment system, in accordance with EPA requirements.</p>

## 2.2 Environmental Management System

The waste management methods used for GWF Stage 1 will be implemented under GWF Environmental Management System (EMS). This system is defined in the CEMP and presented in Figure 3. This diagram demonstrates the position of the WMP as an Environmental Management Sub-plan in the EMS management structure.

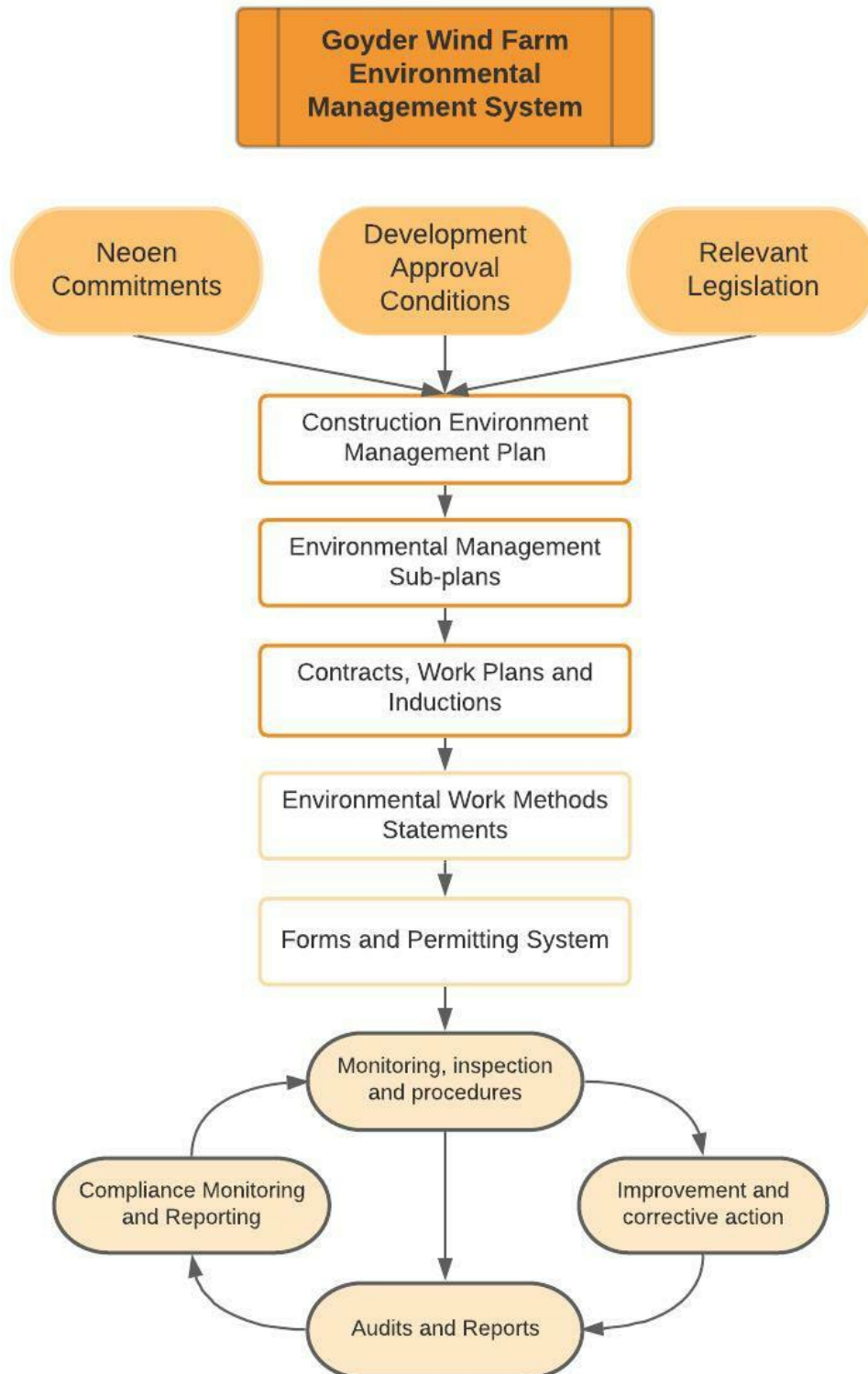


Figure 3: The Goyder Wind Farm Environmental Management System Structure

## 2.3 Waste Management

A Waste Management Hierarchy will be implemented with an aim to avoid, reduce, reuse, repair, recycle, recover and dispose (Figure 4). This is the foundation of the *Environment Protection (Waste to Resources) Policy 2010* in South Australia (W2R EPP). The method will be used to promote waste avoidance and reduction and to encourage resource recovery and efficiency. All waste management will be assessed against this hierarchy, considering strategies from the most preferred to the least. Where waste cannot be avoided, waste materials will be segregated by type for collection and removal (for processing or disposal) by licensed contractors.



Figure 4: Waste management hierarchy (Source: EPP W2R 2010)

In line with South Australia's Waste Strategy 2020-2025 (Green Industries SA 2020) GLC recognises that the waste management hierarchy is not a closed system and that 'leakage' from the system, or fugitive waste may escape as litter, debris or contaminants. As such all management and mitigation measures will:

- Ensure segregation of materials on the construction site to increase waste diversion of uncontaminated materials.
- Develop and implement disposal plans for the demolition of buildings and structures.
- Provide evidence of destinations of waste and excavated materials (e.g., reporting and visual evidence of volumes and percentages of waste materials; and disposal receipts) and report these to the Environment Protection Authority and relevant council.
- Embed waste management and deconstruction practices in design, construction, and deconstruction phases of the project.
- Encourage the responsible use of secondary materials such as concrete, aggregates, and fill materials.
- Utilise sustainable building materials where possible.
- Ensure adaptive reuse and retrofitting of existing building stock (including portable structures) where possible.
- Implement standard operating procedures to encourage reuse of construction materials where possible.
- Undertake planning in response to disaster and other disruptive events to ensure continuity of waste management services and/or adapting to changed waste management requirements.

## 2.4 Potential impacts - Waste

Potential impacts to the environmental values and wider rural community may result from:

- Excessive waste generation
- Excessive use of natural resources
- Inefficient use of resources
- Improper management of wastes generated during construction for GWF Stage 1.
- Release of waste (controlled or uncontrolled) causing contamination of air, land, surface or groundwater
- Increase in vermin and pests

### 3. WASTE STREAMS

Generation of waste will occur throughout the construction of GWF Stage 1. The waste generated will be solid and liquid wastes, which can be broadly classified as:

- **Regulated waste:** wastes that require specific controls or actions as defined by legislation. Listed, hazardous, regulated, controlled or trackable wastes typically have unique handling and disposal requirements in order to manage specific hazards associated with them.
- **General waste:** wastes not defined as regulated waste under legislation. General wastes comprise putrescible wastes (easily decomposed, recyclable by composting) and non-putrescible wastes (not easily decomposed, may be recyclable).
- **Recyclable waste:** waste types that can be reconditioned, reprocessed or reused.

The waste streams for the GWF Stage 1 can be grouped into two areas, General Waste and Construction Waste (Table 2). These streams have been derived based on the GLC Construction team’s understanding of the waste management pathways of current wind farm projects. Within these streams, the type of waste and application of the mitigation hierarchy are defined, including the proposed reuse, recycling or disposal method. A Waste Contractor will be engaged to supply a series of suitable skip bins that will be cleared on a schedule as required based on waste production. Hazardous waste such as oil, grease, fuel, chemicals and other fluids will be kept in designated waste containers in a bunded area. As the project reaches different development stages, satellite waste management sites will be established as required.

The Contractor will use a hierarchical approach to waste management, from the most preferable (reduce, reuse or recycle wastes) to the least preferable (disposal), and prioritise waste management strategies to avoid waste generation. Waste that is produced will be managed to prevent nuisance such as litter, dust and vermin, and to stop leachate from entering stormwater drains. Where waste cannot be avoided, waste materials will be segregated by type for collection and removal (for processing or disposal) by licensed contractors. It is not anticipated that on-site treatment of water will occur and there will be no controlled releases of water or wastewater to the environment by GWF Stage 1.

Table 2: Potential Waste Streams

Waste Class	Waste Streams	Types	Waste Management Hierarchy
General Waste	General compound waste	Tyres	Off-site disposal at an approved facility
		Waste generated by the maintenance of equipment including air and oil filters, worn components and rags	Off-site disposal at an approved facility
		Oil, grease, fuel, chemicals and other fluids	Off-site disposal at an approved facility
		Batteries	Off-site disposal at an approved facility
		Domestic waste generated by personnel	Off-site disposal at an approved facility
		Windblown Litter	Emu walk to collect and disposed of as required Net covers over large skips to reduce windblown waste
		Sewage	On-site sewage system
	Wastewater, recycled water, stormwater	On-site sewage designed septic system approved by council. Designed sediment pond by engineer to suit hardstand sizes.	
	Office Waste	Paper, cardboard and plastic	Off-site recycling
		Glass bottles and aluminium cans	Off-site recycling
Ink cartridges		Off-site recycling	
Domestic waste generated by workers		Off-site disposal at an approved facility	
Construction	Demolition	Vegetation (logs, mulched timber, weeds)	Native Vegetation –Reuse as biodiversity measures such as habitat enhancement, compost for topsoil or soil

Waste Class	Waste Streams	Types	Waste Management Hierarchy
			conditioner, or modify mulching equipment to create woodchip. Weeds – Off-site disposal (Permits required)
		Concrete, brick asphalt and gravel	Crushed and used as backfill or as road base
		Scrap metal and timber	Off-site recycling
	Excavation	VENM (Virgin Excavated Natural Material)	Beneficial reuse onsite (such as noise mounds) Balance cut and fill earthworks, where possible, to optimise reuse on the Project
		Potentially contaminated soils	Off-site disposal at an approved facility
	Building and Construction waste	Steel reinforcing	Off-site recycling
		Conduits and pipes	Off-site recycling
		Concrete (solids and washouts) and asphalt	Crushed and used as backfill or as road base
		Timber formwork	Reuse onsite where possible or off-site recycling
		Pallets	Mulch and reuse onsite and or off-site recycling
		Packaging materials, including wood, plastic, cardboard and metals	Off-site disposal at an approved facility
		Empty oil and other drums	Off-site recycling
		Pesticides, herbicides, spill clean ups, paints and other chemicals	Off-site disposal at an approved facility
		Metals and bulk electrical cabling	Off-site recycling
		Sediment basin discharge and solids (sediment)	Beneficial reuse onsite (such as noise mounds or offsite as per SWMP)
	Batch Plant Waste	Concrete and water	Water recycled as per mobile batch plant EPA licence and complying with site CEMP. Concrete waste is recycled.
	Unexpected finds	Suspected existing in situ contaminant.	Area to be quarantined until soil is tested by qualified consultant to meet AS 4482.1 (Soil sampling-EPA). Contaminated soil will be managed as advised by the consultant.

## 4. IMPLEMENTATION

### 4.1 Responsibilities

Responsibilities specific to Waste Management are detailed below in Table 3.

Table 3: Personnel with specific Waste Management Plan responsibilities

Role	Responsibility
Project Manager	Provides the required resources to facilitate the WMP Responsible for compliance with all applicable environmental legislation and contract obligations.
Construction Manager	Ensures the objectives of the WMP are achieved. Ensures waste management is appropriate and resourced. Ensures requirements of the WMP are communicated and implemented. Ensures appropriate training is delivered. Ensures communication and reporting framework is in place. Reports incidents to Project Manager, Neoen representative and to agencies as required. Ensures the timely delivery of corrective actions and monitoring of outcomes. Responsible for compliance with all applicable environmental legislation and contract obligations. Reviews the WMP.
Environmental Manager	The principal point of advice in relation to the environmental performance. Oversee the implementation of all WMP monitoring and reporting. Provide support and advice regarding applicable environmental legislation and contract obligations. Ensure environmental auditing is undertaken in accordance with all relevant CEMP and WMP requirements.
Waste Management Coordinator	The Waste Management Coordinator is responsible for the day-to-day management of all on-site hazardous and non-hazardous waste. This role can be performed by a construction staff member or construction manager, if they are trained and experienced in the relevant subject areas (waste management).
Contractors and their staff	Ensure goals of WMP are implemented upon instruction. Identify and proactively report incidents. Receive training.



## 4.2 Subcontractor Management

Subcontractors are required to utilise the WMP to build Environmental Work Method Statements (EWMS) specific to their activities. These EWMS is to be supplied to the GLC prior to works being undertaken. GLC will be responsible for verifying whether the sub-contractors' documents are consistent with the WMP and adequately address the environmental risks of the activity. Formal advice in this respect will be provided to the sub-contractor before works can commence.

## 4.3 Licensed Waste Contractors and Facilities

A portion of the waste produced by GWF stage 1 will require disposal in an approved facility. A number of commercially operated waste management facilities provide options for collection, treatment and disposal of solid and liquid wastes. Details of the existing waste management facilities in proximity to GWF that have the potential to accept waste from commercial operations are listed in Table 4. Available and permissible annual capacity should be confirmed in consultation with the relevant operator once the actual location and timing for development of the project are confirmed.

Table 4: Waste management facilities in the region

Facility name	Commercial and industrial	Construction and demolition	Domestic	Resource recovery
Clare Valley Waste	✓	✓	✓	Scrap metal, electrical appliances, e-waste, paper/cardboard, timber, green waste, car/truck batteries, glass, mattresses, empty fire extinguishers, waste oil/plastic oil containers, empty gas cylinders, clean drums, household (kitchen) waste.

## 4.4 Environmental Monitoring, Reporting and Compliance

The WMP will be monitored, audited and reviewed throughout the construction phase of GWF Stage 1 following the schedule established within the CEMP.

## 5.0 REFERENCES

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*Environment Protection (Waste to Resources) Policy 2010 (SA).*

Green Industries SA (2020). *Supporting the Circular Economy: South Australia's Waste Strategy 2020-2025*. Government of South Australia

Standards Australia (2006). *AS 1940:2004 The storage and handling of flammable and combustible liquids*