



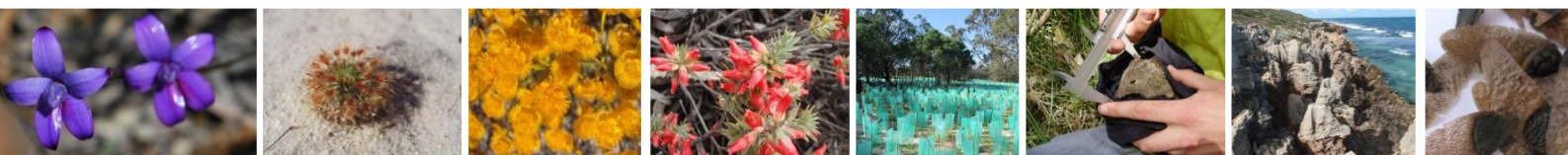
Natural Area
CONSULTING MANAGEMENT SERVICES

Shire of Northampton

Little Bay Road

Environmental Management Plan

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Environmental management system registered to ISO 14001:2015
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1.0 Introduction

Natural Area Holdings Pty Ltd, trading as Natural Area Consulting Management Services (Natural Area) has been contracted by the Shire of Northampton (the Shire) to undertake the preparation of an Environmental Management Plan (EMP) for clearing and construction works being undertaken by the Shire at the Little Bay Road four – wheel drive beach access track. It is understood the objective of the construction works is to extend the four – wheel drive access track from the end of Little Bay Road to approximately 150 m south of the Little Bay campsite. The site is located within the Shire of Northampton, and is approximately 2.5 km north of Horrocks (Figure 1).

1.1 Purpose of this plan

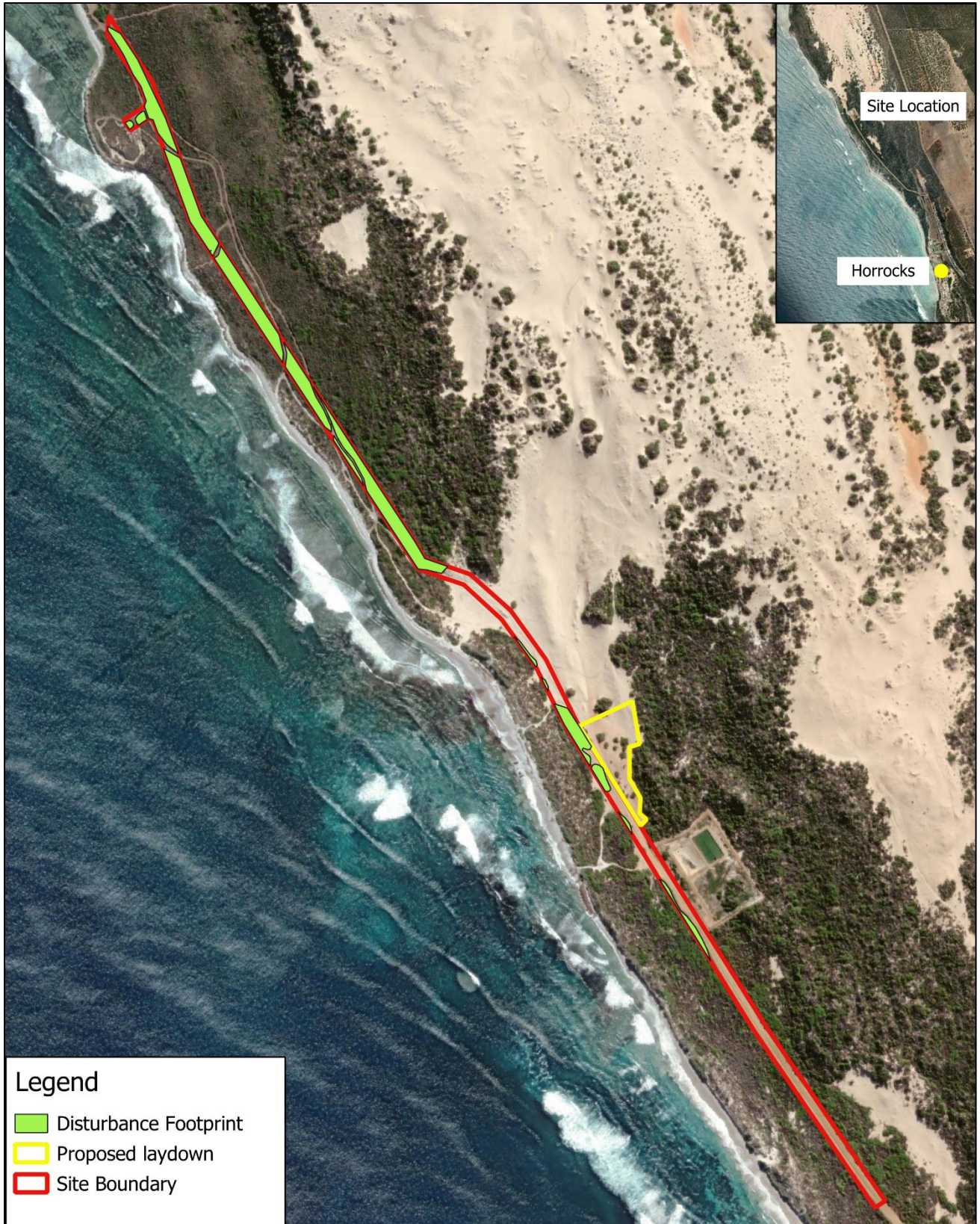
The purpose of this plan is to supply the Department of Water and Environmental Regulation (DWER) with additional information of mitigation strategies for key environmental impacts predicted to occur during the construction of the Little Bay Road four – wheel drive access track project. This plan was developed to provide management strategies to known environmental risks at the site. This plan is an objective-based EMP and will define environmental management elements and their associated objectives, management actions, management targets and monitoring and reporting requirements. This EMP is designed to be used both during construction and for the ongoing environmental management of the site.

A Native Vegetation Clearing Permit (NVCP) has not yet been approved by DWER for the proposed Little Bay Road development project. It is recommended that once a NVCP has been issued, that this EMP is reviewed and updated to incorporate any conditions included in the NVCP.

1.2 Scope

This plan outlines details of avoidance and mitigation strategies for potential environmental impacts during the construction of the four – wheel drive sand access track at Little Bay Road, Horrocks. This plan includes the following:

- project summary
- existing environment including:
 - flora and vegetation
 - fauna
 - hydrology
 - soils
 - current land use
 - heritage
- environmental management strategies for the following elements:
 - native vegetation and ground disturbance
 - dust management
 - soil and land management
 - erosion and sediment control
 - weed management
 - fauna management
 - waste and recycling.



Legend

- Disturbance Footprint
- Proposed laydown
- Site Boundary

 **Figure 1:**
Site Boundary
Little Bay, Horrocks

0 100 200 m



Client: Shire of Northampton
Date: January 2024
Created by: C. Koopman
Image Source: ESRI, 2022
Datum: GDA 94

1.3 Key Environmental Legislation, and Policy and Planning Context

To ensure the Management Plan complements other management initiatives, relevant legislation, policies, guidelines, and documents were reviewed and those that were applicable to the site are summarised in this Section.

1.3.1 Relevant Legislation

Aboriginal Heritage Act 1972 (WA)

The Aboriginal Heritage Act 1972 makes provision for the recognition, protection, conservation, and preservation of Aboriginal heritage in Western Australia. The site is registered as an Aboriginal Site (number 17164).

Biodiversity Conservation Act 2016 (WA)

The *Biodiversity Conservation Act 2016* (BC Act) aims to protect and conserve biodiversity as well as to promote the ecologically sustainable use of biodiversity components in the State. The BC Act provides the statute relating to conservation and legal protection of flora, fauna, and ecological communities. The BC Act follows the principles of ecologically sustainable development, detailing that decision-making processes should effectively integrate long-term and short-term economic, environmental, social, and equity considerations.

Biosecurity and Agriculture Management Act 2007 (WA)

The *Biodiversity and Agriculture Management Act 2007* (BAM Act) regulates the framework for plant and animal pest and disease biosecurity in Western Australia. The framework provides for the control of declared flora and fauna species (declared organisms) that are known to be a significant environmental threat and the management, control and prevention of these declared plants and animals.

Environmental Protection Act 1986 (WA)

The *Environmental Protection Act 1986* (EP Act) provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment. The Environmental Protection Authority is established under this act and provides a structured policy framework that is consistent with the EP Act. The EPA produces the guidelines and procedures associated with conducting environmental assessments in line with the EP Act.

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) serves to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. The primary objective of the EPBC Act is to promote the conservation of biodiversity and the sustainable use of natural resources while allowing for ecologically sustainable development. The EPBC Act allows for the creation of conservation agreements between the Australian government and individuals, communities, or organizations to support the conservation of biodiversity.

Soil and Land Conservation Act 1945 (WA)

The *Soil and Land Conservation Act 1945* serves to conserve soil and land resources, and to mitigate the impacts of erosion, salinity, and flooding. This Act outlines the mitigation and prevention of land degradation, promoting soil conservation and land management and the administration of Land

Conservation District Committees (LCDC). The Commissioner of Soil and Land Conservation appoints members under the Act (Geographic Information Services, 2016). The site falls under the Northampton LCDC (Geographic Information Services, 2016).

1.3.2 Planning and Policy context

Australian Weeds Strategy 2017 – 2027

The Australian Weeds Strategy 2017-2027 provides a strategic framework for managing weeds at a national level (Department of Agriculture and Water Resources, 2017). As part of the implementation of the National Weeds Strategy, 32 Weeds of National Significance are identified as nationally agreed priority plant species for control and management based on the criteria of invasiveness and impact characteristics, potential and current area of spread and economic, environmental, and social impacts.

Australia’s Biodiversity Conservation Strategy 2010 – 2030

Australia’s Biodiversity Conservation Strategy 2010-2030 aims to protect biological diversity and maintain ecological processes and systems (Natural Resource Management Ministerial Council, 2010).

Community Strategic Plan 2016 – 2026

The Community Strategic Plan 2016 – 2026 documents the Shire’s commitment to development projects within the Shire of Northampton, including coastal areas (Shire of Northampton, 2016).

Horrocks Beach Coastal Management Strategy

The Horrocks Beach Coastal Management Strategy outlines protection and future development of the coastline within the Shire of Northampton, including Little Bay (Essential Environmental, 2015).

Horrocks Beach Local Planning Strategy 2016

The Horrocks Beach Local Planning Strategy recommends re-alignment of the existing track to Little Bay away from and out of the frontal dune system and located at the base of the cliff line.

International Union for Conservation of Nature (IUCN) Red List of Threatened Species

The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria (IUCN, 2022).

State Planning Policy 2.6 – State Coastal Planning Policy

The State Planning Policy 2.6 – State Coastal Planning Policy aims to determine land use planning along the Western Australian coastline. This policy takes into account recreation, residential, industrial, commercial and coastal resource pressures (Department of Planning, Land and Heritage, 2006).

Threatened Species Action Plan 2022-2032

The Threatened Species Action Plan 2022-2032 outlines the Federal Government’s approach to protect, manage and restore Australia’s threatened species and important natural places (DCCEEW, 2022).

2.0 Project Summary

The works area is located at the end of Little Bay Road, Horrocks. The scope of work includes vegetation clearing along the Little Bay Road alignment in accordance with the approved clearing permit; earthworks along the road alignment; and construction of a 20 m wide, four – wheel drive sand and gravel access track. The works are required to extend and formalise the road between the current Little Bay Road to the Little Bay camp site. The project will consist of the following components:

- site mobilisation
- site set out
- vegetation demarcation and clearing
- road construction
- site clean up
- reinstatement of required elements
- ongoing management.

After the construction period, the site will undergo ongoing management. The Shire of Northampton will be responsible for taking over management of the road, and all environmental management in relation to the use of the road.

3.0 Existing Environment

A detailed flora and vegetation survey was completed by Natural Area in 2022 for the Shire of Northampton, the results of which have been used to develop the following environmental background.

3.1 Flora and Vegetation

The site consists of a Mixed Coastal Shrubland vegetation type with the most common flora families being Poaceae, Asteraceae and Chenopodiaceae (Natural Area, 2022). The vegetation condition of the site ranged from completely degraded to very good, with most of the site being in good condition (1.35 ha). There were no threatened or priority species present on site at the time of the survey, however there was one Weed of National Significance (WoNS) present outside the eastern border of the site, namely *Tamarix aphylla* (Athel Tree) (Natural Area, 2022).

3.2 Fauna

While no fauna surveys were conducted during the 2022 survey, a range of migratory birds and other fauna species may be present across the site. There is also an Osprey nest platform at Little Bay (Essential Environmental, 2015). A search of the Protected Matters Search Tool (PMST) identified 25 bird species listed as 'Threatened' under the *EPBC Act 1999*, and 17 migratory bird species that may nest in the coastal shrubland vegetation or on the beach adjacent to the site. These species include:

- Southern Whiteface (*Aphelocephala leucopsis*)
- Australian Painted Snipe (*Rostratula australis*)
- Common Greenshank (*Tringa nebularia*)
- Southern Giant-Petrel (*Macronectes giganteus*)
- Australian Fairy Tern (*Sternula nereis nereis*)
- Northern Siberian Bar-tailed Godwit (*Limosa lapponica menzibieri*)
- Fork-tailed Swift (*Apus pacificus*)
- Caspian Tern (*Hydroprogne caspia*).

3.3 Hydrology

There were no watercourses or wetlands observed on site. The Indian Ocean is present adjacent to the western side of the site, varying between 130 m from site at the southern end to 15 m from site at the northern end.

3.4 Landscape and Soils

Horrocks beach is located south of the proposed Little Bay Road extension and is described as a steep, narrow and reflective beach that has been formed in the lee of the reef (Essential Environmental, 2015). This beach narrows to the north where it disappears just south of the Little Bay campsite. This section of the beach is protected by the offshore reef and a rock platform, creating low waves and calm shore conditions (Essential Environmental, 2015). Mobile and semi-mobile sandsheets occur south of Little Bay (Shire of Northampton, 2016a). The site is part of the coastal dune system, with the Quindalup North 1 soil subsystem present across the site.

3.5 Current Land Use

The site is currently used as an informal four – wheel drive access track between Little Bay Road and Little Bay Camp Site. The Little Bay Road is currently used by the local community and visitors to access the Little Bay campsite and for recreational activities including fishing, boating, swimming, surfing, walking and off-road driving (Essential Environmental, 2015).

3.6 Heritage

No European heritage sites have been registered as occurring within the site. An Aboriginal heritage survey was conducted within the proposed site in 2022. Two heritage sites were recorded as intersecting: 'Registered Site' (Site ID 17164 – Horrocks Beach) and 'Other Heritage Place' (Site ID 18433 – Horrocks Midden) (DPLH, 2022). Further details of these sites are described in the Aboriginal heritage survey report (Sticks and Stones Cultural Resources Management, 2022). The heritage values of these sites will not be impacted by the proposed works associated with the development of the Little Bay Road extension, however it is possible that unknown subsurface cultural heritage items could be uncovered as part of the proposed works (Sticks and Stones Cultural Resources Management, 2022). The Sticks and Stones Cultural Resources Management (2022) report recommends the following:

- implementation of a 'site discovery procedure'
- Southern Yamatji monitors are present for the ground disturbance work when the risk matrix dictates a 'medium' or higher risk
- vegetation clearance is kept to a minimum
- culturally appropriate signage is considered for the project.

4.0 Environmental Management Plans

Environmental management plans have been outlined in Tables 1 – 7. Each plan states the potential environmental impacts, objectives, management actions, management targets, monitoring requirements and environmental obligations and accountability measures.

These management plans have been developed based on the current understanding of the project design and best management practices associated with this type of activity.

A Native Vegetation Clearing Permit (NVCP) has not yet been approved by DWER for the proposed Little Bay Road development project. It is recommended that once a NVCP has been issued, that this EMP is reviewed and updated to incorporate any conditions included in the NVCP.

4.1 Native Vegetation and Ground Disturbance

Native vegetation is required to be managed throughout the life of the project. Key risks to native flora include damage due to machinery, vehicles, personnel and visitors traversing site outside the cleared footprint. Management actions have been targeted to ensure the risk of accidental or excessive clearing of vegetation is minimised, and to encourage users not to stray from the Little Bay Road alignment. Vegetation clearing and ground disturbance are expected to be undertaken during the construction phase in accordance with an approved NVCP. This EMP will be reviewed and updated where required following approval of a NVCP to ensure any conditions of the permit have been addressed. As there is a possibility that unknown Aboriginal heritage items are present within the site, mitigation measures have also been included in this EMP.

The objective of this element is to protect the native flora and vegetation in areas adjacent to the disturbance footprint as far as practicable so that ecological integrity is maintained, and to reduce the risk of damage to Aboriginal heritage values.

Table 1: Environmental Management Plan for Native Vegetation and Ground Disturbance

Management Targets	Management Actions	Timing	Accountability and Obligations
Vegetation clearing only occurs within the disturbance footprint as shown in the approved DWER NVCP.	<ul style="list-style-type: none"> ▪ The clearing and construction alignment will be clearly demarcated on ground by a qualified site surveyor before any clearing commences. ▪ Smaller plant and machinery may be utilised where conditions permit to reduce the construction footprint. ▪ Where possible, machinery, vehicles, equipment and personnel will traverse site along the road alignment. This will reduce the ground disturbance footprint during construction works. ▪ A laydown area will be located within the approved clearing and construction footprint, and is the shown in Figure 1 as the area to the north of the Water Corporation facility. Ensure all site staff, subcontractors, suppliers are aware of the location of the approved laydown areas. 	Prior to and during construction	<ul style="list-style-type: none"> Construction project manager and Shire of Northampton. ▪ If any vegetation is damaged outside the construction footprint as a result of vegetation clearing and ground disturbance activities, work activities will cease immediately and the project manager and the Shire is to be notified. ▪ Any breaches in conditions of the NVCP are to be reported to DWER immediately.

Management Targets	Management Actions	Timing	Accountability and Obligations
Old access tracks and laydown area will be rehabilitated.	<ul style="list-style-type: none"> ▪ Access tracks that are no longer required will be identified by the Shire, and closed/rehabilitated where required. ▪ The laydown area will be rehabilitated once construction is complete. ▪ Rehabilitation activities may include ripping, stabilisation of the soil and respreading with topsoil. ▪ Cleared vegetation will be stockpiled for potential future use along the road verge or in areas identified for rehabilitation. ▪ Topsoil will be stockpiled and respread in areas identified for rehabilitation. ▪ Only clean vegetation and topsoil (free of weeds) will be stockpiled for use in rehabilitation activities. ▪ Fencing will be considered in areas being rehabilitated (where required) to protect from damage. 	During and post-construction	<p>Construction project manager and Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ If flora deaths or signs of plant stress are observed, the project manager and/or the Shire is to be notified.
Management actions implemented for all other factors within this EMP to ensure native vegetation is protected as far as practicable.	Implement management actions specified in this EMP to protect native vegetation in areas adjacent to the Little Bay Road. Specifically, those outlined for Dust Management, Soil and Land Management, Erosion and Sediment Control and Weed Management in Tables 2-5.	All phases of the project	<p>Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ If any of the commitments in this EMP are not being met, then these are to be raised within the Shire and management measures identified and implemented. ▪ If there are any breaches in the conditions of the NVCP then DWER is to be notified immediately and management measures identified to rectify the issue.
Recommendations implemented for heritage protection in line with the Little Bay Road Heritage Survey Report (Sticks and Stones, 2022)	<ul style="list-style-type: none"> ▪ Ground disturbance works will be undertaken in accordance with the recommendations outlined in the Little Bay Road Heritage Survey Report (Sticks and Stones Cultural Resources Management, 2022) and as discussed with Southern Yamatji representatives during construction. ▪ Ensure personnel monitor material during ground disturbance activities and report any signs of Aboriginal artefacts. 	During construction	<p>Construction project manager.</p> <ul style="list-style-type: none"> ▪ If any suspected or potential artefacts are uncovered, work activities will cease immediately and the project manager and Southern Yamatji representatives will be notified.

4.2 Dust Management

Dust pollution is a risk that requires management throughout the life of the project. Key risks of dust production have been identified as impacts on flora growth and survival by coating leaves and blocking photosynthesis, and reducing visual amenity for locals and visitors in the area. It is expected that dust will be generated by both machinery traversing the sand road within the site and from stockpiling materials and fill.

The objective of this element is to control the severity and extent of dust impacts within and adjacent to the site.

Table 2: Environmental Management Plan for Dust Management

Management Targets	Management Actions	Timing	Accountability and Obligations
Management actions undertaken to minimise dust.	<ul style="list-style-type: none"> ▪ Machinery and vehicles should be driven slowly through site to ensure no excessive dust clouds are produced. ▪ The use of signage will be considered if there is a need to further encourage appropriate road user behaviour. ▪ All equipment and machinery will be serviced regularly to ensure that they are operating efficiently and not generating excessive dust. ▪ Work will be scheduled to avoid working during extreme conditions when dust is more likely to be generated. ▪ Stockpiles capable of generating dust shall be no more the 1.5 m tall. If dust becomes an issue, alternative measures will be sought. ▪ Dust levels will be visually monitored during construction, and management actions implemented if excessive levels identified. 	During construction.	<p>Construction project manager and the Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ Any incidents of excessive dust levels will be reported to the construction project manager.

4.3 Soil and Land Management

Due to the nature of construction works and future use of the Little Bay Road, water repellence development, land degradation from unauthorised vehicle access, dieback transfer and pollution from fuel spills were all identified as key risks to soils and land. These will need to be mitigated and managed throughout the life of the project to ensure degrading impacts on soils and land are minimised. This project involves the development of a sand and gravel road. No other construction materials (e.g. limestone) will be required, and as a result, the potential for phosphorus export is considered to be minor and has not been included as a key environmental risk for this project.

Whilst there are no known infestations of dieback present within the site, hygiene measures will be implemented to ensure the incidence of Dieback does not increase.

The objective of this element is to protect the fragile dune coastal system as far as practicable and minimise risks associated with unauthorised vehicle access, water repellence, pollution and dieback transfer, within and adjacent to the site.

Table 3: Environmental Management Plan for Soil and Land Management

Management Targets	Management Actions	Timing	Accountability and Obligations
Management actions implemented to minimise risks associated with unauthorised vehicle access, water repellence, pollution and dieback transfer.	<ul style="list-style-type: none"> ▪ Ensure machinery is restricted to the road alignment to reduce the amount of surface area being compacted under machinery tracks. ▪ Regularly inspect the road alignment to ensure users are sticking to the Little Bay Road. ▪ If off-road access tracks are being created fencing will be erected where required to restrict access. ▪ Install signage to educate road users on the fragility of the coastal ecosystem and deter road users from using alternative access tracks. ▪ Rehabilitation of some of the old access tracks will be undertaken (see Section 4.1). 	During construction and post-construction.	<p>Construction project manager and the Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ Report any signs of off-road use, water repellence or soil compaction to the project manager who will take action to rectify the issues.
Management measures implemented to reduce the risk of fuel spills	<ul style="list-style-type: none"> ▪ Machinery and equipment will be refuelled within the laydown areas or at a service station to reduce the possibility of fuel spillage and run off into the environment. 	During construction.	<p>Construction project manager.</p> <ul style="list-style-type: none"> ▪ In the event of a fuel/oil spill, steps will be taken to clean up the

Management Targets	Management Actions	Timing	Accountability and Obligations
	<ul style="list-style-type: none"> ▪ At all times during general works, a standard spill kit will be present within the material laydown areas; the location of spill kit will be outlined to all personnel working on site as part of the site induction procedure. ▪ Refuelling activities monitored to ensure no spills occur and that quick action is taken if spills do occur. 		<p>contaminated area immediately, and the construction project manager and the Shire will be notified.</p>
<p>Hygiene protocols undertaken to limit the potential for the introduction of <i>Phytophthora</i> spp. dieback and other pathogens.</p>	<ul style="list-style-type: none"> ▪ All dirt will be cleaned off vehicles, clothing and tools upon every entry into the site. Once vehicles, clothing and machinery are free from external soils, contractors and site visitors will undertake a dieback wash down procedure ensuring that all vehicle tyres, shoes and tools are washed down with an appropriate dieback spray. ▪ Ensure all, vehicles, machinery and personnel remain on the road alignment at all times. 	<p>During construction and post-construction</p>	<p>Construction project manager and Shire of Northampton</p> <ul style="list-style-type: none"> ▪ Report any breaches or non-compliance with hygiene procedures to the project manager.

4.4 Erosion and Sediment Control

The coastal Quindalup sands that are present within the site are unconsolidated sediments which are highly susceptible to erosion where vegetation is removed. The section of beach adjacent to the site is protected from strong coastal processes by the presence of rock platforms and has a frontal dune that is generally well developed and vegetated (Shire of Northampton, 2016b). The predominant coastal processes along the Little Bay coastline include windblown transport and transport of sediment in the inshore zone, which can be seen by the presence of active sandsheet dunes, blowouts and deflation zones (Essential Environmental, 2015). This section of the coast is described as moderately vulnerable with risk of sandsheet migration, salient migration and dune mobility (Essential Environmental, 2015).

Although both windblown and waterborne transport of sediment are natural coastal processes, they should be managed throughout the life of this project to reduce the risk of significant erosion events causing damage to vegetation and infrastructure. Erosion control measures are to be installed during construction and as required to ensure slopes are stabilised.

The objective of this element is to reduce the risk of erosion and sedimentation occurring within the site.

Table 4: Environmental Management Plan for Erosion and Sediment Control

Management Targets	Management Actions	Timing	Accountability and Obligations
No clearing of vegetation in areas where the risk of erosion and sedimentation cannot be effectively managed through control measures.	<ul style="list-style-type: none"> ▪ Identify areas where there is a high risk of erosion or where sediment control is required. ▪ In the event of extreme weather conditions (e.g. rain or wind), works will cease and slopes will be stabilised as required to prevent erosion and sediment run-off. ▪ Assess weather conditions daily during construction and cease activities where there is a risk of a significant rainfall/wind event. 	During construction.	<p>Construction project manager.</p> <ul style="list-style-type: none"> ▪ All incidences of erosion or sedimentation to be reported to the construction project manager.
Installation of erosion control measures if the risk of erosion is identified as being able to be effectively managed through control measures.	<ul style="list-style-type: none"> ▪ Erosion control measures will be implemented where required throughout the project site. Options that may be considered include windbreak fencing, matting, brushing and bunding. ▪ The road verge will be maintained by the Shire on an as-needs basis to manage the risk and severity of erosion events within the site. 	During construction and post-construction.	<p>Construction project manager and Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ If erosion control measures are damaged or ineffective the construction

Management Targets	Management Actions	Timing	Accountability and Obligations
	<ul style="list-style-type: none"><li data-bbox="515 284 1377 427">All topsoil and vegetation that is cleared during construction will be stockpiled and reused on the verge or in areas identified for rehabilitation, as required. Re-use of stockpiled topsoil and organic matter will contribute to the success of any rehabilitation works.		<p data-bbox="1635 284 2083 427">project manager and the Shire will be informed. Associated works will cease (if required) and the project manager will rectify the issues.</p> <ul style="list-style-type: none"><li data-bbox="1590 435 2083 579">If a significant erosion event occurs after construction, then the road will be closed if required until remediation works are complete.

4.5 Weed Management

Weed contamination has been identified a key risk for the site. Weeds can be spread due to vehicles, equipment, and personnel moving through site, or through vegetation clearing when moving it around site and off site. One WoNS, Athel Tree (**Tamarix aphylla*), was found in two populations along the eastern boundary of the site during the previous flora survey, and poses a risk to the site.

The objective of this element is to prevent the spread of weed species.

Table 5: Environmental Management Plan for Weed Management

Management Targets	Management Actions	Timing	Accountability and Obligations
Management actions undertaken to minimise the spread of weeds within the site.	<ul style="list-style-type: none"> ▪ Ensure vehicle tyres/tracks are clean and free of weed seed when entering and exiting the site. ▪ Ensure equipment, tools and footwear are clean and free of weed seed when entering and exiting the site. ▪ Ensure only the vehicle access tracks are used to move vehicles throughout the site, to reduce the potential area of any weed spread. ▪ Any weed material removed from site should be transported in a manner that prevents the spread of weed seed during transit and disposed of at an appropriate waste facility. ▪ Due to the likelihood of weeds germinating due to ground disturbance and clearing, a weed control program will be implemented as part of the ongoing road verge maintenance activities undertaken by the Shire. ▪ Any imported material (gravel and sand) will be from a source free of plant matter and weed seeds, as far as practicable. ▪ Weed management will be undertaken by the Shire within the road alignment as required. 	During construction and post-construction.	<p>Construction project manager and Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ If weed spread, WoNS or declared pests are observed, the project manager will be informed. ▪ If weed seeds or plant material is found in fill, the project manager will be notified and replacement material sought.
Reduce the risk of spread of <i>*Tamarix aphylla</i> (Athel Tree).	<ul style="list-style-type: none"> ▪ Any individuals of <i>*Tamarix aphylla</i> identified within the site will be removed. 	During construction and post-construction.	<p>Construction project manager and Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ Any observations of <i>*Tamarix aphylla</i> within the site will be reported.

4.6 Fauna Management

Working within the natural environment increases the chance of encountering fauna during work activities. Increasing the accessibility of the Little Bay campsite may also increase the number and frequency of road users, which in-turn will increase the incidences of fauna interactions in this area. Disturbance to beach nesting birds was identified as a key risk of the proposed development activities. Beach nesting birds rely heavily on the coastal system for foraging and breeding behaviours. Activities that disturb the beach and dune systems such as construction, can be detrimental to bird breeding outcomes (Maguire, 2008). Ongoing use of the Little Bay Road and potential deviations made by users from this road, also pose a threat.

The objective of this element is to protect fauna and fauna habitat including beach-nesting birds and their nests as far as practicable.

Table 6: Environmental Management Plan for Fauna Management

Management Targets	Management Actions	Timing	Obligations and Accountability
Management actions undertaken to reduce the risk of disturbance to fauna and fauna habitat, including beach-nesting birds and their nests.	<ul style="list-style-type: none"> ▪ Care should be taken to locate any nests prior to moving vehicles and machinery through site. ▪ If nests are located, advice from an environmental specialist will also be sought. Alternative access through the site will be sought, and temporary signage and fencing will be installed where required, to ensure the birds and nests are not disturbed during construction works. ▪ Install fencing where required, to educate road users on the fragility of the coastal ecosystem and deter road users from using alternative access tracks. ▪ Implement management measures outlined in Table 3 of this EMP to minimise the risk of impact on this fragile dune coastal ecosystem. ▪ All vehicles, machinery and personnel to remain within the vegetation clearing disturbance footprint as shown in the approved NVCP. ▪ Vehicular speed should be reduced to an appropriate limit through the site to ensure that fauna are seen and the vehicle can stop without striking fauna. ▪ All personnel and road users should avoid interacting with fauna where possible. ▪ All operations to be undertaken in a fauna friendly manner. If any injured fauna species are encountered the DBCA Wild Care Helpline will be contacted for advice (08 9474 9055). 	During construction and post-construction.	<p>Construction project manager and Shire of Northampton.</p> <ul style="list-style-type: none"> ▪ If fauna species are observed within the clearing area, or if evidence of disturbance to beach-nesting birds and their nests are observed, the project manager will be notified. Works will not recommence until mitigation measures are implemented to reduce the risk of harm. ▪ If fauna is injured, the project manager should be notified. The project manager will organise for the animal to be transported to the nearest wildlife shelter or vet.

Management Targets	Management Actions	Timing	Obligations and Accountability
	<ul style="list-style-type: none">▪ In the event that a venomous snake is in the works area, that cannot be avoided (e.g. reptile is inside mobile plant) and the reptile will not leave the area on its own, the project manager will be notified immediately and will organise a local certified snake handler to attend site to remove the snake.▪ Visually inspect the area ahead of clearing to check for the presence of beach-nesting birds and their nests, and ensure the risk to fauna is minimised during clearing activities.		

4.7 Waste and Recycling

Due to the nature of the works, waste is expected to be generated during construction. For the purposes of these works, ‘waste’ can be defined as demolition materials from any existing structures, supply item packaging (e.g., package wrapping), or other deleterious materials such as rubble, rock and wastewater which are removed from the site during construction.

The objective of this element is to minimise the risk, extent and severity of any waste and pollution entering the surrounding environment, and to reduce the risk of excessive waste ending up in landfill.

Table 7: Environmental Management Plan for Waste and Recycling

Management Targets	Management Actions	Timing	Accountability and Obligations
Implement management actions to reduce the risk of waste entering the surrounding environment and minimise the severity and extent of adverse impacts resulting from spillage.	<ul style="list-style-type: none"> ▪ The site will be maintained and kept in a tidy manner for the duration of works. ▪ Ensure site inspections are conducted daily to ensure all waste remaining on site is secure and no waste spillage has occurred. ▪ All waste that is generated will be removed from the site daily (where possible) or stored securely within the laydown area. ▪ All debris, spoil, rubbish, or materials will be suitably contained and covered in vehicles during transportation to or from the site, to prevent spillage or contamination of adjoining and other areas or property. ▪ Site refuse shall be handled and disposed of in accordance with the requirements of the waste materials recycling provisions, relevant statutes and to the approval of the Shire. ▪ Spill kits are to be available on site at all times during works and all personnel working on site will know the locations of the spill kit and be briefed on how to use them. A standard spill kit will be kept on site at each location that is undergoing works. Inspect spill kits weekly for presence and completeness. ▪ In the event of a fuel or oil spill, steps will be undertaken to clean up the area immediately. 	During construction.	<p>Construction project manager.</p> <ul style="list-style-type: none"> ▪ If a spill has occurred, the project manager will be notified and the site cleaned up immediately.

Management Targets	Management Actions	Timing	Accountability and Obligations
<ul style="list-style-type: none"> ▪ Re-use and recycle products and materials where possible. ▪ All waste appropriately disposed of to the correct facility. 	<ul style="list-style-type: none"> ▪ Waste resulting from the works will be kept to a minimum and will be recycled where possible. ▪ All green waste, earth, fill, concrete and metal will be recycled either for use on site or removed and delivered to an appropriate recycling/waste facility. ▪ Green waste will be used to provide fauna habitat or brush walling where possible. ▪ Consider effectiveness of current waste control policies and if opportunities are identified to update these policies to promote best practice waste handling, these will be undertaken. 	<p>During construction.</p>	<p>Construction project manager.</p> <ul style="list-style-type: none"> ▪ If waste is not being disposed of appropriately, the project manager will be notified and management measures implemented to ensure it doesn't reoccur.

5.0 Adaptive Management and Review

This management plan was designed to be implemented during both the construction and operational phase of the Little Bay Road development project. A review of this plan should be undertaken as required under the following circumstances:

- if the methodology of the project is updated and differs from that presented in Section 2 of this EMP
- if there are any breaches in the conditions of the NVCP (the Shire will notify DWER immediately if there are any breaches in the conditions of the NVCP)
- when there is a need to improve performance in an area of environmental impact
- if any of the following incidents are observed, an assessment of its severity and extent are to be undertaken, followed by an assessment of the effectiveness of the relevant management action outlined in this plan. If the management actions identified in this plan are not sufficient to address the impact, then this plan will be reviewed and updated accordingly:
 - water or windborne erosion
 - ineffective erosion control measures
 - water repellence or surface water pooling
 - waste being released to the environment (solid waste or wastewater)
 - plant deaths, plant stress or evidence of trampling/damage to vegetation in areas adjacent to Little Bay Road
 - weed spread
 - disturbance to beach-nesting birds and their nests
 - evidence that alternative access tracks are being utilised by road users
 - damage to infrastructure.

Additionally, this EMP should be also be updated as required to ensure it remains compliant with any legislation. At the time of writing this Plan, the associated NVCP had not yet been approved by DWER. It is recommended that once a NVCP has been issued, that this EMP is reviewed and updated to incorporate any conditions included in the NVCP.

6.0 References

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