



**Natural Area**  
CONSULTING MANAGEMENT SERVICES

**City of Belmont**

**The Esplanade Foreshore Civic and  
Landscaping Works:**

**Construction & Environmental  
Management Plan**

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**Acknowledgement of Country**

Ngala kaaditj Noongar moort keyen kaadak nidja boodja.

Natural Area acknowledges the Traditional Owners of the lands on which we operate, and recognises their continuing connection to lands, waters, and communities.

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**System Certifications**

Environmental management system registered to ISO 14001:2015

Quality management system registered to ISO 9001:2015

Occupational health and safety management system registered to ISO 45001:2018

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## 1.0 Introduction

Natural Area Consulting Management Services (Natural Area) has been contracted by the City of Belmont (City) for the implementation of The Esplanade Foreshore Civic and Landscaping Works (Figure 1). Major works components include:

- demolition and earthworks
- replacement of drainage infrastructure
- construction of viewing and fishing platforms
- installation of rockwork
- installation of brush log walling & brush matting
- installation of erosion control matting
- various concreting works, including kerbing, pathways, stairs, furniture and retaining wall installation
- construction of limestone block walling
- installation of fencing
- installation of mulch
- installation of turf
- revegetation planting.

This document should be read in conjunction with the Occupational Health and Safety Management Plan (OHSMP) and Traffic Management Plan (TMP) for each site.



**Figure 1:** The Esplanade project site, Ascot.

### 1.1 Purpose of this plan

The purpose of this Construction Environmental Management Plan (CEMP) is to outline the timings, methodologies, monitoring mechanisms and reporting requirements for implementation of the project. This document covers:

- a detailed work method statement
- timeframes and responsibilities for tasks identified
- contact details of essential site personnel
- ongoing management of controls used to reduce turbidity risk and prevent sediment plumes
- details of dewatering management
- proposed contingency actions should environmental controls be inadequate
- identification and protection of established vegetation
- photos of existing vegetation within the area of works
- detail of machinery and any associated refuelling
- waste management
- protection of the river from inputs of debris, runoff, or other deleterious material
- public safety and amenity
- complaints and environmental incident management plan
- containment of stockpiles
- location of emergency spill kits
- noise management
- a detailed site map showing the location of:
  - signage, including the contact details of essential site personnel
  - perimeter fencing and hoarding
  - the laydown area and vehicle entry/exit points
  - protected vegetation
  - areas of excavation and stockpiling of soil
  - on-site storage and bunding of materials and equipment.

### 1.2 Supporting Documents

Table 1 outlines the documents that should be read in conjunction with this Construction Program, and the review schedule associated with those documents.

**Table 1:** Project Documentation

Document	Author & Date	Review Period
Occupational Health and Safety Management Plan	Natural Area Holdings Pty Ltd, Jan 2024	After any major incident
Traffic Management Plan	Vigilant Traffic Management, Jan 2024	N/A
Dial Before You Dig information and maps	Various services, Monthly	Every 30 days for the duration of works

## 2.0 Detailed Work Method Statement

Prior to mobilising onsite, Natural Area's team of environmental consultants are experienced in the preparation and submission of clearing permits and will provide this service to the City of Belmont for this project.

### 2.1 Mobilisation and Site Establishment

With construction works occurring on or near the banks of the Swan River, there is a risk for deleterious materials to enter the waterway and for turbidity levels to increase. To manage turbidity risks, Natural Area will utilise a SC150 Type II silt curtain supplied by Geofabrics Australasia (Figure 2) for the duration of the works program. Natural Area personnel will install the silt curtain along the river to the extent of works, to a depth where the curtain fall remains vertical at the average low tide. The silt curtain will be installed and maintained according to Department of Biodiversity, Conservation and Attractions (DBCA) specifications for the duration of the works and will remain in place following completion of works for a minimum of 14 days, or as advised by DBCA.



**Figure 2:** Natural Area silt curtain deployed at Point Heathcote Reserve, Applecross (2016).

To delineate the works area Natural Area will install temporary panel site fencing to the boundary of the project areas and laydown areas (Figure 27, Section 21). The intent of temporary fencing will be to exclude the public from the works area during earthworks to ensure a safe work environment and adhere to dust mitigation measures. Natural Area will take every measure to ensure the safety of the public when working, accessing and exiting the site. The fencing alignment has been strategically chosen to provide continued access for the public whilst also maintaining public safety. Natural Area will ensure all necessary warning signs, lights and barriers are provided and maintained to prevent injury to the public. The installation of the temporary fence will occur concurrently with the installation of the silt curtain on the first day Natural Area is on site. The temporary fence will remain in place until all works are completed.

Natural Area will manage and be responsible for all subcontractors working on the site, as well as suppliers delivering materials to the site. Personnel will always be present on site to accept deliveries and to supervise

subcontractors working on the site, to ensure the technical specifications and safety requirements are being adhered to.

## **2.2 Service Locating**

Natural Area has undertaken a preliminary Before You Dig Australia (BYDA) to determine if any services are located within the site. This report identified that several services adjacent to the project site, however no services will interfere with any proposed services within the works area. In the event unmarked infrastructure is identified to intercept any of the proposed works, the City will be notified and amendments to the project work will be negotiated. Further enquires will be made prior to commencement of works and extra care will be taken when completing any excavation works in the event additional services are encountered. If this occurs, works will cease, and the Superintendent informed immediately.

## **2.3 Site Set-out Survey**

Natural Area will subcontract Vision Surveys Consulting to undertake the initial site set out survey and survey control throughout the life of the project. The surveyor will peg out all Set Out Points (SOP) and other works markers as per the drawings as well as actual and offset pegs for toe extents, crest extents, revetment extents and several Reduced Levels (RL) throughout the site. Natural Area staff will utilise the RL's with our laser level to work with the Australian Height Datum (AHD), to ensure that all levels, required heights and slopes are being met. Vision Surveys Consulting will complete the As Constructed information as per the specifications.

## **2.4 Establishment of Tree Protection Zones**

Natural Area understands the importance of maintaining and enhancing environmental values, Tree Protection Zones (TPZ) will be established with the use of temporary fence panels or bunting around the trees and vegetation as identified in the specification and drawings. The TPZ's will be 'no access' areas for any stockpiling of materials or machinery use. Locations of trees to be retained will be confirmed with the Superintendent prior to the commencement of clearing activities.

All existing sedge stock that will potentially be impacted by construction works or marked for removal will be carefully removed and placed in geobags, to be relocated and stored at our NIASA accredited Nursery for preservation until they can be replanted within the works site following the completion of the rock revetment construction works.

## **2.5 Weed Control**

Natural Areas trained and experienced herbicide technicians will undertake weed control across the site prior to and during construction works to control the weed population. Weed control will also be included in the softworks maintenance for 12 months following the site works. All herbicides will be mixed at Natural Area's operations depot within bunded chemical mixing areas which comply with Department of Health regulations. Due to the proximity of the site to a water body, no wetting agents/adjuvants will be added to the chemical mixture.





**Figure 3:** Herbicide application for the Town of Cambridge demonstrating Natural Area’s PPE requirement

Upon arrival to site, we will set up herbicide application signage (minimum of 4 and/or placed at all entries to a reserve) in accordance with the Department of Health (Pesticides) Regulation 2011, to inform the public of ongoing works (Figure 4). Where public paths and tracks need to be closed due to herbicide application, temporary worksite signage (e.g. footpath closed) will be erected. All vehicles are fitted with high visibility beacons and reversing buzzers to ensure safe movement of vehicles within the site.



**Figure 4:** Natural Area signage in accordance with regulations (Regulation 89(5) of the Health (Pesticides) Amendment Regulations 2011).

All herbicide technicians maintain an awareness of their surroundings during herbicide application and will stop when a member of the public walks past the area or when they are approached by a member of the public to answer questions or concerns. Natural Area’s personnel are trained to act in a courteous and professional manner whilst on site representing the company and our clients.

## 2.6 Demolition & Earthworks

Before commencing demolitions works, Natural Area will inspect and prepare a condition report for salvage materials. Salvage items will then be removed and retained on site in a storage area to prevent damage before being returned to the City’s depot. Items to be retained, salvaged or protected:

- existing rock reinforcement along the foreshore
- dead *Acacia saligna* trees / shrubs (~12 plants) at the western end of the Site along the timber wall.
- part of the trees and vegetation (according to site plans)

- the existing jetty
- part of the stormwater drainage according to site plans
- the environmental monitoring bored
- existing gabion walls and matting
- current signage
- rocks from the current rock revetment.

Natural Area will undertake demolition and removal of the following items:

- part of the stormwater drainage (as outline in the demolition plan)
- part of the existing riverwall (as outline in the demolition plan)
- part of the existing kerbing (as outline in the demolition plan)
- existing light pole
- existing timber platform, headwall and outfall
- existing compacted limestone
- uncontrolled fill (as identified in the geotechnical investigations)
- excess material and spoil
- timber retaining wall,
- drain 2,
- pine bollards,
- gabion mattresses,
- star picket fence and
- drain 4
- miscellaneous items and debris.

Trees and stumps will be removed using chainsaws, as outlined in the retention and demolition plan. Any felled trees will be chipped using our Vermeer BC900XL woodchipper and removed from site. All turf marked for removal will be grubbed and disposed of offsite at a green waste facility. Turf removal will be undertaken progressively across the site to mitigate the risk of erosion and/or dust issues that may arise.

The site will be regraded, cut and filled to the specifications outlined in the grading plan. Natural Area will utilise an 8 T excavator and a SVL75 Posi-track loader to undertake these works. All material cut from site deemed suitable for reuse will be stockpiled and used to fill to the lines and levels required. Following a site inspection during the tendering phase and knowledge from working in close vicinity to the project site, it is envisioned that a considerable amount of fill will be deemed unsuitable due to contamination with dumped concrete items. In consideration of this, Natural Area will procure certified clean river sand from Hind's to build up eroded sections of the foreshore and the embankment as approved by the City (Refer to Appendix 2 for test results). All fill and grading will be undertaken as per the technical specifications and drawings. Any materials unsuitable for reuse will be disposed of at Eclipse Soils for recycling.

Prior to the removal of the concrete capping on the existing timber retaining wall, all potholes will be filled using certified clean fill sand. If potholes occur around existing drainage, the superintendent will be contacted for approval prior to filling.

Natural Area will provide the City with reasonable advanced notice of when excavation works will take place. Natural Area will engage Moodjar to be present to monitor all earthworks occurring at the project site. Given the site is a known Aboriginal Heritage listed site, all excavation works will occur as per our Aboriginal Heritage SOP (SOP-HSEQ-059).



**Figure 5:** Vegetation removal within the drainage swale at Sheaf Park for the City of Armadale as part of the Newhaven Stage 1 project (2021).

## 2.7 Dewatering & Acid Sulphate Soils Management

Due to the negative environmental outputs associated with dewatering such as excessive or contaminated water, Natural Area intends on using a mobile diesel mobile pumping unit with a sound detonating screen to pump water from one section of the water body to another. Localised areas will be bunded using excavated fill material. The pump will then be used to transfer water from one section to another within area contained inside the silt curtain. The moving of the bunds as required will occur progressively for the duration of the works as required. If settlement ponds or water treatment is required, this will be discussed with the Principals Representative. In the event dewatering is required, a methodology will be discussed with the Principal prior to implementation.

Due to majority of the area requiring excavation falls outside of the low water level mark, Natural Area does not envision that acid sulphate soils (ASS) will be uncovered. Excavation works required in areas that may have the potential to be ASS will not be excavating in excess of 100 m<sup>3</sup> of potential acid sulphate soils (PASS) and therefore will not require an acid sulphate soils management plan. Natural Area has undertaken several projects within the Perth Metropolitan Region which required the treatment of ASS. In the event potential ASS are identified at the project site, Natural Area will deem this fill to be unsuitable for reuse and dispose of the fill at Eclipse soils who will treat the soil according to industry standards. Any excavated pits will be dusted with AgLime prior to continuing with the project. All personnel dedicated to this project are familiar with the signs of ASS.

## 2.8 Drainage

Natural Area personnel will replace a section of concrete drainage outlet pipe within the project area. The pipe will be excavated, and a wet saw used to cut back the pipe approximately 2 lin.m back from the outlet. A new length of reinforced concrete pipe (150 mm diameter) will be fitted to the cut section and a headwall

to suit installed. Limestone spalls will be positioned around the discharge point and mortared into position using M4 mortar. All voids will be filled to secure the pipe into position.

### ***Viewing and Fishing Platforms***

Concrete piles will be installed to the fishing platform as outlined in the drawings. Concrete piles will be formed up by Natural Area personnel. Upright SHS primary columns will be placed centrally, and concrete poured to set each column into place. The installation of the screw piles will be subcontracted to Screwpile Australia. Natural Area have worked alongside Screwpile Australia on several past projects such as the Chuditch River Access Steps for DBCA and Baigup Boardwalk for the City of Bayswater.

Each platform will be fabricated offsite by Trufab Engineering using HDG steel. Materials will be transported to site and constructed using a Franna and rigger where required, or manually constructed given access constraints. The FRP mesh, timber edging and balustrading will be installed as per the technical drawings.

## **2.9 Rockwork**

Geotextile (Bidim A34) and geogrid (Tensar TX160) will be installed as outlined in the technical drawings to the various rockwork components of the project. Natural Area staff will measure the distance required for each individual piece of geotextile and geogrid to be placed with a flexible tape measure and will add 4 metres to each length (2 m each end). This is to ensure that once the geotextile and geogrid are placed and contoured to the riverbed and riverbank, ensuring there will be excess material at either end to guarantee adequate coverage underneath the various core rockwork structures.

The geotextile and geogrid will be placed by hand to ensure that it is not damaged in any way by machinery, and to ensure a minimum overlap of 1 metre is achieved for the full length of the lap. The materials will be weighed down initially by placing a small amount of rock in each corner of the riverward extent (to be removed by hand prior to placement of armour rock), and a line along the base of the existing riverbank to ensure the materials are not creased, folded or moved during the placing of various rock. The material above the top of the riverbank will be rolled up so that it is not damaged by equipment during the placement of the core rock and armour rock. Once the core/armour rock is in place to the lines and levels required, the remaining geotextile and geogrid will be unrolled so that rock placement can continue to the landward side of the revetment crest.

The first base layer of core rock (or armour rock as outlined in the technical specifications) that is in contact with the geogrid and geotextile will be placed manually to ensure that there are no voids, that the materials are not creased or folded in any areas and that they are not damaged in any way during placement. Once the initial layer is established, the remainder of the core rock (or armour rock) will be placed with the 8 T excavator, with minor trimming using the excavator and hand placement to achieve final profiling and trimming of the batter before armour rock placement. Constant level checking with a laser level will be undertaken to ensure the lines, levels and gradients are being achieved. The core rock will be placed progressively to the full height of the section that is being constructed.

Armour rock and biscuit rocks will be delivered to the specific works area from the material stockpile area utilising a posi-tracked loader and our tipper truck. Rock will be carefully placed near the working zone to allow pick up of individual rocks with an 8 T excavator with rock grab attachment. The excavator will progressively build the armour and biscuit rock revetment (10 m sections) ensuring that each rock has 3

points of contact for a secure bedding. The rock grab will allow rocks to be placed without displacing the core rock or previously placed armour/biscuit rock which will lead to a more stable and aesthetically pleasing finished structure. The leading edge (toe) of each revetment will be constructed first using 500 – 600 mm spalls and embedded 450 mm at the base of the core rock, with the second layer then placed behind the first layer and then progressive placement of armour rock up the batter towards the crest of the revetment until a 1-rock thick armour rock revetment (typical to the technical drawings) is built to the lines, levels and specifications outlined on the drawings.



**Figure 6:** Biscuit rock revetment constructed by Natural Area along the Burswood Foreshore in January 2019.

As required, the rock revetments will tie into existing structures such as the existing rock revetment and gabion mattresses onsite. When tying into the gabion mattresses, spaller spalls ranging from 75 – 300 mm will be utilised and arranged to form a 2-rock thick revetment overtop of the gabion mattresses. Localised sections of the gabion mattresses will be cut open and existing rocks replaced with geobags of transplanted or new vegetation as outlined within the technical drawings and specifications. Care will be taken to manually arrange rocks around the geobags to ensure vegetation has the greatest chance of survival.

Rock rip-rap will be placed at the drainage outlet under the proposed viewing deck and potentially under the fishing deck. Rock rip-rap will be installed manually to create a 1 rock thick feature consist of limestone spalls measuring between 75 – 100 mm (unmortared) or 75 – 300 mm (mortared). Prior to the placement of spalls, the alignment will be regraded to the liens and levels required and a layer of Bidim A34 geotextile laid in accordance with the aforementioned methodology. If mortared rock rip-rap is required, mortar will be prepared in accordance with the technical specifications and laid to the proposed area in small sections. Limestone spalls will then be strategically placed to ensure an interlocking, aesthetically pleasing finish is achieved. Works will be undertaken progressively from the bottom of the bank back up the embankment.



**Figure 7:** Installation of laterite rockwork and mortaring at McPhail Park for the City of Armadale as part of the Newhaven Stage 1 upgrade works.

### **2.10 Brush Log Walling & Brush Mattressing**

Brush logs will be constructed offsite from *Melaleuca* sp. and *Kunzea* sp. brush, to a finished diameter of 250 – 300 mm and a length of 2 – 3 m. The brush walling will be installed to a height of three logs as outlined in the technical drawings. The brush log walling alignment will be marked out and excavated to ensure the bottom log will be embedded to a minimum depth of 150 mm into the ground. A layer of Bidim A34 geotextile will be laid to the alignment and the logs placed on top. Jarrah stakes will be installed using a pneumatic post driver to ensure each jarrah stake is driven approximately 1,000 mm in the ground. Four jarrah stakes will be installed per stack of brush walling to secure in place.



**Figure 8:** Examples of brush walling performed by Natural Area at various sites, (*left*) Canning Foreshore, (*right*) Melville Beach Foreshore.

The limestone rock toe associated with the brush mattressing will be installed first. Following the regrading of the area, the toe will be excavated to the lines and levels outlined in the technical drawings and lined with a layer of Bidim A34 geotextile. The rock toe constructed using 75 to 300 mm limestone spalls installed by hand to ensure the integrity of the matting.

Brush mattressing will then be installed to the two areas outlined on the technical drawings. 700 GSM coir matting will be laid to the alignments and secured using 280 mm Biodegradable Gripper Pins. Matting will be installed to a minimum of 50 cm above the high-water mark with overlaps of at least 100 mm. Melaleuca sp. and Kunzea sp. brush will be cross layered on to a minimum thickness of at least 3 layers thick. Jarrah stakes (38 x 38 x 700 mm) will be installed at a rate of 3 - 4 stakes per m<sup>2</sup> and embedded 500 mm into the ground to secure the brush mattressing in place. Galvanised wire will then be looped through pre-drilled holes to further secure the matting.

Following the laying of the brush mattressing, Natural Area personnel will complete the construction of the limestone rock toe, tying the toe into the brush ensuring a 300 mm overlap occurs. Limestone boulders ranging between 200 – 400 mm diameter will be strategically placed across the area to further secure the matting into place. Care will be taken as to not displace the brush mattressing when manually placing the boulders.

## **2.11 Erosion Control Matting**

700 GSM coir matting will be laid and secured using 280 mm Biodegradable Gripper Pins. The matting will be cut where needed to accommodate for the terrain and native plants already present. Matting will be installed with overlaps of at least 100 mm facing away from the prevailing winds and trenched in along the edges.



**Figure 9:** Example of erosion control matting installed by Natural Area at Catalina Foreshore for Tamala Park Regional Council (2023).

## 2.12 Electrical Services

Natural Area will engage Renowned Electrical services to decommission the light pole onsite. Conduit will be procured and laid to the alignment required for connecting of future services. Laying of the conduit will occur prior to concreting works.

## 2.13 Concrete Works

### Kerb Installation

Concrete kerbing will be installed, as outlined in the construction drawings. Kerbing will be installed between the edge of the path and the road, and all kerbing alignments will be boxed out and the subbase compacted in preparation for installation. Natural Area will then utilise Kerb Doctor for the supply and install of the concrete kerbing.

### Concrete Pathways

Natural area will engage Total Concrete to install both the coloured exposed aggregate concrete and the standard concrete pathway outlined in the technical drawings. Natural area will box out and prepare the subbase using a posi-tracked loader and compact as required. Total Concrete will undertake minor leveling to ensure falls and grades are achieved prior to forming and pouring the pathways.





**Figure 10:** Total Concrete was sub-contracted to install a Boral Maze footpath to the City of Kalamunda’s specifications at Natural areas project site in Wattle Grove (2023).



**Figure 11:** Concreting extension to the vehicle access way at Yanchep surf lifesaving club undertaken by Total Concrete as part of Natural Area’s Stair remediation project (2023).

Concrete Stairs, Furniture & Retaining Wall

Total Concrete will be engaged to undertake all specialised concreting works for this project. FT04 and FT05 will be made offsite to the dimensions outlined in the technical specifications. All other concrete works will be formed up and poured in situ to ensure a seamless tie into the concrete pathways outlined above.

Engaging one contractor to complete all concreting works will ensure the finishes for all items are consistent and will result in a high-quality finished product.



**Figure 12:** Concreting works undertaken by Total Concrete at Mettam’s Pool; forming concrete by hand to tie into the existing GSC revetment (2021).

## 2.14 Limestone Block Walling

Natural Area will supply and lay 350 x 350 x 1,000 mm limestone blocks at the Esplanade Foreshore as per the technical drawings. Limestone blocks will be tested to ensure all blocks meet the requirements outlined in the Technical Specifications. Mortar will be mixed on site according to the specifications and will comply with AS 3700. All joints will be filled with mortar ensuring no voids are present. Face joints will be raked flush with the edge of the blocks.

## 2.15 Nature Play Elements

Salvaged timber logs will be obtained from Hamilton Sawmill and sourced from approved clearing activities if required. Prior to installation, all new and site won logs will be stripped of bark, splinters and chips and be sanded smooth. Cracks will be filled as required and the cut edges of logs and steppers will be pencil rounded. All timber used in the nature play is to be treated with Natural Decking oil and below ground surfaces painted with ground timber protector. Each timber log stepper will be installed with a concrete footing. Limestone boulders will be installed throughout the project area as per the technical drawings.

## 2.16 Fencing

Black PVC chain link mesh fencing with timber posts, will be installed along the existing pedestrian path as per the construction drawings. Natural Area has extensive experience in homestead fencing and will ensure the longevity of the fence through utilising using high quality products for this project. The fencing will be constructed using the following materials:

- RR5 2.1 m pine posts sourced from Permapole
- RR4 2.4 m pine posts sourced from Permapole
- 1,050 mm black PVC coated chain wire sourced from Southern Wire
- Black PVC coated Helicoil sourced from Southern Wire.



**Figure 13:** Homestead conservation fencing installed within the City of Vincent, 2022.

## **2.17 Mulch Installation**

Certified clean pine bark mulch and bushland mulch will be sourced from Depiazzi for installation as per the technical drawings. Natural Area will utilise an SVL75 Posi-track loader to transport the mulch from the laydown area to the required area. Technicians will then hand spread mulch to ensure an aesthetically pleasing finish. Mulch will be installed to approximately 100 mm thickness, as outlined in the construction drawings.

## **2.18 Turf Installation**

Prior to the installation of the turf, the alignment will be boxed out using a SVL75 Posi-track loader. Any spoils and rocks at the surface will be removed and topsoil will be spread over the areas to be turfed. All fill material will be disposed of offsite at Eclipse Soils for recycling. Natural Area will utilise Westland Turf for the supply and installation of turf. Before the turf is installed the area will be watered to prevent the drying out of the grass roots.

Any area with existing turf that has sustained damage due to the works will be remediated by applying a topsoil dressing. The turf and topsoil will be watered immediately after installation.

## **2.19 Revegetation Planting**

Following the preparation of the revegetation area at Banks Reserve, Natural Area will supply and install provenance specific revegetation tying in with the existing vegetation within the area. Natural Area owns and operates a NIASA accredited nursery with the capacity to supply high quality native plants for revegetation purposes. All species supplied will be endemic to the Swan Coastal Plain with many propagated from seed collected by our RIAWA accredited and licenced seed collectors. Augers will be used to excavate planting holes for tubestock where applicable. Plants will be planted ensuring the root ball sits below the surface of the soil. Terracottem will be incorporated into the holes of all plants planted above the high-water mark. All planting will comply to a setback of 0.5 from hard surfaces.

Salvaged and new plantings in geo-bags will be installed as per the technical drawings within the rock revetment. These bags will be planted amongst rocks with tight contact with the ground and secured with Starch pins.

A large auger will be utilised to excavate holes for the larger plants (5 – 45 L). Plants will be planted ensuring the root ball is covered. Approximately 20 g of Terracottem will be integrated into the holes of the 45 L trees, to assist with establishment. The 45 L trees will be supported with stakes and ties (3x jarrah stakes and ties per tree, as outlined in the planting drawings).

The planting of advanced 90 L trees will be in accordance with the planting plans. Each tree will be manually installed into the grassed planting areas. during installation 3 slow-release phosphorus fertilizer tablets will be added and mixed in with the excavated soil halfway down the root ball. All 90 L trees will be supported with stakes and ties (3x jarrah stakes and ties per tree, as outlined in the planting drawings).



**Figure 14:** Images of Natural Area's nursery facility (top) and images of propagated stock (bottom).



**Figure 15:** Before (*left*) and after (*right*) mulching and landscaping works at the Abernethy Road Entry Statement for the City of Belmont.

## 2.20 Consolidation Period

Natural Area will perform maintenance, including weed control and watering, for a period of 12 months post completion of the project. Natural Area will undertake weekly inspections for the first 10 weeks followed by fortnightly inspections for 2 months, and monthly inspection for the rest of the consolidation period.

Maintenance events will include:

- maintenance and upkeep of soft works
- monitoring plant survival and determination of supplementary plant requirements

- supplementary planting
- monthly weed control works utilising mechanical and chemical weed control methods as required
- rubbish collection and general site upkeep
- provision monthly maintenance reports.

Watering will be undertaken to assist with establishment of trees, tubestock and turf. The turf will be mowed as required to maintain the aesthetics of the area. Repairs to the fencing and erosion control installations will be undertaken on an as needed basis.

### 3.0 Timeframes and Responsibilities

Natural Area will complete works over a 20-week period, with timings of works coinciding with optimal weather conditions for the completion of all aspects of the project, including revegetation and tree planting. An indicative program of works has been provided below.

**Table 2:** Construction Programme for works at The Esplanade Foreshore

Task	Duration	Start	Finish	Responsibility
Award of Contract	1 day	Mon 18/12/23	Mon 18/12/23	City of Belmont
Start up meeting	1 day	Thu 25/01/24	Thu 25/01/24	NAH
Preparation of Clearing Permit Application	10 days	Fri 26/01/24	Thu 8/02/24	NAH
Approval of Clearing Permit	60 days	Fri 9/02/24	Thu 2/05/24	DWER
Preparation of Management Plan	30 days	Fri 23/02/24	Fri 5/04/24	NAH
Submission & Approval of Management Plans	20 days	Fri 5/04/24	Thu 2/05/24	City of Belmont/DBCA
Fabrication of Infrastructure	40 days	Fri 3/05/24	Thu 27/06/24	TruFab Engineering
Site Mobilisation	1 day	Fri 3/05/24	Fri 3/05/24	NAH
Site Set Out Survey	1 day	Mon 6/05/24	Mon 6/05/24	Vision Surveys Consulting
<b>Demolition and Site Preparation</b>	<b>12 days</b>	<b>Tue 7/05/24</b>	<b>Wed 22/05/24</b>	
Clear and Grub	3 days	Tue 7/05/24	Thu 9/05/24	NAH
Removal/Demolition of Structures	5 days	Fri 10/05/24	Thu 16/05/24	NAH
Topsoil Salvaging	2 days	Fri 17/05/24	Mon 20/05/24	NAH
Foreshore Salvaging	2 days	Tue 21/05/24	Wed 22/05/24	NAH
<b>Earthworks and Civil</b>	<b>14 days</b>	<b>Fri 17/05/24</b>	<b>Wed 5/06/24</b>	
Excavation & Stockpiling	8 days	Fri 17/05/24	Tue 28/05/24	NAH
Fine grading	1 day	Wed 29/05/24	Wed 29/05/24	NAH
Compacting	2 days	Thu 30/05/24	Fri 31/05/24	NAH
Regrading	2 days	Mon 3/06/24	Tue 4/06/24	NAH
Topsoil Respreading	1 day	Wed 5/06/24	Wed 5/06/24	NAH
Various Erosion Control Treatments	21 days	Thu 6/06/24	Thu 4/07/24	NAH
Drainage Upgrades	6 days	Fri 5/07/24	Fri 12/07/24	NAH
Construction of Viewing Platforms and Limestone Wall	14 days	Mon 15/07/24	Thu 1/08/24	NAH

Construction of Fishing Platform	12 days	Fri 2/08/24	Mon 19/08/24	NAH
Concreting works	20 days	Fri 2/08/24	Thu 29/08/24	Total Concrete/Kerb Doctor
Revegetation Planting - Western Section	4 days	Tue 20/08/24	Fri 23/08/24	NAH
Mulch Installation	4 days	Mon 26/08/24	Thu 29/08/24	NAH
Timber Log, Stepper and Limestone Boulder Installation	5 days	Fri 30/08/24	Thu 5/09/24	NAH
Revegetation Planting - Nature Play	3 days	Fri 30/08/24	Tue 3/09/24	NAH
Installation of Concrete Furniture	1 day	Fri 6/09/24	Fri 6/09/24	Total Concrete
Installation of Timber slats and edging	10 days	Mon 9/09/24	Fri 20/09/24	NAH
Turf Installation	2 days	Wed 4/09/24	Thu 5/09/24	Westland Turf
Installation of Concrete Pads and Bin Furniture	2 days	Fri 6/09/24	Mon 9/09/24	Total Concrete
Site Clean up	2 days	Mon 23/09/24	Tue 24/09/24	NAH
As Constructed Survey	2 days	Mon 23/09/24	Tue 24/09/24	Vision Surveys Consulting
Practical Completion	1 day	Wed 25/09/24	Wed 25/09/24	City of Belmont





## 4.0 Contact Details of Essential Site Personnel, Construction Period and Operating Hours

### 4.1 Contact Details of Essential Site Personnel

The key personnel for The Esplanade Foreshore Civic and Landscaping Works and their contact details are outlined in Table 3 below.

**Table 3:** Key Personnel and their Contact Details.

Name	Role	Contact Details
Dave Eccleston	Project management, client liaison, scheduling works, and personnel and subcontractor management.	<b>Nominated primary individual for contact.</b> ☎: 0421 332 425 ✉: <a href="mailto:david.eccleston@naturalarea.com.au">david.eccleston@naturalarea.com.au</a>
Lisa Coffey	Project management, Contract administration, client liaison, scheduling works, procurement, and subcontractor management.	☎: (08) 9209 2767 ✉: <a href="mailto:lisa.coffey@naturalarea.com.au">lisa.coffey@naturalarea.com.au</a>
Aidan English	Site supervisor, equipment operator, on site OHS, and implementation of works	☎: 0488 297 072 ✉: <a href="mailto:adian.english@naturalarea.com.au">adian.english@naturalarea.com.au</a>

### 4.2 Construction Period & Operating Hours

Construction is proposed to commence in February 2024 and completed over a 5-month period. Hours of operation will be 7:00 am to 5:00 pm, Monday to Friday. Saturday works will only occur if necessary, and with prior approval.

**Table 4:** Proposed Hours of Operations

Day	Start Time	Finish Time
Monday	07:00	17:00
Tuesday	07:00	17:00
Wednesday	07:00	17:00
Thursday	07:00	17:00
Friday	07:00	17:00
Saturday (if required)	07:00	17:00
Sunday	N/A	N/A

## **5.0 Ongoing Management of Controls to Reduce Turbidity and Prevent Sediment Plumes**

Due to the proximity of the works to the Swan River, Natural Area will deploy a silt curtain prior to commencing works, to reduce the risk of any sediment plumes entering the Swan River. Natural Area personnel will install the silt curtain along the river to the extent of works, to a depth where the curtain fall remains vertical at the average low tide and will be anchored to the shore in multiple places.

The silt curtain will remain in place for the duration of the works. Natural Area personnel will monitor the silt curtain daily. Natural Area will make every effort to minimise plumes, and to control them should they accidentally occur. To control accidental plumes, Natural Area will have spare silt curtain segments and a boat on site ready for deployment around a plume. Should an accidental plume occur, DBCA and the superintendent will be notified immediately. The curtain will remain in place following completion of works for a minimum of 14 days, or as advised by DBCA.

Upon the completion of the 14-day period (or earlier if advised by DBCA) Natural Area personnel will carefully remove the silt curtain from site.

## **6.0 Dewatering and Management**

Due to the negative environmental outputs associated with dewatering such as excessive or contaminated water, Natural Area intends on using a mobile diesel mobile pumping unit with a sound detonating screen to pump water from one section of the water body to another. Localised areas will be bunded using excavated fill material. The pump will then be used to transfer water from one section to another within area contained inside the silt curtain. The moving of the bunds as required will occur progressively for the duration of the works as required. If settlement ponds or water treatment is required, this will be discussed with the Principals Representative. In the event dewatering is required, a methodology will be discussed with the Principal prior to implementation.

## **7.0 Proposed Contingency Actions Should Environmental Controls be Inadequate**

Natural Area will deploy the relevant contingency measure, should any of Natural Area's environmental controls fail. Natural Area's contingency methods are outlined below:

- Should an accidental plume occur, Natural Area will have spare silt curtain segments and a boat on site ready for deployment around a plume. Natural Area will also notify DBCA and the Superintendent immediately.
- If machinery is required to operate nearby any tree to be retained or on any footpaths, rubber matting will be installed to prevent any damage to amenities occurring.
- Should any drainage, turfed areas, vegetation, paving, car parks, roads, kerbs, signs, furniture, light poles and footpaths sustain damage during the works, these will be made right during site clean-up and demobilisation.

- Due to the proximity to the river, Natural Area will install bunding around the laydown areas, in the form of silt trap fencing to ensure runoff of deleterious materials does not occur.

## 8.0 Identification and Protection of Established Vegetation

As specified in the technical guidelines, Natural Area will establish Tree Protection Zones (TPZ's) with the use of temporary fence panels or bunting around the trees and vegetation. The TPZ's will be designated 'no access' areas where stockpiling of materials and machinery are prohibited. The locations of trees to be retained will be confirmed with the Superintendent prior to the commencement of clearing activities, potential trees have been outlined in Figure 16 below.

All existing sedge stock that will potentially be impacted by construction works or is marked for removal will be carefully removed and placed in geobags for relocation to the Natural Area nursery for storage and preservation. Sedge stock will be returned to site when replanting can be undertaken following completion of the rock revetment works.



**Figure 16:** Site map of existing vegetation to be retained at The Esplanade.

## 9.0 Photos of Existing Vegetation



**Figure 17:** Existing vegetation at The Esplanade.



**Figure 18:** Existing vegetation at The Esplanade.



**Figure 19:** Existing vegetation at The Esplanade.



**Figure 20:** Existing vegetation at The Esplanade.



**Figure 21:** Existing vegetation at The Esplanade.



**Figure 22:** Existing vegetation at The Esplanade.



**Figure 23:** Existing vegetation at The Esplanade.



**Figure 24:** Existing vegetation at The Esplanade.





Figure 25: Existing vegetation at The Esplanade.

## 10.0 Details of Machinery and Associated Refuelling

### 10.1 Plant, Equipment, and Materials

Natural Area will be hiring the following equipment from ProQuip (Figure 26), a reputable supplier of earth moving equipment:

- 8 Tonne Excavator (Yanmar ViO80-1)
- Posi Track Loader (SVL 75).



Figure 26: Machinery to be hired from ProQuip for the John Street Project.

Natural Area has hired equipment through ProQuip to complete works for numerous construction projects including for the City of Kalamunda, Stirling, Swan, Melville, Armadale and the Department of Planning Land and Heritage. All equipment provided has been in good condition and has been fit for purpose.

Having been involved in various environmental civil projects over the past 10 years, Natural Area has acquired a substantial inventory of plant and equipment necessary to undertake various types of on-ground environmental, construction and drainage upgrade projects. Natural Area owned equipment and plant includes a range of mini loaders, excavators, posi-track loaders, hand operated tools and other equipment necessary for this project such as laser levels, cement mixers and plate compactors. A list of all plant and equipment to be used in the contract has been outlined below in Table 5 and 6.

**Table 5:** Plant Available for Use

Description	Condition
Equipment Hire: 8 Tonne Excavator	Hire Equipment
Equipment Hire: SVL 75 Posi-tracked Loader	Hire Equipment
Mini Kanga Loader (Kanga 6 series DA-625)	Excellent
1.8 T excavator (Komatsu PC18MR-3)	Good
Posi-track Loader (Terex PT-30)	Good
Posi-track Loader (ASV RT-40)	Excellent

**Table 6:** Equipment Available for Use

Type	Model
Spray Units	600L Quik Spray Dual Motorised Reel
Watering Units	800 L units
	1500 L watering units
Chain Saws	Stihl MS 180Z
Saws	Makita Circular Saw
	Stihl Cut-off Saw
Compactor	Whacker Neuson Compactor
Angle Grinder	Makita Paddle Switch Angle Grinder Cordless
Woodchipper	Vermeer BC900XL Woodchipper
Auger	Stihl BT 45
Planting Tools	Pottipuki (S & L)
	Kidney Buckets
	Planting Bags
	Planting Shovel
Miscellaneous	Sledgehammer
	Mulching Fork
	Fencing Bar
	Laser Level

## 10.2 Refuelling

All hire equipment will be refuelled within our proposed laydown area which lies outside of the Swan Canning Development Control Area (DCA). Equipment owned by Natural Area will be refuelled off site at Natural Area's depot, a service station or if handheld tools require refuelling, these will be refuelled within a bunded section of the laydown area. This will ensure that refuelling will not occur within the DCA and will reduce the risk of fuel spills on site.

At all times during general works, Natural Area will maintain a standard spill kit within the material laydown areas spill kits; the location of spill kits will be outlined to all personnel working on site as part of the site induction procedure. In the event of a fuel/oil spill or any other environmental incident, steps will be taken to clean up the contaminated area immediately, and DBCA will be notified.

## 11.0 Waste Management

Natural Area intends to keep waste resulting from the works to a minimum and will recycle material where possible. All waste which is generated will be removed from the site daily (where possible) or stored securely within the laydown area until reuse, to ensure that it does not enter the drain or other nearby areas. For the purposes of these works, 'waste' can be defined as demolition materials from the existing structure, supply item packaging (e.g., coir mesh package wrapping), or other deleterious materials such as rubble and rock which are removed from the site during works. Throughout the implementation of this project, Natural Area will reduce construction waste through the following methodologies:

- recycling of asphalt through disposing of materials at capitol recycling who will process and reuse materials
- reuse of suitable fill material excavated during the laying of drainage infrastructure
- recycling of unsuitable fill sands at eclipse soils
- procurement of clean, recycled fill from eclipse soils where required
- procurement of fully biodegradable coir matting with no nylon filaments present
- recycling of material packaging at our operations depot
- reuse of pine post fencing materials where suitable
- adhering to our waste management sop (SOP-HSEQ-063 Waste Management), which focuses on the reduction of waste and responsible management of waste generated by business activities.

The site will be maintained and kept in a tidy manner for the duration of works. 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 City.

## 12.0 Protection of the River from Inputs of Debris, Run-Off, Soil, Fill, or Other Deleterious Material

With all construction works occurring on or near the banks of the Swan River, there is a risk for deleterious materials to enter the water way and for turbidity levels to increase. Natural Area will minimise this by

storing all equipment and materials in a safe distance from the water. All materials and equipment will be stored within the site laydown area as outlined in Section 20.0 Detailed Site Map.

All areas containing fines, fill material, or rock stockpiles will be bunded. Bunding will be in the form of coir logs to the river side of materials, trenched into the ground where possible and held in place using timber stakes, as per manufacturer's instructions. If rain is forecast during the works, material stockpiles will be covered using geotextile or black plastic secured to the ground using steel pins, to prevent runoff or wind-borne materials entering the water way. Turf damaged from any component of works will be repaired/ replaced upon completion of works.

Natural Area will utilise a silt curtain to minimise turbidity risks, for the duration of the works program. Prior to commencement of ground works, Natural Area personnel will install the silt curtain along the river to the extent of works, to a depth where the curtain fall remains vertical at the average low tide but does not disrupt passing boat traffic. The silt curtain will be anchored to the shore at a minimum of two locations with the use of capped star pickets. The silt curtain will be installed and maintained according to DBCA specifications for the duration of the works and will remain in place following completion of works until removal is approved by the City's representative, based on visual observation of turbidity levels in comparison to background river levels. Natural Area will make all reasonable efforts to prevent plumes, and to control them should they occur.

Minor excavation will be required to ensure the lines, levels and dimensions outlined in the technical drawings are achieved. In order to prevent any PASS from entering the river, all excavated material will be treated as PASS and removed from site and disposed of at Eclipse Resources' licenced facility where it will be classified and treated. The base of the excavated areas will then be dusted with AgLime or as outlined in the site specific ASSMP.

## **13.0 Public Safety and Amenity**

### **13.1 Public Safety**

In order to ensure public safety and public amenities are maintained, Natural Area will install temporary fencing around the proposed laydown area and site access points (Figure 27, section 20.0). Construction signage will be displayed along the fencing. The alignment of the temporary fencing is indicated on the site plan and aims to provide the public with access to surrounding areas whilst preventing access to the actual work site. The installation of the temporary fence will occur on the first day Natural Area are on site and will remain in place until all works are completed.

Natural Area will utilise temporary fencing to limit public access to the site and ensure public safety. All principles and practices set out in AS 1470 – 1986 Health and Safety at Work will be followed as well as all WorkSafe requirements. In addition, Natural Area has developed in-house safety procedures to ensure all work is compliant with set standards. Signage will be utilised to alert pedestrians of the works occurring; all signs will comply with AS 1742. Natural Area will ensure that all signage is visible and inspected daily.

A key consideration associated with these works is maintaining access for and ensuring the safety of pedestrians and cyclists. To minimise this risk Natural Area will implement a Pedestrian, Cyclist & Traffic Management Plan produced by an accredited traffic management company holding advanced worksite traffic management certification, to ensure that safe pedestrian and cyclist access will be maintained for the duration of the works. This will include the use of temporary site safety fencing, works signage and pedestrian detour signage, which will be checked regularly throughout the works. The dual use footpath will remain open during the works. To mitigate safety risks with materials and machinery crossing this path to the site, the TMP will be adhered to at all times. Natural Area will ensure that a spotter is always in place when machinery is in use.

Access for vehicles and equipment is from the Esplanade (Ascot), entry via Ford Street. The site location presents several challenges associated with access for equipment and the required material deliveries. Access restraints include the location of the worksite to surrounding infrastructure and the request to maintain access to the pathway adjacent the rock revetment, trees and other vegetation, and traffic associated with the area being popular with pedestrians and cyclists. We have outlined the most favourable site access option following a site visit and discussion with material suppliers; this is outlined in the proposed site map (Section 20.0). Material deliveries will occur in 6 or 8-wheeler loads and will not occur during peak traffic times to limit traffic disturbance as much as possible. Materials will then be transported to works areas as required using machinery and tipper trucks fitted with rotating beacons and reversing buzzers.

### **13.2 Amenity**

The works site is in close proximity to residential buildings and a high trafficable DUP, there is a chance of noise and dust affecting members of the public. To reduce this risk, Natural Area will have a water cart and standpipe present on site for the entire duration of the works. To reduce noise, Natural Area will utilise small plant equipment where possible and will only conduct work on Monday to Friday between 7 am and 5 pm. All Natural Area personnel are conscious of noise while on site and will limit noise emissions to essential work tasks only.

Protection measures, such as bunting and tree protection zones, will also be put in place to minimise the risk of damage to paths/kerbs, trees/vegetation to be retained and other infrastructure, whilst maintaining safe pedestrian access. Any damage to turfed areas and existing infrastructure will be made good at the completion of works.

A key risk to public amenity is the potential for damage to occur to the infrastructure present within and immediately surrounding the works area, including the jetty, pathways, light posts, benches, infrastructure such as buildings and walls, turf and garden beds. To minimise this risk Natural Area will undertake majority of the revetment maintenance works manually and where required we will utilise our NAH owned small machinery. In addition, we have liaised with our equipment hire partner ProQuip who will provide smaller plant where possible ensuring all equipment has rubber tracks. Utilising an excavator with rubber trucks will reduce the risk associated with damaging any pathways and infrastructure whilst traversing and operating across the site. Rubber mats will be placed wherever delivery trucks are operating and unloading materials. This will provide an added layer of protection with minimal clean up opposed to using clean fill sand.

For the construction of the rock revetment, we propose the use an SVL75 posi-track loader to traverse limestone spalls from the stockpile area to the works site. All works will be conducted in a manner where risk to infrastructure is limited through all personnel being aware of their surroundings and referencing relevant documentation such as BYDAs where required and adhering to the site-specific traffic management plan.

A preliminary BYDA has been undertaken which portrayed no services within the working area. However, Natural Area acknowledges that there are City services throughout the area including electrical conduits linking the lighting infrastructure and irrigation services. A copy of the infrastructure plans detailing the location of services is to be provided to Natural Area upon award of the contract to enable the marking out of the services. Manual excavation will be undertaken in areas in close vicinity to the infrastructure to reduce the risk of any damage occurring.

Natural Area considers the protection of the trees onsite to be of utmost importance. Our personnel have extensive experience operating equipment and machinery in environmentally sensitive areas and will utilise manual means wherever possible to minimise the risk of damaging the vegetation. Tree protection zones (TPZs) will be established to delineate the structural root zone of each tree. The TPZs will be ‘no access’ areas for any stockpiling of materials or machinery use. Care shall be exercised when excavating near tree roots likely to be damaged by the Contractor’s activities. TPZs are to be installed as per AS4970-2009 standards with signage erected stating “Tree Protection Zone- No Entry”.

## 14.0 Complaints and Environmental Incident Management

All incidents and complaints will be recorded and reported to the Natural Area Site Supervisor. An Incident and Hazard Report form must be filled out within 24 hours of the incident occurring. The City shall be notified of all incidents and complaints within 24 hours of occurrence; any complaints will be managed as per the City’s complaint procedure as well as Natural Area’s own complaint resolution policies. Any environmental incidents will be reported to the DBCA immediately. Contact details for all stakeholders to be involved in the works at the John St River Wall Replacement are outlined below (Table 7).

**Table 7:** Key Contact List

Organisation	Contact Name	Role	Number
Natural Area	Aidan English	Project Manager	0488 297 072
Natural Area	Dave Eccleston	Works Manager	0421 332 425
Natural Area	Lisa Coffey	Project Administration	(08) 9209 2767
City of Belmont	Edward Davies	Project Delivery Coordinator	(08) 9477 7135
Donald Cant Watts Corke	Emely Maas	Superintendent	(08) 9324 1950
DBCA	Melanie Jeffery	Riverpark Officer	(08) 9278 0981

## 15.0 Containment of Stockpiles of Materials

Stockpiling will occur only within designated stockpiling areas. All areas containing fines, fill material, or rock stockpiles will be bunded using a sediment fence, mulch bund or coir logs around the lower side of the stockpile. If rain is forecast during the works, material stockpiles will be covered using geotextile or black plastic secured to the ground using steel pins, to prevent runoff or wind-borne materials entering the waterway. A water cart will be on site for the duration of the works to ensure that all stockpiles are wet down to reduce dust production.

## 16.0 Location of Emergency Spill Kits

At all times during the works, Natural Area will maintain marine spill kits; the location of spill kits will be outlined to all personnel working on site as part of the site induction procedure. This will include:

- standard spill kit within the material laydown area; and
- a marine spill kit within the construction zone.

In the event of a fuel/oil spill or any other environmental incident, steps will be taken to clean up the contaminated area immediately, and DBCA will be notified within 1 hour on (08) 9278 0981. Due to the location of the proposed material laydown area, it is not envisaged that any temporary drainage blocks will be required for these works.

## 17.0 Fauna Management

Working in natural areas pose a risk to the fauna onsite but also to our personnel. Given the nature of the works and the requirement to manually remove and disturb the ground, there is the increased risk of snake and spider bites. All personnel are trained in the correct and most effective way of dealing with these risks and each personnel will be equipped with snake bite bandages and supplied with gators for the duration of the project. Natural Area's environmental consultants are qualified to undertake the relocation of animals in emergency circumstances. As part of the Clearing Permit process, Natural Area will apply for a fauna taking license as fauna is typically encountered during works of this nature. In the event relocation is required, the City will be consulted, and fauna relocated to adjacent areas as required.

In the event an injured animal is found on site, Natural Area will inform the Superintendent immediately and seek advice from the following organisations:

- Wildcare Helpline – (08) 9474 9055
- Kanyana Wildlife – (08) 9291 3900
- DBCA Rivers and Estuaries Division – (08) 9219 9000 ([rivers.planning@dbca.wa.gov.au](mailto:rivers.planning@dbca.wa.gov.au)).

Natural Area personnel are also advised to follow company procedure in the event injured wildlife is encountered on site, and more information can be found in *SOP-HSEQ-061 Injured Wildlife Management*, provided in Appendix 1.

## 18.0 Weed Management

As an environmental management company that has been providing weed control services for 20 years, Natural Area is well-equipped to manage environmental weeds throughout the duration of the works. Natural Area’s licensed and experienced herbicide technicians will undertake weed control across the site prior to and during construction works to control the weed population. Weed control will also be included in the softworks maintenance for 12 months following the site works.

## 19.0 Noise & Dust Management

Natural Area understands that noise impact is to be limited to 75 – 80 decibels. Works using noise generating equipment will be carried out in accordance with the *Environmental Protection (Noise) Regulations 1997*. The use of noise generating equipment will be kept to a minimum where possible, and equipment will not be operated outside the hours of 7 am – 5 pm. Further details are outlined in *SOP-HSEQ-025 Noise Management*, provided in Appendix 1.

Where works are generating excess dust, they will be dampened with water to reduce dust emissions. A water cart will be on site for the duration of the works to ensure that all stockpiles are wet down to reduce dust production. The installation of temporary fencing will also mitigate the spread of dust. Further details are outlined in *SOP-HSEQ-062 Dust Management*, provided in Appendix 1.

## 20.0 Quality Management Systems

### Inspection Test Plans

As outlined in the City’s request, inspections shall be carried out in accordance with the Hold Point Schedule outlined in Table 8. Additionally, Natural Area’s Field Operations General Manager, Dave Eccleston and our Operations Manager Environmental Civil Projects, Aidan English, will undertake periodic site inspections. By doing so, all works will be quality controlled throughout the life of the project and ensure that the City is provided the best quality works possible.

### 20.1 Schedule of Inspections

**Table 8:** Hold Point and Witness Point Schedule

Inspection Description	Inspection Type
<b>Site Preparation</b>	
On receipt of approval of the CEMP and prior to commencement of site preparation works, undertake a pre-start inspection	Hold Point
<b>Following completion of site works</b>	
- Items after demolition and prior to removal off site	Witness Point
- Stockpiling of mulch	Witness Point
- Items after demolition and prior to removal off site	Witness Point



<b>Inspection Description</b>	<b>Inspection Type</b>
- Effectiveness of weed control works 5 to 10 days after application	Witness Point
<b>On receipt of approval of the CEMP and prior to mobilisation</b>	
- Arrangement for traffic management and public safety	Witness Point
- Arrangement for fauna management	Witness Point
- Tagging of all trees / vegetation to be removed	Witness Point
- Unusual conditions or hazardous items discovered	Witness Point
- Identification of all existing services and arrangement for protection where required	Witness Point
- Proposed locations of site storage areas	Witness Point
<b>Following mobilisation and prior to clearing and demolition works</b>	
- Site access, site safety fencing and enclosures	Hold Point
- Erosion and sediment control measures in place	Hold Point
- Site mark out, TPZ's and protective measures in place (e.g., vegetation, irrigation, underground services)	Hold Point
- Site mark out of preliminary weed control works	Hold Point
- Effectiveness of preliminary weed control works for 510 days after application	Hold Point
- Site mark out of proposed clear and grub, and proposed stockpile areas	Hold Point
- Identify any potholes that require filling around existing drainage	Hold Point
<b>Following completion (or staged completion) of clear and grub and demolition works</b>	
- Completion of all clear and grub works	Witness Point
<b>Weed Control</b>	
Identification of areas requiring weed control works prior to weed control works	Witness Point
Effectiveness of weed control works 5 to 10 days after application	Witness Point
<b>Earthworks</b>	
First example (min. 20 lin.m) of completed and compacted embankments	Witness Point
Unsuitable fill prior to disposal off site	Witness Point
<b>Hydraulics &amp; Soil Erosion Treatments</b>	
Rock on delivery to site	Witness Point
Brush on delivery to site	Witness Point
Set-out of works	Witness Point
Completed outlet structure HW01	Hold Point
Completed outlet structure HW02	Hold Point
First example of completed section of ER01	Witness Point

<b>Inspection Description</b>	<b>Inspection Type</b>
First example of completed section of ER02	Witness Point
First example of completed section of ER03	Witness Point
First example of completed section of ER04	Witness Point
First example of completed section of ER05	Witness Point
First example of completed MR02 installation within ER05	Witness Point
First example of completed section of ER06	Witness Point
First example of completed section of ER07	Witness Point
<b>Concrete Works</b>	
Set-out of works	Witness Point
Completed conduit installation	Witness Point
Site preparation after base and subbase preparation	Hold Point
Inspection of formwork and steel reinforcement after installation	Hold Point
Completed limestone retaining prior to installation of concrete slab over	Hold Point
First example of completed section of concrete walling	Witness Point
First example of completed section of concrete pathway	Witness Point
<b>Steel Works</b>	
Contractor's submissions – shop drawings	Hold Point
Fabrication and surface preparation before protective coating	Hold Point
Complete steelwork fabrication prior to delivery to site	Hold Point
Foundation preparation ahead of installation	Hold Point
Connections after final tightening	Hold Point
<b>Fibre Reinforced Plastic Grating (FRP)</b>	
Contractor's submissions – shop drawings	Hold Point
Arrival to site, prior to installation	Witness Point
First completed example of cut panels	Witness Point
First completed example of installed panels	Witness Point
Fixings and fastenings after final tightening	Witness Point
<b>Planting Works</b>	
Plant supply, arrival of plants and advanced trees to site and inspection prior to distribution into planting areas	Witness Point
First example of a completed section of vegetation transplanting	Witness Point
First example of a completed section of lower embankment planting	Witness Point

<b>Inspection Description</b>	<b>Inspection Type</b>
First example of a completed section of upper embankments planting	Witness Point
First example of a completed section of geo-bag planting	Witness Point
Set-out of advanced trees as directed by the Superintendent	Hold Point
First example of a completed section of advanced tree installation	Witness Point
<b>Tactile Ground Surface Indicators</b>	
Product inspection and set out for tactile indicator locations prior to installation	Witness Point
First completed example of tactile indicators installed	Witness Point
<b>Timber Works and Furniture Elements</b>	
Preparation of logs prior to placement	Witness Point
First example of each timber seating module (including backrest, armrest) prior to delivery to site	Witness Point
Set out of seating and nature play elements prior to installation	Hold Point
Set out of bins as directed by the Superintendent	Hold Point
First example of fabricated and prepared log and log stepper prior to installation	Witness Point
<b>Fencing</b>	
Set out fencing	Hold Point
Following installation of pots and prior to installation of chainwire	Witness Point
<b>Practical Completion</b>	
Receipt of all required submissions and as-constructed information prior to Practical Completion	Hold Point
Practical Completion Inspection	Witness Point

## 20.2 Quality Assurance System

Natural Area recognises the importance of providing quality goods and services to our customers to maintain our reputation as a leader in the industry. All business units are committed to providing quality service and outcomes on all our projects for all our customers by meeting and exceeding the requirements of the ISO 9001:2015 Quality Management Standard. To achieve this, Natural Area will:

- Ensure customer enquiries are dealt with efficiently and by the relevant personnel with knowledge and expertise.
- Achieve, maintain and exceed a level of quality to the satisfaction of customers which builds our reputation as a leader in the industry.
- Provide the necessary training and inductions for all personnel and encourage them to seek out training opportunities to continue their professional development.
- Ensure all personnel understand the level of quality expected from them in the day-to-day operations of the business.

- Ensure quality management, including potential improvements to the system, is discussed at management meetings.
- Comply to relevant legislation and use regulatory body advice when undertaking applicable procedures.
- Regularly review the NAH Quality Management Plan and Standard Operating Procedures to incorporate efficiencies, changes to legislation and changes to customer needs, and to demonstrate our commitment to the improvement of the quality management system.
- Maintain documents to ensure records are kept and available for reference.

### **Standard Operating Procedures (SOPs)**

These documents describe the actual process, and controls applied to all activities concerned with undertaking specific work. Natural Area's SOPs are categorised according to which management system they operate within (Environmental Management, Human Resource Management, Occupational Health & Safety Management and Quality Management). The relevant SOPs are included in Appendix 1.

### **HSEQ Planning & Review**

Customer satisfaction and quality are achieved through effective operation of Natural Area's integrated HSEQ system and delivery of project objectives on time and on budget. Specific customer requirements are identified and documented during the tendering and quoting process, these requirements are communicated and then achieved, ensuring satisfaction of all customers' needs. HSEQ management is listed as an agenda item at all Managers Meetings with guidance provided by the HSEQ Manager. Internal audits are conducted on a regular basis to ensure the Natural Area is functioning as intended and any improvements that are required are implemented.

### **Customer Service Charter**

Natural Area Holdings Pty Ltd (NAH) is a wholly Western Australian owned and operated company focused on providing on-ground environmental management, environmental consulting, and quality native plants to our customers throughout WA. Our commitment to providing quality and reliable services, products and outcomes for our customers is inherent in our company mission, vision, and values, as well as our workplace culture.

Our customers can expect the following:

- We will provide timely service with works completed within allocated timeframes.
- We will provide trained and competent professionals to complete works and services.
- We will undertake works and service to the highest standards possible.
- We will provide a safe and accessible workplace for customers when they visit our office and work depots.
- We will address any complaints and issues immediately.
- We will seek feedback on the quality of work provided.
- We will continually improve our service.
- We will always safeguard customer property and ensure the final product of our work conforms to requirements.

|| MISSION  
Value creation for our shareholders by:  
satisfying customer expectations  
demonstrating and sharing the  
community benefits of best practice  
natural area management  
training and developing new landcare  
and bush regeneration operators  
conducting an environmentally  
responsible and ethical business

|| VISION  
To provide commercial and  
community leadership,  
being regarded as the pre-  
eminent business in our  
chosen market.

|| VALUES  
To maintain:  
Relationships ahead of  
opportunity  
Quality ahead of profit  
Fairness ahead of  
exploitation

### 21.0 Detailed Site Map



Figure 27: Proposed site map.

## Appendix 1: Standard Operating Procedures

### SOP-HSEQ-025 Noise Management

#### Background and Aim

Noise relates to any unpleasant or unwanted sound and can lead to annoyance and stress as it disrupts day-to-day activities. Under the *Environmental Protection Act 1986*, noise is defined as: "noise includes vibration of any frequency, whether transmitted through air or any other physical medium." Some activities undertaken by NAH require the use of vehicles or equipment that may generate noise. The aim of this procedure is to undertake all activities with the minimum amount of noise.

#### Scope

This procedure applies to all:

- field activities at any client site
- any activity at any Natural Area depot/office
- NAH personnel, including part time, full time, casual staff, work experience and volunteers
- NAH subcontractors.

#### Relevant Legislation, Policies or Guidelines

- Code of Practice - Managing Noise and Preventing Hearing Loss at Work
- Code of Practice - Managing Noise at Workplaces
- Environmental Protection (Noise Regulations) 1997
- Environmental Protection Act 1986

#### Relevant NAH Documents

- FORM-HSEQ-001 Incident Report Form

#### Precautions

As regular exposure to loud noise can lead to hearing damage or loss, appropriate hearing protection must be worn by those operating loud machinery. Hearing protection should also be worn by other NAH personnel working in the vicinity.

The *EP Act* contains a number of offences relating to unreasonable noise, resulting in a range of penalties.

There are harsher penalties for intentional or criminally negligent conduct. It is an offence to:

- emit an unreasonable emission of noise
- cause pollution (including noise pollution)
- use equipment on any premises in such a way as to emit an unreasonable noise
- own or drive a vehicle or vessel that does not comply with the prescribed noise standard for that class
- own or install any equipment that, when operated, that can exceed the noise limit
- manufacture, sell, supply, assemble, distribute, or store any equipment or vehicle which, when operated under prescribed test conditions, exceeds the relevant noise limit for that equipment or vehicle.

Note that some of these offences are not only associated with the use of equipment in such a way as to

exceed the noise limit but are linked to the capability of the equipment to exceed the limit.

**Planning Checklist**

Not used

**Detailed Instructions SOP-HSEQ-025 Noise Management**

Step	Action/Activity	Responsibility
<b>1.</b>	<b>Project Management</b>	
<b>1. a)</b>	Obtain copies of client noise procedures, if any, prior to planning and carrying out field activities.	NAH Project Manager
<b>1. b)</b>	Determine whether or not there are noise sensitive premises close by (e.g. school, urban area, hospital, aged care facility, child care centre) that need to be informed of ‘noisy’ works.	NAH Project Manager
<b>1. c)</b>	Any complaints received will be directed to the Operations Manager for investigation and response	NAH Project Manager
<b>2.</b>	<b>On-site works</b>	
<b>2. a)</b>	Works using noise generating equipment must be carried out in accordance with the <i>Environmental Protection (Noise) Regulations 1997</i> .	Field personnel
<b>2. b)</b>	Where possible, use of noise generating equipment must be kept to a minimum. When choosing equipment for works, consideration should be given to equipment which is quiet and reasonable.	Field personnel
<b>2. c)</b>	Equipment must not be operated prior to 7 am or after 7 pm on any day of the week.	Field personnel
<b>2. d)</b>	Appropriate and or mandated hearing protection must be worn when using the following pieces of equipment: chainsaw, brush cutter, auger, blower, hedge trimmer and potting machine.	Field personnel

## SOP-HSEQ-062 Dust Management

### Background and Aim

Dust management may be required at sandy sites during dry months, particularly summer, in windy conditions. It is expected that clients will have the majority of responsibility for dust management on their sites, with possible exceptions being when NAH have been contracted to undertake erosion control activities or accessing sandy sites by vehicle. The aim of this procedure is to carry out all field activities whilst keeping dust to a minimum.

### Scope

This procedure applies to all:

- All NAH personnel, including part time, full time, and casual staff.
- All NAH subcontractors

### Relevant Legislation, Policies or Guidelines

A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities.

### Relevant NAH Documents

- SOP-HSEQ-026 Safe Vehicle Use

### Precautions

Fine particulate matter (<2.5 µm) can enter deeper into the lungs than larger particulate materials. Particulates may include the presence of a number of minute hazardous materials with the potential to result in adverse health effects if exposed to large amounts over longer periods of time.

### Planning Checklist

Not used

### Preparation

Not used

### Detailed Instructions of Dust Management

Step	Action/Activity	Responsibility
1.	Confirm dust management requirements, if any, at work site with client project officer. This may include speed limit on access tracks.	NAH Project Manager
2.	Obtain copies of relevant client procedures and/or works instructions prior to attending site for the first time.	NAH Project Manager
3.	In the event vehicles need to access sandy or other sites where dust may be generated, vehicles need to be driven in a manner that minimises dust, including: <ul style="list-style-type: none"> <li>▪ following to specified tracks and access ways</li> <li>▪ driving at speeds along dirt and/or gravel roads or tracks such that dust generation is minimised.</li> </ul>	Field personnel (Driver)



<b>Step</b>	<b>Action/Activity</b>	<b>Responsibility</b>
4.	Vehicles will be parked in nominated areas or designated parking areas as appropriate.	Field personnel
5.	In the event materials being used are generating excessive dust they will be dampened with water to reduce dust emissions.	Field personnel
6.	Where possible sign off area with workman/fire fuel load management signs to make public aware of works in the area.	Field Personnel

## **SOP-HSEQ-061 Injured Wildlife Management**

### **Background and Aim**

Working in natural areas, particularly bushland, wetlands and waterways, there is a potential for work activities to directly or indirectly impact local fauna. Impacts can include loss of habitat, injury or death. The aim of this procedure is to prevent or minimise any impacts on native fauna species, particularly threatened or endangered species.

### **Scope**

- This procedure applies to all:
- field activities at any client site
- any activity at any Natural Area depot/office
- NAH personnel, including part time, full time, casual staff, work experience and volunteers
- NAH subcontractors.

### **Compliance Obligations (refer to REG-HSEQ-002)**

#### **External Resources**

- ISO 14001:2015 Environmental Management System
- ISO 9001:2015 Quality Management System
- AS/NZS 45001:2018 Occupational Health & Safety
- AS/NZS 4801:2001 Occupational Health & Safety
- Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
- Environmental Protection Act 1986 (WA)
- Work Health and Safety (General) Regulations 2022 (WA)
- Work Health and Safety Act 2020
- Animal Welfare Act 2002 (WA)
- SOP Care of evicted pouch young
- SOP First aid for animals
- SOP Hand restraint of wildlife
- SOP Humane killing of animals under field conditions
- SOP Transport and temporary holding of wildlife
- SOP Managing Disease Risk in Wildlife Management
- SOP Animal handling/restraint using soft containment
- SOP Hand capture of wildlife

#### **Internal Resources**

- POL-HSEQ-002 Quality Policy
- POL-HSEQ-003 OHS Policy
- POL-HSEQ-004 Environmental Sustainability Policy
- MAN-HSEQ-001 Integrated HSEQ Manual
- SOP-HSEQ-044 Animal Trapping
- SOP-HSEQ-045 Vertebrate Pest Management

**Precautions**

Injured birds and animals will be stressed and in pain and will attempt to flee the stressful situation. Care will need to be taken to minimise the potential for further stress. Be aware that they will attempt to scratch, bite, and peck. Where possible, do not chase a bird or animal unnecessarily. When caught, place the bird or animal in a confined, preferably darkened container, and transport to the nearest vet as soon as possible.

**Planning Checklist**

Other agencies that may be able to help if the Wildcare Helpline (08 9474 9055) is busy:

- Balcatta Vet Hospital, Balcatta – 08 9345 4644 (24hrs)
- Darling Range Wildlife Shelter, Martin – 08 9394 0885 (seven days a week 8.30am to 5.00pm)
- Kaarakin Black Cockatoo, Martin - 08 9390 2288 (office hours)
- Kanyana Wildlife Rehabilitation Centre, Lesmurdie – 08 9291 3900 (seven days a week 8.00am to 6.00pm)
- The Animal Hospital, Murdoch University – 1300 652 494 (24hrs)
- Native Animal Rescue, Malaga – 08 9249 3434 (weekdays 9am to 5pm, 10am to 4pm weekends)
- Native ARC, Bibra Lake – 08 9417 7105 (seven days a week 8.30am to 7.00pm) After hours (8pm to 8am): 0487 922 484
- WA Seabird Rescue – 08 6102 8464 (8am to 6pm, seven days a week)
- Turtle Oblonga Network for Western Long neck turtles - Emergency mobiles: East Metro: 0424 727 411; South Metro: 0424 727 624; North Metro: 0414 476 867

**Detailed Instructions SOP-HSEQ-061 Injured Wildlife Management**

Step	Action/Activity	Responsibility
1.	Obtain copies of Client procedures relating to fauna management on award of contract.	NAH Project Manager
2.	Ensure no domestic animals, particularly dogs, are taken onto field activity sites.	Field Personnel
3.	Undertake field activities in a manner that prevents or minimises potential threats and impacts to native fauna, including: <ul style="list-style-type: none"> <li>▪ vehicle movement</li> <li>▪ weed spraying</li> <li>▪ laying of baits to control pest and/or feral species</li> <li>▪ use of equipment</li> <li>▪ clearing of habitat</li> <li>▪ clearing trees with nesting hollows</li> </ul>	Field Personnel
4.	In the event native fauna species are injured as a result of NAH activities, the animal should be taken to the nearest vet or wildlife rehabilitation centre.	Field Personnel
4. a)	Call the DBCA Wildcare Helpline on 9474 9055 for details on the closest animal rescue centre. To assist the rehabilitator and the future release. Note: <ul style="list-style-type: none"> <li>▪ the location that you found the animal</li> <li>▪ the time of day</li> <li>▪ what condition it was in when you found it</li> </ul>	Field Personnel

Caring for an injured animal:

You should contain the animal securely so that it does not injure itself further or injure you, take the following steps if you rescue an injured animal:

- |              |   |                 |
|--------------|---|-----------------|
| <b>4. b)</b> | <ul style="list-style-type: none"> <li>▪ if you are worried about picking up an animal, get someone to help, do not pick up an injured animal if there is a serious risk of injuring yourself</li> <li>▪ use a towel or similar to place over the animal and gently pick it up</li> <li>▪ place it into an appropriately sized, ventilated box</li> <li>▪ keep the animal warm, in a dark and quiet place</li> <li>▪ have as little contact with the animal as possible</li> <li>▪ do not offer food or water unless advised to do so by a rehabilitator</li> <li>▪ always wash your hands thoroughly after handling wildlife.</li> </ul> | Field Personnel |
|--------------|---|-----------------|

<b>5.</b>	The Business Unit Manager must be notified of the event as soon as is practical, along with the circumstances of the incident.	Field Personnel
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<b>6.</b>	The Business Unit Manager will investigate the incident and advise the Client and/or other agencies as appropriate.	Business Unit Manager
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## Appendix 2: Fill Sand Specification



SOIL | AGGREGATE | CONCRETE | CRUSHING

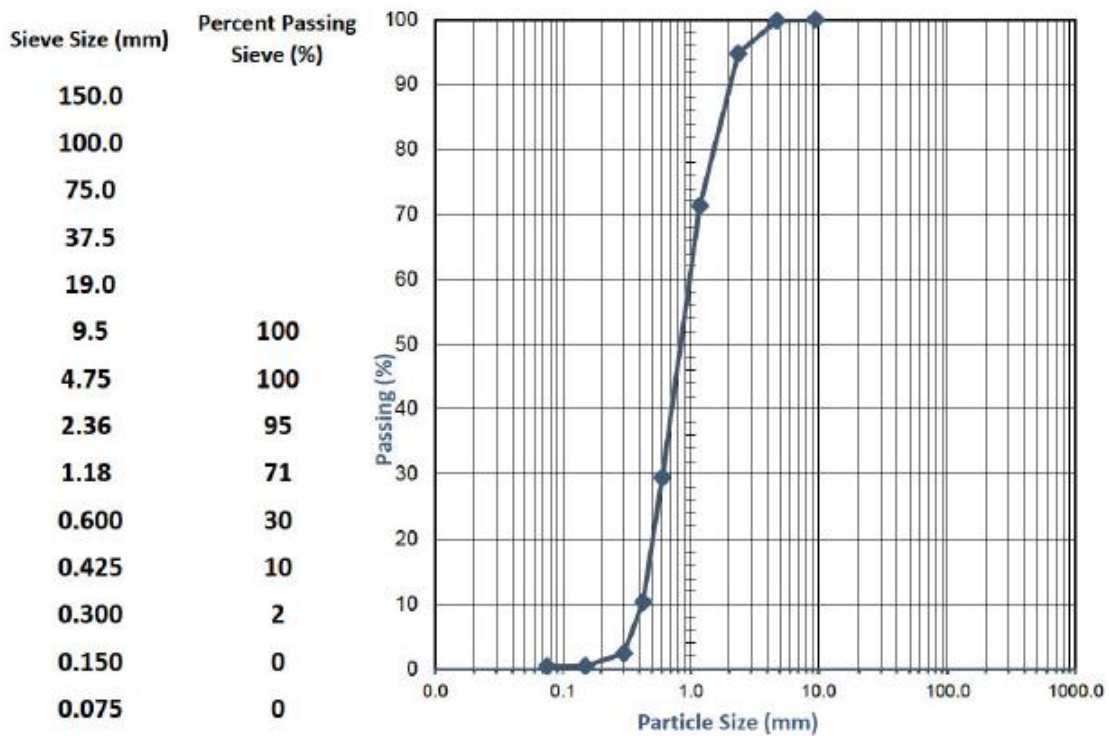
TEST REPORT - AS 1289.3.6.1

Client:	[REDACTED]	Ticket No.	S9048
Client Address:	[REDACTED]	Report No.	WG23.4644-1_1_PSD
Project:	Material Assessment	Sample No.	WG23.4644-1
Location:	[REDACTED]	Date Sampled:	9/03/2023
Sample Identification:	River Sand - Pink	Date Tested:	15/03 - 16/03/2023

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory: *Cody O'Neill*  
 Name: Cody O'Neill  
 Date: 16/March/2023

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