Weed Management Plan

Regional Resource Recovery Park

Prepared for Shire of Broome

31 August 2022

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Approval for Release

Name	Position	File Reference
Greg Barrett	Principal Environmental Consultant	TW20002-V2_Broome RRRP_Weed Management Plan_3.0
Signature		

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1 Introduction

1.1 About the Broome Regional Resource Recovery Park

Talis Consultants Pty Ltd (Talis) was commissioned by the Shire of Broome (the Shire) to prepare a Weed Management Plan (WMP) for the Broome Regional Resource Recovery Park (the Site).

The Site will be a Prescribed Premises pursuant to Part V of the *Environmental Protection Act 1986* (EP Act) and will likely undertake the following Prescribed Activities (*Environmental Protection Regulations 1987*), which require the Shire to consider weed management activities:

- Category 62 - Solid Waste Depot; and
- Category 64 Class II and IIII Putrescible Waste Facility.

The Site is situated on vacant Crown land and prior to construction of the Waste Management Facility, was primarily covered in vegetation, including dense scrub and eucalyptus trees. The land parcel occupies an area of approximately 119 hectares (ha) located over two lots, the northern section of Lot 990 on DP414194 Broome Road and the northern section of lot 593 on DP71791 Broome – Cape Leveque Road. The Site is located approximately 12km northeast of Broome's town centre as shown in Figure 1.

The Site consists of an integrated Community Recycling Centre (CRC), Liquid Waste Facility (LWF), and Class III Landfill. The CRC will provide the full range of community and light commercial waste acceptance services including recyclable, hazardous waste, bulky waste, greenwaste, scrap metal, used tyres, and construction and demolition waste as well as refuse requiring appropriate disposal. The LWF and Class III Landfill provide waste management services to commercial customers only. At present, there are no waste management facilities located within the Kimberley region with the capacity to provide reuse, recycling, materials processing, and best practice disposal services.

Key activities which have the potential to spread weeds at the Site include:

- Construction and establishment of any new infrastructure;
- Vehicle and machinery movement into, within, and exiting the Site;
- Greenwaste operational activities including receival, storage and stockpiling of material, mulching, and distribution of product;
- Fauna activity within and around the Site; and
- Rehabilitation activities.

1.2 Objectives of this WMP

Weeds are usually opportunistic plant species that are not native to an area but, once introduced, are able to compete effectively for resources. They can be intentional introductions, such as garden plants, or even commercial crops.

Weeds can create numerous environmental impacts, including resource competition and the prevention of seedling recruitment of native plant species, alteration of geomorphological and

hydrological cycles, changes in soil nutrients, fire regimes and the abundance of indigenous fauna, and genetic changes[1].

The purpose of this document is to:

- Review Baseline Data on existing weed species at the Site;
- Summarise compliance with relevant legislative requirements;
- Ensure that potential environmental hazards and risks are recognised and understood;
- Ensure that a program for activities and monitoring is identified;
- Ensure that all Site personnel are provided with suitable training through the Shire's Site Induction process;
- Identify priority weed species and address how these species will be controlled through prevention and eradication methods; and
- Align with the Shire's Broome Weed Management Strategy (31 March 2022).

[1] Department of Environment and Conservation, *Environmental Weed Strategy for Western Australia*, 1999.

2 Legislative and Regulatory Framework

Laws and regulations pertaining to vegetation, flora and weed management exist at both Commonwealth and State government levels. While each jurisdiction administers their respective legislation, it is the responsibility of the Shire to be aware of the legislation pertaining to their operations.

The Shire's employees and contractors must comply with all relevant environmental Commonwealth and State legislation. There is a range of legislation that relates to weed hygiene and management in Western Australia (WA) (Table 2-1).

Table 2-1: Summary of Commonwealth and State Legislation relating to weed management.

Legislation	Application
Agriculture and Related Resources Protection Act 1976 (WA)	Declared Plants and animals which are nominated by the Agriculture Protection Board as current or potential pests.
Environmental Protection Act 1986 (WA)	Prevention, control, and abatement or pollution and conservation protection and enhancement of environment.
Soil and Land Conservation Act 1945 (WA)	Deals with the conservation of soil and land resources with the mitigation of the effects of erosion.
Biodiversity Conservation Act 2016 (WA)	Provides for the conservation and protection of biodiversity and biodiversity components in Western Australia; and the ecologically sustainable use of biodiversity components in Western Australia.
Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)	Protection of environmental matters of national significance.
Biosecurity and Agricultural Management Act 2007	Prevent new pests, weeds and diseases from entering Western Australia. Manage the impact and spread of those pests already present in the state and safely manage the use of agricultural and veterinary chemicals.

3 Key Strategies and Guidelines

Table 3-1 provides a summary of several key strategies and their application to the WMP.

Table 3-1: Key Strategies and Guidelines

Strategy and / or Guideline	Summary
Weeds of National Significance	Weeds of National Significance is a list of the most problematic plant species in Australia as determined by the federal government. Plant species were selected on their basis of their invasiveness and impact characteristics, their potential and current area of spread and their primary industry, environmental and socioeconomic impacts. In Western Australia, many weeds of National Significance are also declared pests under the Biosecurity and Agricultural Management Act 2007.
Australian Weed Strategy 2017-2027	The Australian Weed Strategy provides national guidance on best practice weed management. It aims to guide coordination of effort across all jurisdictions and affected stakeholders and to inform plans and actions by state and territory governments, local governments, regional natural resource management agencies, as well as by industry, landholders and the wider community. The Australian Weed Strategy supports three national goals: • prevention, detection and early intervention; • minimise the impact of established weeds; and • enhance Australia's capacity and commitment to weed management. It also identifies priority areas where improving the approach to weed management has the potential to reduce instances of new weeds establishing and spreading in Australia as well as the negative impacts of established weed species.
State Weed Plan 2001	The State Weed Plan has been developed to help achieve coordinated, effective weed management throughout Western Australia. In order to achieve cost-effective weed management, a coordinated approach involving all levels of government, industry, community and individual landholders is required. The State Weed Plan offers such an approach through raising the awareness of all Western Australians of weed problems, by providing opportunities for their involvement in weed management through integrated and prioritised programs, and by support services for landholder and community action.

Strategy and / or Guideline	Summary
Environmental Weed Strategy for Western Australia 1999	Management of environmental weeds in Western Australia is one of the major management issues requiring action if we are to protect our natural environments for future generations. Competition from weeds is a major process affecting threatened flora and threatened ecological communities. Many critically endangered plants have populations restricted to small, disturbed areas (e.g. remnant vegetation on private property and road verges). These are particularly vulnerable to invasion by environmental weeds and will receive priority for weed control, particularly through the implementation of recovery plans developed by the Department of Conservation and Land Management. The Environmental Weed Strategy for Western Australia and the associated environmental weed database provide both the direction and an approach to tackling this large problem. The Environmental Weed Strategy will ultimately contribute to the State Weed Strategy which will address both agricultural and environmental weeds. In developing the Environmental Weed Strategy for Western Australia, criteria for the assessment and ranking of weeds in terms of their environmental impact on biodiversity were formulated. Three criteria were selected to rate weeds: • Invasiveness; • Distribution; and • Environmental impacts.
Shire of Broome Weed Management Strategy	The Shire of Broome Weed Management Strategy provides the framework for best practice weed management within the Shire. The Strategy aims to protect the environment, economy, community, and industry from the adverse impacts of weeds. This Strategy defines a weed as - A plant that requires some form of action to reduce its harmful effects on the environment, the economy, human health, and amenity. Weeds are commonly plants that grow in natural ecosystems where they are not naturally occurring and proceed to modify natural processes resulting in the decline of the ecosystem they have invaded. The Weed Management Strategy follows the recommendations of the Shire's State of the Environment Report (2015) which provides both a strategic and operational response to the topic of “Managing Invasive Species”.

Within this WMP there are references to ‘Contractors’ and ‘Staff’. Table 3-2 provides a definition of each of these terms.

Table 3-2: Definition Summary

Word	Definition
Contractor	A person(s) or business that provides commercial services independent of the Shire's operations. A Contractor may be engaged by the Shire through to provide goods and / or services i.e., Waste Collection Contractor. Alternatively, a Contractor may provide goods and / or services to the community and require access to the Site for appropriate disposal of materials.
Staff	A person(s) employed by the Shire of Broome.

4 Stakeholder Consultation

The coordination and involvement of all stakeholders, landholders, and community members in the Shire of Broome towards the collective approach of weed management is necessary for the effective long-term control of target species. The Shire aims to engage openly with all identified stakeholders during and post Site operations.

The creation of this WMP was prepared in consultation with the Yawuru Birragun Conservation Park land managers, the native title holders Nyamba Buru Yawuru and the Department of Biodiversity, Conservation and Attractions (DBCA). Ongoing consultation will occur throughout the life of the Site operations with the above stakeholders as required.

A summary of stakeholder consultation undertaken for this management plan is provided below in Table 4-1.

Table 4-1: Stakeholder Engagement Register

Date	Stakeholder	Description of Engagement	Topic/Issue	Stakeholder comments/issues	Proponent Response/Outcome
21/12/2021	Department of Biodiversity, Conservation and Attractions	Letter	Referral of Works Approval – Request For Advice	The DBCA recommended the following: • The vegetation clearing permit be submitted and assessed by DBCA to provide comment on direct impacts. • Greater consideration for indirect impacts for adjacent Yawuru Birragun Conservation Park. • Within the broad proposal area, locate the actual project footprint away from Yawuru Birragun Conservation Park as far as practical to reduce indirect impacts. • The risk and impact of introduced plants (weeds) be assessed by the proponent and management measures put in place to address this impact. • A site Environmental Management Plan be developed to address direct and indirect impacts and to include: potential threats, monitoring methods of threat impacts and mitigation responses based on threshold levels	Noted

Date	Stakeholder	Description of Engagement	Topic/Issue	Stakeholder comments/issues	Proponent Response/Outcome
				• DBCA would welcome further consultation with DWER and the proponent Shire of Broome to discuss mitigation of impacts	
24/01/2022	Yawuru Native Title Holders Aboriginal Corporation	Letter	Referral of Works Approval W6606/2021/1.	Yawauru have been consulted throughout the site-selection process and do not have any issues or concerns with this Works Approval.	Noted
31/03/2022	Nyamba Buru Yawuru (NBY) (DBCA) Environs Kimberley Society for Kimberley Indigenous Plants and Animals (SKIPA) Solway Drain Community Group Roebuck Bay Working Group Main Roads Western Australia (MRWA)	Consultation	Consultation with Key stakeholders for the development of The Broome Weed Management Strategy	Refer to APPENDIX B – Broome Weed Management Strategy	Shire adopted Broome Weed Management Strategy at their Council meeting, held 31 March 2022.

Date	Stakeholder	Description of Engagement	Topic/Issue	Stakeholder comments/issues	Proponent Response/Outcome
10/06/2022 and 17/06/2022	Department of Biodiversity, Conservation and Attractions	Meeting	Referral of Works Approval W6606/2021/1.	The Shire and DBCA held a meeting to review feedback received by the DBCA and ensure that the works being undertaken addressed the items raised.	Shire engaged Talis to review and address items raised and prepare additional information as required.
4/08/2022	Department of Biodiversity, Conservation and Attractions	Letter	Addressing additional scope of works for inclusion in Works Approval Resubmission.	The DBCA recommended the following: • The vegetation clearing permit be submitted and assessed by DBCA to provide comment on direct impacts. • Greater consideration for indirect impacts for adjacent Yawuru Birragun Conservation Park. • Within the broad proposal area, locate the actual project footprint away from Yawuru Birragun Conservation Park as far as practical to reduce indirect impacts. • The risk and impact of introduced plants (weeds) be assessed by the proponent and management measures put in place to address this impact. • A site Environmental Management Plan be developed to address direct and indirect impacts and to include: potential	The Shire prepared a response letter following the undertaking of the meetings held 10 and 17 June 2022. This WMP was prepared to provide supporting information to the Site Operations

Date	Stakeholder	Description of Engagement	Topic/Issue	Stakeholder comments/issues	Proponent Response/Outcome
				threats, monitoring methods of threat impacts and mitigation responses based on threshold levels • DBCA would welcome further consultation with DWER and the proponent Shire of Broome to discuss mitigation of impacts	

5 Flora and Vegetation

5.1 Baseline Study

To understand the ecological attributes of the Site, a Level 1 and Level 2 survey was completed by Spectrum Ecology:

- Broome Regional Resource Recovery Facility - Reconnaissance Flora & Level 1 Fauna Survey (2020); and
- Broome Regional Resource Recovery Park - Detailed Flora & Vegetation Assessment (2020b).

Information from these surveys on the vegetation unit and condition, threatened ecological communities, threatened and priority flora and introduced flora is outlined in the following sections.

5.2 Vegetation Unit and Condition

The vegetation unit within the Site was recorded by Spectrum Ecology (2020b) as *Corymbia greeniana* low open woodland with *Acacia eriopoda* and *Bauhinia cunninghamii* tall open shrubland, over *Triodia schinzii* and *Triodia caelestialis* low sparse hummock grassland and *Chrysopogon pallidus* and *Sorghum plumosum* low sparse tussock grassland. The vegetation unit was considered to have low regional and local significance as the distribution was not restricted within the bioregion and did not provide habitat for restricted significant flora. Spectrum Ecology (2020b) assessed the condition of the vegetation unit of the Site as Excellent (100%) which the EPA (2016) describe as "Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement."

5.3 Threatened and Priority Ecological Communities

In WA, 'Threatened Ecological Communities' (TECs) are defined by the WA Threatened Ecological Communities Scientific Advisory Committee (within DBCA) and are assigned to one of four categories: Presumed Totally Destroyed, Critically Endangered, Endangered, Vulnerable. While TECs are not afforded direct statutory protection at a State level (unlike Declared Rare Flora under the Wildlife Conservation Act 1950) their significance is acknowledged through other State environmental approval processes (i.e. Environmental Impact Assessment process pursuant to Part IV of the Environmental Protection Act 1986).

Priority Ecological Communities (PECs) are ecological communities that are under consideration for listing as a TEC, but do not yet meet the criteria. The PEC is placed into a Priority Rating between 1-5 that ranks the PEC based on known occurrences, threats and management of the community.

During the desktop assessment completed for the Detailed Flora and Vegetation Assessment (Spectrum Ecology, 2020), a Mangarr (Minyjuru) Priority 1 (P1) Priority Ecological Community (PEC) was recorded in northwest corner of the Site. Scattered *Sersalisia sericea* (Minyjuru) trees were recorded during the Site visit outside the current PEC; however, it is unlikely that these individuals indicate the presence of the Mangarr PEC. The *Corymbia paractia* (P1) PEC was likely recorded at the Site based on the known distribution of *C. paractia*, abundance recorded in the survey and the location of the Site. No TECs were recorded within the Site.

5.4 Threatened and Priority Flora

Spectrum Ecology (2020) recorded three Priority flora taxa within the Site: *Corymbia paractia* (P1), *Jacquemontia sp*. Broome (A.A. Mitchell 3028) P1), and *Terminalia kumpaja* (Priority 3). The occurrence of these Priority Flora was determined to have low local and regional significance. No Threatened Flora have previously been recorded within the Site. One Threatened Flora taxon was assigned a medium likelihood of occurrence, *Seringia exastia,* but was not found in the current survey and the location of the Site.

5.5 Introduced Flora

Two introduced flora were recorded within and immediately adjacent to the Site's eastern boundary: *Stylosanthes hamata* and *Stylosanthes scabra*. *Stylosanthes hamata* was the most common and was recorded along with seven opportunist collections, especially near the roads. None of the introduced flora species are listed as Declared Pests in WA (Spectrum Ecology, 2020).

6 Risk Assessment

Risk assessments are an ongoing requirement for the successful operation of the Site. Risk assessments are required to assess current systems, management, and monitoring and to ensure measures are in place working effectively to mitigate any hazards. A review of the risk assessment is to be undertaken as part of the Shire's Annual Review process or following significant alterations to operations at the Site. The potential risks associated with the Site were assessed using the risk assessment procedure described in the DWER Guidance Statement for Risk Assessments. Two aspects of environmental risk have been considered in this assessment:

- Likelihood - The likelihood of an impact on the surrounding environment or other receptors; and
- Consequence - The scale or magnitude of the potential impact (i.e. severity/extent) if it were to occur.

The levels for likelihood and consequence are detailed in Table 6-1 and Table 6-2 respectively.

Table 6-1: Likelihood Levels and Description

Likelihood	Description
Rare	The event may only occur in exceptional circumstances
Unlikely	The event will probably not occur in most circumstances
Possible	The event could occur at some time
Likely	The event will probably occur in most circumstances
Almost Certain	The event is expected to occur in most circumstances

Table 6-2: Consequence Levels and Descriptions

Consequence	Description
Slight	Minimal on-site impact, specific consequence criteria (degradation of ecosystems, environmental noncompliance) are likely to be met
Minor	Low level on-site impacts, minimal local off-site impacts, no wider-scale off-site impacts, specific consequence criteria (degradation of ecosystems, environmental noncompliance) are likely to be met
Moderate	Mid-level on-site impacts, low-level local off-site impacts, minimal wider-scale off-site impacts, specific consequence criteria (degradation of ecosystems, environmental noncompliance) are at risk of not being met
Major	High level on-site impacts, mid-level local off-site impacts, low-level wider-scale off-site impacts, adverse environmental effects: degradation of ecosystems and environmental noncompliance

Consequence	Description
Severe	Catastrophic on-site impacts, high-level local scale off-site impacts, mid-level or above wider scale off-site impacts, adverse environmental effects: high level of degradation or environmental noncompliance

The risk matrix in Table 6-3 combines the level of likelihood and consequence to determine the level of associated risk. The following levels of risk are used in this WMP and are based on a qualitative assessment.

- Low - Risk is acceptable and generally not subject to regulatory controls (green);
- Moderate - Risk event is tolerable and is likely to be subject to some regulatory controls (yellow);
- High - Risk event may be tolerated and be subject to multiple regulatory controls (orange); and
- Extreme - Risk event will not be tolerated, DWER may refuse application (red).

Table 6-3: Risk Matrix

Likelihood	Consequence				
	(1) Slight	(2) Minor	(3) Moderate	(4) Major	(5) Severe
(A) Almost Certain	Medium	High	High	Extreme	Extreme
(B) Likely	Medium	Medium	High	High	Extreme
(C) Possible	Low	Medium	Medium	High	Extreme
(D) Unlikely	Low	Medium	Medium	Medium	High
(E) Rare	Low	Low	Medium	Medium	High

All potential risks arising from the establishment of the Site were assessed prior to and following the implementation of proposed management measures. The results of the risk assessment are presented in Table 6.4.

Table 6-4: Summary of WMP Risk Matrix

Aspect	Risk	Source	Receptor	Initial			Management	Residual		
				L	C	R		L	C	R
Flora and Vegetation	Lack of understanding/awareness of location of exotic flora, fauna or disease	Training	Site Staff	B	2	M	• Awareness of location of exotic flora, fauna or disease and weed management through the Site induction. Training to be provided by the Shire's Weed Officer and / or by a Contractor on an as needed basis • Site staff required to adhere to Site Operational and Environmental Management (OEMP) procedures and the WMP • Additional training to be provided where necessary and training records maintained and updated on site	C	1	L
	Lack of understanding/awareness of precautions to be implemented when working near, or travelling through exotic flora, fauna or disease	Vehicle movements, construction and operational activities	Site Staff	C	2	M	• Awareness of location of exotic flora, fauna or disease and weed management through the Site induction • Site staff required to adhere to Sites OEMP procedures and the WMP • Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site. The Shire will ensure that appropriate signage and information boards (where applicable) are installed at the Site • All Plant and equipment will be inspected upon entry and records maintained • Additional training to be provided where necessary and training records maintained and updated on site	C	2	M
	Lack of/ineffective vehicle hygiene	Vehicle movements	Site Staff	B	3	H	• Vehicles entering the Site will be free of soil, mud, and vegetative material • Vehicle and equipment inspection will be completed and recorded • Daily Prestart inspection to include visual weed inspection • Use of wash down bay to remove any potential introduced flora plants or seeds • Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site • Site speed limits will be maintained	C	2	M
	Lack of/ineffective policies and procedures relating to exotic flora, fauna or disease	Quality Assurance	Site Staff	C	2	M	• Awareness training of exotic flora (including weed management), fauna and disease through the Site induction • OEMP to outline weed management and policies and procedures • All Site staff will adhere to Site OEMP procedures and Shire policies • Site inspections and reporting to be carried out in line with the WMP • Works will be undertaken in accordance with the control measures outlined in this risk assessment	C	1	L
	Lack of/ineffective training of individuals working around exotic flora, fauna or disease	Training	Site staff	C	2	M	• Awareness training of exotic flora (including weed management), fauna and disease through the Site induction • Training Register will be maintained and updated on Site • Site staff required to adhere to Sites OEMP procedures and the WMP • Additional training to be provided where necessary and training records maintained and updated on site	C	1	L

Aspect	Risk	Source	Receptor	Initial			Management	Residual		
				L	C	R		L	C	R
	Lack of/ineffective detailing of location of exotic flora, fauna or disease captured in contracts with contractors	Training and Management	Site Staff	C	2	M	• Awareness training of exotic flora (including weed management), fauna and disease through the Site induction • Regular monitoring of weeds across the site to be undertaken by all site staff • Staff to report establishment of weeds to Site Supervisor	C	1	L
	Lack of processes/procedures/ requirements detailed in the contracts	Quality Assurance	Site staff	C	2	M	• Review Site documentation to ensure that legal and contractual requirements are met • All Contractors on site to complete awareness training of exotic flora (including weed management), fauna and disease through the Site induction • Induction/Training register to be maintained and updated on Site	C	1	L
	Lack of oversight of contracted organisations	Quality Assurance, Training and Management	Site staff	C	2	M	• All Contractors to complete Site induction • Review Contractor documents (including JHA's and WMS prior to works commencing) to ensure that requirements are met in line with the WMP • All Contractors on site to complete awareness training of exotic flora (including weed management), fauna and disease through the Site induction • Induction/Training register to be maintained and updated on Site	D	1	L
	Weather event spreads exotic flora, fauna or disease	Inclement Weather	Vegetation and Flora	A	3	M	• Inspections will be undertaken during the peak flowering / growing season (January to April) • Weed Contractor to complete treatments during the peak flowering / growing season (January to April) and at any other time if requested by the Shire • Manual removal or chemical application prior to flowering periods • OEMP to outline weed management and monitoring measures	C	1	L
	Lack of/ineffective contract management of weed contractor	Quality Assurance	Site Supervisor	C	2	M	• Review Contractor documents (including JHA's and WMS prior to works commencing) to ensure that requirements are met in line with the WMP • Works will be undertaken in accordance with the control measures outlined in this risk assessment • All Contractors on site to complete awareness training of exotic flora (including weed management), fauna and disease through the Site induction • Induction/Training register to be maintained and updated on Site	D	1	L
	Disturbance of Flora during Construction phase of new infrastructure.	Vehicular Activity, Inadequate inspection and monitoring of Weeds	Site Staff	B	2	M	• Vehicles will be required to keep to authorised access tracks and roads • All access roads and tracks will be clearly identified and marked prior to commencement of work • Any clearing undertaken will be confined to the appropriate area onsite during the construction. This will be supervised by the Shire and/or appointed Construction Superintendent	C	1	L

Aspect	Risk	Source	Receptor	Initial			Management	Residual		
				L	C	R		L	C	R
							• Incident Register to be maintained and updated on Site and will reflect any disturbance to Flora.			
	Increased abundance and diversity of introduced species	Vehicular Activity, Inadequate inspection and monitoring of Weeds	Vegetation and Flora	B	2	M	• Regular monitoring of weeds across the site to be undertaken by all site staff • Regular weed management methods to be undertaken via manual removal and/or by chemical application by Weed Contractor	D	1	L
	Transportation of weeds from Site to the Shire region resulting in spread of weed species	Weeds and seeds introduced through vehicles entering the Site and green waste stockpiles	Site Staff	B	3	H	• Regular Plant and Equipment inspections • Regular monitoring of weeds across the site to be undertaken by all site staff	C	2	M
	Introduction of weeds to Site from Contractors during operation	Weeds and seeds introduced through plant, equipment and vehicles entering the Site	Site Staff	B	2	M	• The Shire will undertake spot checks on all plant and equipment for regular / frequent Contractors that attend the Site • The Shire will undertake a full inspection of all Plant and equipment for new Contractors that attend the Site • Awareness of weed management through the Site induction • Regular monitoring of weeds across the site to be undertaken by all site staff • Weed Inspections Register to be maintained on Site • Regular weed management methods to be undertaken via manual removal and/or or by chemical application prior to flowering periods by Weed Contractor • OEMP to outline weed management and monitoring measures	C	1	L
	Incorrect timing of weed identification, detection and / or control of weeds.	Inclement Weather and Management	Vegetation and Flora, Site Staff and Contractors				• Regular monitoring of weeds across the site to be undertaken by all site staff • Inspections will be undertaken during the peak flowering / growing season (January to April) • Weed Contractor to complete treatments during the peak flowering / growing season (January to April) and at any other time if requested by the Shire • Manual removal or chemical application prior to flowering periods • OEMP to outline weed management and monitoring measures			
Fauna	Attraction of native fauna, feral animals and vermin causing the potential for weed seed dispersal	Exposed waste, litter, voids and water bodies in the landfill and surface water ponds	Fauna	B	2	M	• Installation of fencing around perimeter of Site • Daily compaction and covering of waste in accordance with best practice guidelines • Managed in accordance with measures outlined in the Feral Animal and Vermin Control Management Plan • OEMP outlining the management and monitoring measures to be adopted	C	1	L

7 Environmental Outcomes

Through the implementation of this WMP the Shire is seeking to deliver the following environmental outcomes at the Site:

- To minimise the risk of introducing new weed species at the Site;
- Control and eradicate (or contain on-site) existing weed species at the Site;
- Identify, control, and eradicate (or contain on-site) any new weed species identified at the Site;
- Mitigate (where possible) fauna management to reduce spreading weeds; and
- Mitigate the spread of weeds within the Site to prevent the potential spread of weeds into neighbouring tenures.

8 Environmental Management

The Shire adopted a Weed Management Strategy on 31 March 2022, which provides a framework for best practice weed management within the Shire. The Weed Management Strategy aims to protect the environment, economy, community, and industry from adverse impacts of weeds. The Shire prepared the Weed Management Strategy with consideration from the Shire's State of the Environment Report (2015) and in consultation with numerous stakeholders.

The Shire also provides ongoing community education regarding weed management on the Shire's website (https://www.broome.wa.gov.au/Community/Parks-and-Gardens/Weed-Control). The Shire promotes existing local education material offered by external sources including:

- *"Kimberley Weeds"* index cards (https://d3n8a8pro7vhmx.cloudfront.net/environs kimberley/pages/152/attachments/original/1517207387/WeedCards%28150x80mm%29x3 4_LowRes_.pdf?1517207387);
- Roebuck Bay working Group's "*Coastal Gardens: a planting guide for Broome on the Dampier Peninsula*" booklet (https://roebuckbay.org.au/pdfs/coastal-gardens-web-version.pdf);
- Department of Primary Industry and Regional Development website and "*Weeds to Watch*" poster (https://library.dbca.wa.gov.au/static/Journals/080341/080341-20.003.pdf); and
- Department of Biodiversity Conservation and Attractions "Weed" webpage.

The following table details the environmental management measures required across the Site to manage potential impacts of weeds.

Table 8-1: Environmental Management Measures

Aspect	Environmental Management Measures
Training and awareness	• Awareness of weed management through the site induction. The site induction will include information pertaining to weeds occurring at the site as well as the hygiene and reporting requirements associated with weed management.
Management of weed-bearing material	• Vehicles entering/exiting the site are free of soil, mud, and vegetative material • Use of wash down bay to remove any potential introduced flora plants or seeds from vehicles and/or equipment • Vehicles to adhere to established roads and tracks to prevent the spread of weeds within the Site • All greenwaste loads to be covered until unloading at Green Waste Processing Facility
Monitoring and control	• Regular monitoring of weeds across the site to be undertaken by all site staff • Regular weed management methods to be undertaken via manual removal and/or or by chemical application prior to flowering periods by Weed Contractor

8.1 Training and Awareness

Ongoing training is essential for the continued development of staff knowledge and expertise. The Shire supports further learning through the Shire's induction process and training in weed identification is considered vital for all staff working in the Broome habitat.

Training will be provided to all employees through the Shire's induction process. Training will include weed identification from germination to seeding, understanding of weed lifecycles and appropriate control methods for target species and hygiene protocols for use of machinery and equipment.

Inductions shall be reviewed and updated to reflect activities and risks identified on the Site, including an incident investigation learning. Other required training topics will be developed as appropriate based on Site specific requirements.

8.2 Weed Prevention

To minimise the risk of introducing new weed species and/or spread of weed species at the Site:

- All Contractor Plant and equipment will be inspected to ensure they are free of soil, mud, and vegetative material. Shire vehicles/plant and equipment will use the wash down bay to remove any potential introduced flora plants or seeds;
- Ensure all Site operational staff are trained in the awareness of weed management through the site induction before working at the Site. The Site induction will include information pertaining to weeds occurring at the site as well as the hygiene and reporting requirements associated with weed management;
- All Vehicles will adhere to established roads and tracks;
- All greenwaste loads to be covered until unloading at Greenwaste Drop-off/Processing Facility;
- Regular weed management methods to be undertaken via manual removal and/or or by chemical application during peak active growing periods prior to flowering by a suitable Contractor;
- Twice-yearly and/or during peak active growing periods Whole of Site Weed Inspections to be completed; and
- Regular monitoring of weeds across the site will be undertaken by all site operational staff in accordance with this WMP.

8.3 Monitoring

Monitoring programs will be designed and implemented to demonstrate and communicate compliance with regulatory requirements and achievement of performance indicators to the Site Supervisor and Operational Staff. Table 8-2 provides a summary of the monitoring parameters and further detail on monitoring initiatives is described in Sections 0, 8.3.2, and 8.3.3.

Table 8-2: Summary of Monitoring Parameters

Parameter/Indicator	Location	Procedure	Timing
Plant and Equipment inspections to ensure prevention and spread of weeds	Site	Prestart Inspection	Daily
Vehicles and equipment limit operation to designated tracks and roads (to reduce spread of weeds on site)	Site Roads	Inspection	Daily
All Contractor vehicles, machinery and equipment are to be maintained and cleaned to reduce spreading of potential weed seeds within the Site.	Site	Inspection	Spot checks and / or full checks with new Contractors
Complete Monthly Site Inspection to ensure ongoing compliance with this management plan and identify any new weed infestations in the Site area.	Site	Inspection by Shire Staff	Monthly
Greenwaste, mulch and collection stockpiles maintained as required	Site	Inspection	Daily
New Weed Infestations	Site	Inspection by Shire Staff and/or engagement of Contractor to undertake treatment	Monthly and/or during peak active growing periods prior to flowering
Twice Yearly Whole of Site Weed Inspection/Review	Site	Inspection by Contractor	Twice yearly, and/or during peak active growing periods prior to flowering
Weed Mapping	Site	Inspection by Contractor	Once yearly and/or as required by the Shire
Fauna Management to occur in accordance with the Shire's Feral Animal and Vermin Management Plan an	Site	Inspection	Daily

8.3.1 Site Inspections

Site personnel will conduct Monthly Site inspections (draft included as Appendix A – Site Inspection Template). These inspections will aim to:

- Identify any new weed outbreaks;
- Assess the effectiveness of weed management across the Site;
- Assess the effectiveness of the corrective actions being implemented; and
- Set an agreed timeframe for the close out of any required actions.

Corrective actions shall be assigned to the Site Supervisor and/or a responsible person to action (i.e. Weed Contractor). Records of inspections shall be maintained by the Site Supervisor and uploaded to the Shire's internal information management system. In addition, the Shire's Weed Officer and/or a Contractor will undertake a twice-yearly inspection and mapping at the Site and provide training to Site personnel as required.

8.3.2 Plant and Equipment Inspections

Site personnel will conduct Pre-start inspections on all plant and equipment prior to commencing work at the start of each shift. Cleaning of vehicles will be undertaken when required and must be conducted within the wash-down bay to ensure wastewater containing weeds and/or other contaminants are captured for treatment. The Shire will undertake spot checks on regular/frequent Contractor plant and equipment and full checks for all new Contractor plant and equipment prior to mobilising to the Site.

8.3.3 Weed Mapping

The Shire will implement weed mapping activities to:

- Track weed species across the Site;
- Review and understand how different weed species react to seasonal growth periods, particularly between January – April;
- Understand how different weed species respond to changes in treatment/controls methods; and
- Track management outcomes through time.

The Shire and/or a Contractor will undertake weed mapping on a yearly basis and will coincide with one of the twice-yearly inspections across the Site. Records of weed mapping events shall be maintained by the Site Supervisor and uploaded to the Shire's internal information management system.

8.4 Weed Control

The Site Supervisor is responsible for ensuring that weed control activities are undertaken on a regular basis to prevent the establishment and spread of weeds at the Site and immediate surrounds. Weed control activities will include:

- Preventative Control:
    - Ensuring that activities are implemented as nominated in Section 8.3;

Ensuring that certified weed free seed and/or flora/vegetation is used within any landscaping or rehabilitation efforts; and

- Ensuring that any accepted clean fill materials, not destined for landfill (i.e. virgin excavated natural material or excavated natural material) has been tested and classified prior to being accepted at the Site;

- Mechanical Control:
  - Ensuring that firebreaks are maintained around the Site; and
  - Ensuring that landscaped and/or grassed areas are maintained within the Site.
- Chemical Control:
  - Engagement of a Contractor to undertake spot spraying/application of a chemical (herbicide) to weeds or soil to control germination.

In addition, the Shire will implement a Species-Specific Weed Control Plan (SSWCP) for any weed species detected on-site by the Shire or their Contractor(s). The SSWCP will include:

- Objectives and Goals of the SSWCP;
- Ecology information of the species;
- Control options and methods for management of the species;
- Proposed management timeframes and reviews; and
- Mapping reference (where applicable).

The Site Supervisor is responsible for maintaining weed control records, preparation and review of any SSWCPs, and ensuring that this information is uploaded to the Shire's internal information management system.

8.5 Compliance

This WMP will be enacted in accordance with approvals, reporting requirements, licence conditions and Shire policies.

When an activity is observed or reported that is non-compliant with this WMP, the Site Supervisor will investigate and document the status of the incident or noncompliance event.

The Site Supervisor will collect the necessary information to report to and/or brief the Shire' Waste Manager. The Shire's Waste Manager will notify the appropriate regulatory agency, as required.

The Site Supervisor will work with the responsible parties to identify actions to reduce the environmental impact resulting from the activity or non-compliance event and to prevent any further or future occurrence of non-compliance.

The Site Supervisor will ensure that inspections and appropriate rectification actions are recorded through the Shire's Information Management System.

9 Roles and Responsibilities

The Shire's Site Supervisor (or delegate) will be accountable for ensuring requirements of this WMP are met. Where responsibilities are delegated to others i.e. third party contractors, this delegation must be clearly recorded and communicated in writing.

Table 9-1: Roles and Responsibilities

Role	Responsibility
Shire of Broome	• Owns and Operates the Site; • Responsible for the overall legislative compliance for the Site and contractual management;
Waste Manager	• Revising, updating and implementing this WMP; • WMP and relevant supporting documentation is reviewed regularly and is updated, as required.
Site Supervisor	• Are aware of, and conduct their work in compliance with relevant licences, legislation and regulations; • Responsible for overseeing and ensuring this WMP is implemented at Site; • Contractors to the Site comply with the WMP; • Ensure all operational staff complete relevant training and inductions; • Document and report on any issues, actions, compliance or incidents related to this WMP; • Reporting activities that are not in compliance with this WMP; • Responsible for ensuring that Operational Staff and other relevant personnel are aware of their responsibilities and comply with the WMP.
Site Operational Staff	• Are aware of, and conduct their work in compliance with relevant licences, legislation and regulations; • Are aware of, and conduct their work in compliance with the WMP; • Conduct Pre-start inspections on all plant and equipment prior to commencing work at the start of each shift; • Report any non-conformances to the Site Supervisor as soon as practicable; and • Undertake training and induction as directed by the Site Supervisor.
Sub Contractors	• Are aware of, and conduct their work in compliance with relevant licences, legislation and regulations; • Are aware of, and conduct their work in compliance with, the WMP; • Report any non-conformances to the Site Supervisor as soon as practicable; and • Provide relevant documentation (JHA's, WMS related to this WMP); • Undertake training and induction as directed by Site personnel.

10 Review

It is important that documents are frequently reviewed and revised as the Shire's operations change and opportunities for improved management practices are identified.

This WMP will be reviewed periodically, at a minimum every two years, or when significant additional information comes to hand to assess the effectiveness of its measures and maintain relevance to current works and operations.

Upon review, the document will be revised where appropriate and the revision status will be updated in accordance with the Shire's document control procedures.

FIGURE 1 – Site Locality

APPENDIX A
Site Inspection Template

APPENDIX B

Broome Weed Management Strategy