

**CANAL ROCKS PTY LTD**

**SUSSEX LOCATION 413  
SMITH'S BEACH**

**CONSTRUCTION MANAGEMENT  
STRATEGY**

**VERSION 3**

**FEBRUARY 2007**

**REPORT NO: 2007/035**



We have merged with

**coffey**   
environments

A Coffey International  
Limited Company

## DISCLAIMER

This document is published in accordance with and subject to an agreement between ATA Environmental ("ATA") and the client for whom it has been prepared Canal Rocks Pty Ltd ("Client") and is restricted to those issues that have been raised by the client in its engagement of ATA and prepared using the standard of skill and care ordinarily exercised by Environmental Scientists in the preparation of such Documents.

Any person or organisation that relies on or uses the document for purposes or reasons other than those agreed by ATA and the Client without first obtaining the prior written consent of ATA, does so entirely at their own risk and ATA denies all liability in tort, contract or otherwise for any loss, damage or injury of any kind whatsoever (whether in negligence or otherwise) that may be suffered as a consequence of relying on this Document for any purpose other than that agreed with the Client.

## QUALITY ASSURANCE

ATA Environmental has implemented a comprehensive range of quality control measures on all aspects of the company's operation and has Quality Assurance certification to ISO 9001.

An internal quality review process has been applied to each project task undertaken by us. Each document is carefully reviewed by core members of the consultancy team and signed off at Director level prior to issue to the client. Draft documents are submitted to the client for comment and acceptance prior to final production.

**Document No:** CRP-2006-002-REPT\_012\_pvdm\_V3

**Report No:** 2007/035

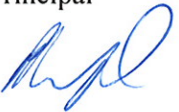
**Checked by:** Signed:



Name: Dr Paul van der Moezel  
Principal

Date: 12 February 2007

**Approved by:** Signed:



Name: Dr Paul van der Moezel  
Principal

Date: 12 February 2007

---

**TABLE OF CONTENTS**

1.	INTRODUCTION .....	1
1.1	Purpose and Scope .....	1
2.	CLEARING REQUIREMENTS AND EQUIPMENT SPECIFICATIONS .....	8
2.1	Introduction.....	8
2.2	Specification of Limits.....	8
2.3	Clearing Works .....	8
2.4	Equipment Requirements .....	8
2.4.1	Equipment Types.....	8
2.4.2	Equipment Cleaning.....	9
2.4.3	Equipment Sparking.....	9
2.4.4	Construction Traffic Restrictions .....	9
2.5	Construction Hours .....	9
3.	TREATMENT OF CLEARED MATERIAL .....	10
3.1	Vegetation .....	10
3.1.1	Mulching .....	10
3.2	Habitat Material .....	10
3.3	Stockpiling of Cleared Vegetation and Topsoil.....	10
4.	DIEBACK AND WEED CONTROL.....	12
4.1	Dieback Control .....	12
4.2	Weed Control .....	12
5.	CONSTRUCTION PROCEDURES.....	13
5.1	Introduction.....	13
5.2	Survey Lines .....	13
5.3	Roads.....	13
5.4	Service Corridors .....	14
5.5	Areas of Bulk Earthworks.....	14
5.6	Firebreaks.....	14
5.7	Stockpile Areas .....	14
5.8	Waste Disposal.....	14
5.9	Aboriginal Heritage.....	14
5.10	Dust Control Strategy.....	15
5.10.1	Performance Standards.....	15
5.10.2	Management Practices.....	15
5.10.3	Monitoring.....	16
5.10.4	Performance Indicators.....	16
5.11	Noise Control Strategy.....	16
5.11.1	Performance Standards.....	16
5.11.2	Management Practices.....	16
5.11.3	Monitoring.....	17
5.11.4	Reporting .....	17
5.12	Non-conformance Penalties .....	17

6.	POST-CONSTRUCTION PROCEDURES .....	18
6.1	General .....	18
6.2	Stabilisation of Cleared Areas.....	18
6.2.1	Road Verges and Corridors .....	18
6.2.2	Bulk Earthworks Sites .....	18
6.2.3	Fire Breaks .....	18
6.2.4	Stockpile Areas.....	18
6.3	Rehabilitation .....	18
7.	CONSTRUCTION CONTRACT .....	20
7.1	General .....	20
7.2	Construction Quality Plan.....	20
8.	ON-GOING MANAGEMENT REQUIREMENTS.....	21
8.1	Rehabilitation Monitoring and Maintenance.....	21
8.2	Infrastructure Maintenance .....	21
8.2.1	Roads.....	21
8.2.2	Stormwater Pipes and Basins .....	21
8.2.3	Walkways .....	21

## **1. INTRODUCTION**

### **1.1 Purpose and Scope**

This Construction Management Strategy (CMS) describes the technical and contractual measures that will be implemented in order to minimize environmental impact during the construction and post-construction phases of the proposed development of Sussex Location 413 (Smiths Beach).

This CMS has been prepared to ensure that ongoing site activities are conducted in manner that minimises the potential for offsite impacts as far as practicable. The CMS is presented in Draft and has been developed to fulfil initial commitments made in Sussex Location 413 Yallingup – Smiths Beach SEA (EPA Assessment No. 1597) and will be used as the basis for the various Management Plans to be prepared, submitted to and approved by various regulatory authorities such as the Shire of Busselton, Department of Water (DoW) and the Department of Environment and Conservation (DEC), prior to the commencement of construction.

Management issues associated with construction activities include:

- Vegetation Management including;
  - Clearing of vegetation;
  - Vehicle / public access;
  - Weed control;
  - Topsoil management;
  - Significant flora and fauna; and
  - Fire;
- Rubbish disposal;
- Management of construction vehicles;
- Aboriginal heritage;
- Site rehabilitation
- Dust control;
- Management of noise; and
- Post-construction monitoring requirements and responsibilities.

The CMS provides the basis for a number of integrated plans and procedures that will be developed following approval of the proposed development of Location 413 and accommodating issues raised in the EPA's assessment of the proposal and public submissions, where applicable. These relate principally to the construction phase, with operational phase plans being integrated into the site-specific Construction Environmental Management Plan (CEMP).

The proponent has made a number of commitments in the SEA to wherever possible enhance the environment and where necessary to minimise the environmental impact of the proposed development. A summary of these commitments is provided in Table 1.

**TABLE 1**  
**SUMMARY TABLE OF PROPONENT COMMITMENTS**

	<b>Topic</b>	<b>Objective</b>	<b>Action/Commitment</b>	<b>Timing</b>	<b>Advice</b>
1.	<b>Sustainability</b>	To ensure, as far as practicable, that a development proposal meets or is consistent with the sustainability principles in the EPA's <i>Position Statement No. 6 Towards Sustainability</i> (EPA 2004e) and <i>The Western Australian State Sustainability Strategy</i> (Government of Western Australia 2003).	All development applications pertinent to Location 413 will be reviewed to ensure compliance with the relevant sections of the Sustainability Checklist.	Pre-construction	DPI Shire of Busselton
2.	<b>Vegetation Protection</b>	To maintain the abundance, diversity, geographic distribution and productivity of flora at species and ecosystems levels through the avoidance or management of adverse impacts and improvement in knowledge.	<p>An Environmental Management Plan (EMP) for the Principal Ridge Protection Area will be prepared as a condition of the DGP approval. The EMP will address issues including access, fencing, signage, management of the Cape to Cape track, fire management, weed control, rehabilitation and integration with surrounding areas.</p> <p>A Vegetation, Flora and Fauna Management Plan will be prepared and implemented by the proponent as a condition of subdivision approval in consultation with the DEC and the Shire of Busselton and will include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Fauna relocation programme;</li> <li>• Weed eradication programme;</li> <li>• Revegetating and restoring POS areas with appropriate indigenous flora;</li> <li>• Controlling vehicle and pedestrian access;</li> <li>• Soil and plant source material hygiene;</li> <li>• Encouraging community involvement and awareness promoting control of pets (eg. dogs);</li> <li>• Working with the Shire to prohibit domestic cats via expansion of the Shire's Cat Local Law to include the site;</li> <li>• Water conservation principles;</li> <li>• Monitoring criteria to determine the success of the revegetation and weed eradication programme;</li> </ul>	Pre-construction	Shire of Busselton DEC

	Topic	Objective	Action/Commitment	Timing	Advice
			<ul style="list-style-type: none"> <li>Responsibilities for implementation;</li> <li>Progress and compliance reporting; and</li> <li>Timing and implementation schedule.</li> </ul> <p>The development will attempt to retain as many <i>Dryandra sessilis</i> var. <i>cordata</i> plants as possible within lots, road reserves and public open space. In addition, <i>Dryandra sessilis</i> var. <i>cordata</i> is readily propagated from seed and a seed collection exercise will be undertaken to obtain the seed from the plants on-site prior to clearing and propagating for use in revegetation and landscaping on-site.</p> <p>A Dieback (<i>Phytophthora cinnamomi</i>) Management Plan to be prepared as a condition of the DGP and approved prior to any major works commencing on-site.</p>		
3.	<b>Native Vertebrate Fauna Protection</b>	To maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.	<p>Protection of fauna and fauna habitat will be addressed in the Vegetation, Flora and Fauna Management Plan to be prepared and implemented by the proponent as a condition of subdivision approval in consultation with the DEC and the Shire of Busselton.</p> <p>The Plan will include but not be limited to:</p> <ul style="list-style-type: none"> <li>Fauna relocation programme;</li> <li>Weed eradication programme;</li> <li>Revegetating and restoring POS areas with appropriate indigenous flora;</li> <li>Controlling vehicle and pedestrian access;</li> <li>Soil and plant source material hygiene;</li> <li>Encouraging community involvement and awareness promoting control of pets (eg. dogs);</li> <li>Working with the Shire to prohibit domestic cats via expansion of the Shire's Cat Local Law to include the site;</li> <li>Water conservation principles;</li> <li>Monitoring criteria to determine the success of the revegetation and weed eradication programme;</li> <li>Responsibilities for implementation;</li> <li>Progress and compliance reporting; and</li> <li>Timing and implementation schedule.</li> </ul>	Pre-construction	Shire of Busselton DEC

	Topic	Objective	Action/Commitment	Timing	Advice
4.	<b>Specially Protected (Threatened) Fauna</b>	Protect Specially Protected (Threatened) Fauna and Priority Fauna species and their habitats, consistent with provisions of the <i>Wildlife Conservation Act 1950</i> and the <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> protect other fauna of conservation significance.	<p>A Western Ringtail Possum Management Plan will be prepared and implemented by the proponent as a condition of subdivision approval in consultation with the DEC and the Shire of Busselton. The Plan will include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Identification of WRP habitat and individual trees currently providing high possum values and that must be retained;</li> <li>• Management prescriptions and ongoing maintenance requirements for a defined corridor habitat;</li> <li>• Procedures to be followed in the event that land holders seek, or are required, to undertake modification to vegetation that may harm habitat and linkage values for possums;</li> <li>• A programme of tree plantings to be undertaken on public or other lands to maximise linkage opportunities for possums between the habitat areas;</li> <li>• Environmental offsets or off-site mitigation in the event that the WRP cannot be fully managed on-site and translocations are required to be undertaken;</li> <li>• A monitoring programme to measure: <ul style="list-style-type: none"> <li>- use of linkage habitat by possums and inter-mixing of populations at either end of linkage corridors;</li> <li>- vegetative health and requirements for replanting or other vegetation maintenance required within the possum corridor; and</li> </ul> </li> <li>• Education programmes including signage, pamphlets and other means, to engage property owners and the broader community about the function of the WRP and its habitat requirements.</li> <li>•</li> </ul>	Pre-construction	Shire of Busselton DEC
5.	<b>Leeuwin-Naturaliste National Park</b>	To protect and enhance the environmental values of areas identified as having significant environmental attributes.	Management of direct and indirect impacts (e.g. weeds, <i>Phytophthora cinnamomi</i> and other plant diseases and trampling) to the conservation managed areas within the proposed development, and to ensure no direct and indirect impacts upon the National Park occur will be addressed in a Vegetation, Flora and Fauna Management Plan to be prepared and implemented by the proponent as a condition of subdivision approval in consultation with the DEC and the Shire of Busselton.	Pre-construction	Shire of Busselton DEC FESA



	Topic	Objective	Action/Commitment	Timing	Advice
			<p>The Plan will include but not be limited to:</p> <ul style="list-style-type: none"> <li>• Fauna relocation programme;</li> <li>• Weed eradication programme;</li> <li>• Revegetating and restoring POS areas with appropriate indigenous flora;</li> <li>• Controlling vehicle and pedestrian access through fencing and formalising accessways;</li> <li>• Soil and plant source material hygiene;</li> <li>• Encouraging community involvement and awareness promoting control of pets (eg. cats and dogs);</li> <li>• Water conservation principles;</li> <li>• Monitoring criteria to determine the success of the revegetation and weed eradication programme;</li> <li>• Responsibilities for implementation;</li> <li>• Progress and compliance reporting; and</li> <li>• Timing and implementation schedule.</li> </ul> <p>A Fire Management Plan has been prepared by the proponent and responsibilities for implementation are specified within the Plan (refer to Appendix 7). The Plan has been developed to incorporate fire management methods such as:</p> <ul style="list-style-type: none"> <li>• Strategic firebreaks system;</li> <li>• Dwelling construction and setbacks;</li> <li>• Building protection zone;</li> <li>• Hazard separation zone;</li> <li>• Hazard reduction;</li> <li>• Introduction of a town/scheme water supply; and</li> <li>• Driveways.</li> </ul>		
6.	<b>Coastal Foreshore</b>	To maintain the integrity of landscape and landforms by maintaining their integrity, ecological functions and environmental values.	<p>A draft Foreshore Management Plan has been prepared for the Smiths Beach foreshore reserve (refer to Appendix 2). The Plan includes the following elements:</p> <ul style="list-style-type: none"> <li>• Comprehensive weed eradication programme;</li> <li>• Revegetating and restoring foreshore POS adjoining conservation areas with appropriate indigenous flora;</li> <li>• Controlling vehicle and pedestrian access;</li> <li>• Provision of public facilities;</li> </ul>	Pre-construction	DPI Shire of Busselton DEC

	Topic	Objective	Action/Commitment	Timing	Advice
			<ul style="list-style-type: none"> <li>• Fire management including provision of fire hydrants;</li> <li>• Encouraging community involvement and awareness promoting control of pets (eg. cats and dogs);</li> <li>• Water conservation principles;</li> <li>• Monitoring criteria to determine the success of the revegetation and weed eradication programme;</li> <li>• Progress and compliance reporting; and</li> <li>• Timing and implementation schedule.</li> </ul>		
7.	<b>Air Quality – Dust and Particulates</b>	To ensure that emissions do not adversely affect environment values or the health, welfare and amenity of people and land uses by meeting accepted guidelines, standards and criteria.	<p>A draft Construction Management Strategy (CMS) consistent with best management practices will be prepared by the proponent to the satisfaction of DEC and other relevant authorities (refer to Appendix 14).</p> <p>A key element of the CMS will include a dust management plan taking into account seasonal influences and distance to sensitive premises and incorporating any or all of the following measures:</p> <ul style="list-style-type: none"> <li>• Where possible retaining vegetation;</li> <li>• Limiting areas of exposed soil;</li> <li>• Hydro-mulching or alternative effective stabilisation immediately following completion of bulk works;</li> <li>• Applying water to increase moisture in soil in sensitive or high traffic areas;</li> <li>• Minimising “fetch” distance;</li> <li>• Wind fencing;</li> <li>• Timing of earthworks (daily and seasonally);</li> <li>• Consideration of wind direction and strengths (eg sea breezes) when planning bulk earthwork ‘cells’;</li> <li>• Consideration of distance to and direction of sensitive locations (e.g. may construct closer to residents during time of year when dust not expected to be as much of a problem);</li> <li>• Appropriate shape/layout of earthworks area (boundary perpendicular to problem wind direction);</li> <li>• Staging of subdivision (need to consider dust in the early stages of planning, not just at time of construction); and</li> <li>• Site perimeter monitoring including sensory alarms or dial out capability.</li> </ul>	Pre-construction	DEC Shire of Busselton

	Topic	Objective	Action/Commitment	Timing	Advice
8.	<b>Surface Water Quality</b>	To ensure that emissions do not adversely affect environment values or the health, welfare and amenity of people and land uses by meeting Statutory requirements and acceptable standards.	Prior to commencement of site works, an Integrated Water Management Plan incorporating the principles and best management practices described in the stormwater strategy and the <i>Stormwater manual for Western Australia</i> will be prepared to the satisfaction of the DoW and Shire of Busselton. The Plan will be implemented during and post-construction.	Prepared prior to construction and implemented during and post construction.	DoW Shire of Busselton
9.	<b>Groundwater Quality</b>	To ensure that emissions do not adversely affect environment values or the health, welfare and amenity of people and land uses by meeting Statutory requirements and acceptable standards.	An Effluent Disposal Management Strategy has been prepared (Refer to Appendix 11) and includes: <ul style="list-style-type: none"> <li>• Provision of reticulated sewerage for the entire development; and</li> <li>• Provision for the connection of services to the Water Corporation's Dunsborough Wastewater Treatment Plant.</li> </ul>	Prepared prior to construction and implemented during construction phase	Water Corporation DEC
10.	<b>Greenhouse Gases</b>	To minimise emissions to levels as low as practicable on an on-going basis and consider offsets to further reduce cumulative emissions.	As an input to the development strategies identified for implementation of the proposed development, measures to minimise greenhouse emissions through practical measures such as reducing the need for car use within the site will be considered.	During construction phase	DEC
11.	<b>Noise</b>	To protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet statutory requirements and acceptable standards.	Construction noise received at nearby sensitive premises will be managed to comply with the requirements of the <i>Environmental Protection (Noise) Regulations 1997</i> .  To ensure compliance with these regulations, the management of traffic noise and vibration impacts will be described in the CMS. Noise management strategies within the CMS will be prepared to the satisfaction of the CEO of the Shire of Busselton in accordance with regulation 13 relating to construction noise, and implemented by the proponent as a condition of subdivision approval.	Pre-construction	Shire of Busselton
11.	<b>Visual Amenity</b>	To ensure that visual amenity is considered and measures are adopted to reduce adverse visual impacts on the surrounding	A Landscape and Visual Assessment prepared for the project area will establish a framework for the landscape and urban design of the site, which responds to both the site and surrounding landscape characteristics. All development applications will be reviewed to	Pre-approval	Shire of Busselton DEC DPI

	<b>Topic</b>	<b>Objective</b>	<b>Action/Commitment</b>	<b>Timing</b>	<b>Advice</b>
		environment as low as reasonably practicable.	<p>ensure compliance with this Assessment.</p> <p>Design Guidelines are being prepared for the detailed architectural response to the site. The Design Guidelines are architectural guidelines that will supplement the DGP submission. They deal with detail and will be implemented by a Town Architect or Committee.</p> <p>The Guidelines will be adopted by the Shire as a policy to guide design and the planning approval process for individual buildings and developments.</p>		

List of Abbreviations: DEC = Department of Environment and Conservation; DoW = Department of Water; DPI = Department for Planning and Infrastructure; FESA = Fire and Emergency Services

## **2. CLEARING REQUIREMENTS AND EQUIPMENT SPECIFICATIONS**

### **2.1 Introduction**

### **2.2 Specification of Limits**

The location and limit of clearing within all work areas will be clearly identified on site (surveyed and pegged) and delineated on appropriate plans to be supplied to contractors and personnel prior to commencement of works. The work areas will include:

- road carriageway widths plus adjacent service corridors;
- service corridors away from roads;
- areas of bulk earthworks;
- firebreaks; and
- construction operations area.

Clearing will not extend beyond the minimum clearing necessary for the installation of the permanent facilities. For example, clearing in roadways will be limited to the carriageway width and adjacent service corridors, not the entire roadway reserve. Where possible, service corridors will be located under roadways to reduce the need to clear vegetation.

### **2.3 Clearing Works**

The following clearing procedures will be adhered to and enforced by contractors and nominated subcontractors within the development area:

- Remove all vegetation from the designated areas in an orderly, systematic manner in accordance with the following procedure:
  - Vegetation identified by the Environmental Consultant as carrying desirable seed stock to be removed and stored for propagation for later use in rehabilitation sites.
  - Collect larger logs which may be suitable for rehabilitation works, site stabilisation and access control and store in a designated cleared area.
  - Smaller trees and shrubs should be mulched and/or chipped for later use in rehabilitation works.
  - All stockpiled material to be stored on cleared areas.
  - Temporarily stabilise cleared areas with water trucks or hydromulch until developed or rehabilitated.
  - Burning of cleared vegetation will not be permitted.

### **2.4 Equipment Requirements**

#### **2.4.1 Equipment Types**

Table 2 indicates the type of equipment that it is anticipated will be used by the Contractor at the site.

**TABLE 2  
LIST OF EQUIPMENT TYPES**

<b>Works</b>	<b>Equipment</b>
Clearing	Excavator and tip trucks
Stripping	Grader, Scraper
Cartage	6 wheel highway trucks (incoming material) 6 wheel tip trucks (local on-site)
Dust Control	Water trucks
Mulching and Chipping	Rear mounted truck chipper
Sub base and Base Course	Grader, Ripper
Compaction	Roller
Sealing	Asphalt trucks, roller
Personnel	Cars, Utility, 4WD vehicles

The Contractor will be required to list in the Tender for approval by the Site Engineer, all proposed equipment including make, model, year and condition for all phases of construction.

#### **2.4.2 Equipment Cleaning**

All equipment entering the site will be subject to washdown requirements required for Dieback and Declared Weed transportation as specified in Section 4.

#### **2.4.3 Equipment Sparking**

All equipment used adjacent to areas of native vegetation will be inspected prior to entering the site to ensure that no external sparking occurs which could result in bush fires.

In addition, all plant equipment will be fitted with fire extinguishers.

#### **2.4.4 Construction Traffic Restrictions**

All construction machinery and vehicles entering the site will be restricted to planned access road reserves, service corridors, firebreaks, bulk earthworks areas and the existing road network. No traffic, 4WD or other, will be permitted access to any other areas.

A site office will be established that will provide sufficient area for the parking of personnel vehicles, trucks and equipment. The site office is likely to be located in the lowest part of the site adjacent to the redeveloped caravan park site.

Public access to Smith's Beach will not be affected by the site works. Public access to the site works areas will not be permitted, unless specifically requested and approved by the Contractor and Site Engineer.

### **2.5 Construction Hours**

Construction activities will be restricted to between 7.00am and 6.00pm Monday to Friday inclusive.

### 3. TREATMENT OF CLEARED MATERIAL

#### 3.1 Vegetation

The nominated subcontractor will be required to yield a range of stabilisation and rehabilitation materials from the vegetation to be cleared. Unless otherwise agreed by the Site Engineer, all cleared vegetation shall be converted into reusable materials for both the construction site and other areas to be rehabilitated by the proponent.

##### 3.1.1 Mulching

While the extent of clearing will be minimised as far as possible, the cleared native vegetation will be used to generate chipped mulch material, which will be used in areas requiring stabilisation and rehabilitation.

Mulching of cleared native vegetation will be conducted as a concurrent operation with clearing works, with the mulched material to be stockpiled as close as possible to the source of mulch for reuse within the immediate proximity, where possible.

Such mulch material can often make a substantial contribution to the on-site seed bank and due to immediate local provenance, is usually very successful in re-establishing on site when re-spread in the relatively short term (ie. within 6 months).

#### 3.2 Habitat Material

During the course of clearing, mulching and bulk earthworks, it is possible that useful material may be identified, such as fallen trees, decaying logs and large rocks.

Such material has potential application in stabilisation and rehabilitation areas as informal structural elements that can provide both flora and fauna habitats.

Construction personnel will be trained as to the characteristics of suitable habitat materials for retention and appropriate location for storage until future use in rehabilitation, landscaping and in areas requiring access management. Logs and branches with diameters of 200mm or more will be used for this purpose.

#### 3.3 Stockpiling of Cleared Vegetation and Topsoil

Any vegetation and topsoil to be cleared which will be recycled for future use within the development area will be stockpiled at a designated site within the development area.

Vegetation and topsoil will be stockpiled into five designated piles according to its origin, as described below:

Area A	Vegetation in shallow sand over granite that is in Very Good to Excellent condition
Area B	<i>Banksia attenuata</i> , <i>Agonis flexuosa</i> Low Woodland
Area C	Vegetation in shallow sand over limestone areas
Area E	Peppermint ( <i>Agonis flexuosa</i> ) Low Forest

Area F All existing areas in Degraded or Good condition that contain weed species will be mulched and carted off-site to an approved landfill area.

The separation of cleared material and topsoil will assist rehabilitation procedures.



## **4. DIEBACK AND WEED CONTROL**

### **5.1 Dieback Control**

The development site is considered to be low-risk in relation to dieback importation. Notwithstanding this, the Environmental Consultant will be responsible for coordinating with the DEC, prior to issue of construction tender documents, to establish via site investigation measures to prevent potential movement of dieback into the site or surrounding bushland during construction works. The Contractor will be required to incorporate these measures into their scope of works.

Measures likely to be required by the DEC include:

- A high-pressure washdown station for equipment cleaning at the site entry.
- Importation of fill from dieback free sources (source to be approved by the Shire/the DEC/Environmental Consultant).

### **4.2 Weed Control**

Two Declared Weeds as listed under the *Agriculture and Related Resources Protection Act, 1976* occur on the site, Bridal Creeper (*Asparagus asparagoides*) and Arum Lily (*Zantedeschia aethiopica*). Construction works associated with the project also have the potential to introduce or spread non-declared weed species.

The following practices will be implemented to prevent the introduction or movement of weeds throughout the site:

- Assessment of weed potential prior to topsoil removal;
- Separate storage and end use of significantly weedy and non-weedy topsoil;
- Topsoil from cleared areas will not be used in areas of remnant vegetation or adjacent to rehabilitation/conservation areas;
  - Topsoils will be stockpiled in the vicinity of their origin
  - Weed management measures will be implemented strictly to adjacent areas of remnant vegetation;
- Adequate control of weeds prior to revegetation; and
- Adequate and timely control of significant weed infestations during the life of the project (by use of selective herbicides or selective application techniques).

Local native species will be used in rehabilitation works adjoining areas of remnant vegetation or areas of conservation significance.

## **5. CONSTRUCTION PROCEDURES**

### **5.1 Introduction**

The Contractor shall be required to restrict all construction work, including access routes, to the proposed road network, service corridors, bulk earthwork areas and firebreaks.

The procedures specified in the following section will be included in the Contractor's Scope of Works which will be aimed at preventing clearing, particularly over-clearing, by implementing works in a logical sequence.

### **5.2 Survey Lines**

Survey lines will be installed in areas requiring clearing and will be approved by the Site Engineer and Environmental Consultant prior to earthworks. The limitation specified in Section 2.2 will be adhered to by the Contractor.

Areas which will not be cleared will be pegged out with line of site access gained by hand-clearing of upper vegetation only, ie. by hook blade, hatchet axe or chain saw, as required.

### **5.3 Roads**

- Clearing and grubbing within the road reserves will be contained to the extent of the carriageway, paths and service corridors only. Verges within the road reserves shall not be unnecessarily cleared.
- The minimum width of the reserve will be stripped of topsoil to a maximum depth of 200mm and stockpiled at a location as shown in.
- Roads will then be boxed out and contoured according to survey levels with cut and fill balanced as per Drawings. Any surplus fill material will be used to fill low points.
- Imported limestone subbase will be placed on the road alignment and this subbase will be used for construction access.
- Services along the road reserve including crossings will then be installed. Appropriate consideration for longitudinal access during construction of transverse services will be made at this time. Stockpiling of excavated material from the service trenches will not be distributed on uncleared sections of the road reserve. Trenches will be backfilled and compacted. Any excess material will be distributed over the cleared portions of the road reserve adjacent to the road.
- Upon completion of the services installation, final trimming and compaction of sub-base, importation, spreading and compaction of base course, final sealing of road surface and installation of kerbs will be undertaken.
- Cleared areas shall be graded to meet natural ground at their edges, as shown on Drawings using stockpiled topsoil. Chips, mulch or brush, as appropriate, will then be spread over this area.
- No residue stockpiling or rubbish will remain at the edge of the reserves after completion of the works.

#### **5.4 Service Corridors**

As far as possible, services will be installed beneath roadways. However, this may not always be possible. Where this is not possible, service corridors will be restricted to a width that provides sufficient space for machine access, stockpiling of excavated material and service materials, and the excavation trench.

No topsoil removal shall be undertaken within the service corridor, other than displacement for digging trenches. The Contractor will ensure that the trenches are backfilled and compacted such that the topsoil is replaced as the upper layer.

Cleared vegetation will be mulched and spread over the whole corridor width. The corridor will then be rehabilitated with local native seed or seedlings in accordance with the specifications of the Rehabilitation Strategy.

#### **5.5 Areas of Bulk Earthworks**

Bulk earthworks will be limited in the Smiths Beach development but are likely to be required for the two resort areas, the Beach Club and Cape Spur lodge. Protocols with respect to clearing and re-use of native vegetation will be adhered to in these areas.

#### **5.6 Firebreaks**

Firebreaks outlined in the Fire Management Plan (FirePlan WA, 2006) will be cleared and grubbed sufficient to retard regrowth and allow vehicle access. No topsoil will be removed.

Firebreaks will be stabilised as specified in Section 6.2.3.

#### **5.7 Stockpile Areas**

Stockpiling of topsoil and cleared vegetation will be located on the site in previously cleared or degraded areas.

All stockpiles will be stabilised against wind and water erosion for the duration of the contract in accordance with Section 6.2.4.

#### **5.8 Waste Disposal**

All construction waste generated from the installation of infrastructure and facilities will be contained within the designated works areas. In addition, rubble and builders waste / surplus must be contained within the lot boundaries at all times. All rubble and waste must be discarded into appropriate transportable bins and disposed of in accordance with the Shire of Busselton. Recycling of builders waste will be encouraged.

#### **5.9 Aboriginal Heritage**

An Aboriginal heritage survey of the site identified two artefact scatters and several isolated artefacts. One scatter is located within an area of proposed public open space to the south and consequently it will not be disturbed by the development. Construction activities will affect

the other scatter and consequently an application to disturb the site was approved under Section 18 of the Aboriginal Heritage Act, 1972, subject to the condition that further archaeological monitoring take place following the clearing of bushland areas and prior to development.

In addition, the Contractor shall immediately notify the Site Supervisor if any materials believed to be of significance to Aboriginal people are discovered during the course of development.

An ethnographic assessment of the study area determined that there are no sites which present an impediment to the proposed development.

## **5.10 Dust Control Strategy**

This Dust Control Strategy has been prepared to ensure that ongoing site activities are conducted in a manner that minimises the potential for offsite dust impacts as far as practicable. The Strategy is presented in Draft and has developed to fulfil initial commitments made in Sussex Location 413 Yallingup – Smiths Beach SEA (EPA Assessment No. 1597) and will be used as the basis of a Dust Management Plan to be submitted to and approved by the DEC/Shire of Busselton prior to the commencement of construction.

The principal construction contractors will ultimately be responsible for fulfilling the requirements of this Dust Control Strategy.

### **5.10.1 Performance Standards**

No visible dust crossing the premises boundary.

### **5.10.2 Management Practices**

Dust control measures will be based on the DEC Guidelines to minimise wind erosion and wind blown material, including any or all of but not limited to:

- Where possible retaining vegetation;
- Clearing of vegetation will be minimised to avoid creating large areas of bare soil;
- Staging, site clearing and replacement of topsoil and brush application to minimise the length of time disturbed areas are left exposed
- Water trucks will be used to prevent excessive dust emissions during earthworks operations and from the roads;
- Development and implementation of a Rehabilitation Plan (see Section 6.3 for Preliminary Rehabilitation Strategies) for areas not otherwise stabilised so as to minimise the period of time that exposed areas are subject to wind;
- Hydro-mulching or alternative effective stabilisation immediately following completion of bulk works;
- Erection of wind fencing
- Minimising “fetch” distance;
- Timing of earthworks (daily and seasonally);
- Consideration of wind direction and strengths (eg sea breezes) when planning bulk earthwork ‘cells’;
- Consideration of distance to and direction of sensitive locations (eg may construct closer to residents during time of year when dust not expected to be as much of a problem etc);

- Appropriate shape/layout of earthworks area (boundary perpendicular to problem wind direction);

### **5.10.3 Monitoring**

Monitoring undertaken may include any or all of the following:

- Visual monitoring will be undertaken to ensure that airborne particulate material is not detectable by visual assessment crossing the site boundary;
- Records of any incident that includes unacceptable dust generation shall be kept;
- Site perimeter monitoring including sensory alarms or dial out capability.

### **5.10.4 Performance Indicators**

Records of any dust incidents will be maintained by the principal contractor, as will records of any complaints relating to dust. The principal contractor will reach agreement with the CEO of the Shire of Busselton in relation to the number and circumstance of dust related complaints that will result in notification to the Shire, and hierarchy of response.

## **5.11 Noise Control Strategy**

This Noise Control Strategy has been prepared to ensure that site construction activities are conducted in manner such that noise levels at all times:

- meet the requirements of the *Environmental Protection (Noise) Regulations 1997*; and
- protect the amenity of transient visitors using the Cape to Cape trail.

The Strategy is presented in Draft and has developed to fulfil initial commitments made in Sussex Location 413 Yallingup – Smiths Beach SER (EPA Assessment No. 1597) and will be used as the basis of a Noise Management Plan to be submitted to and approved by the CEO of the Shire of Busselton prior to the commencement of construction.

The principal construction contractors will ultimately responsible for fulfilling the requirements of this Dust Control Strategy.

### **5.11.1 Performance Standards**

Noise emissions meet the criteria in the Environmental Protection (Noise) Regulations 1997.

### **5.11.2 Management Practices**

The following management practices will be adopted in order to meet the objectives of the Strategy:

- The mobile and fixed equipment used in the construction be the quietest reasonably available to achieve the objectives of the Environmental Protection (Noise) Regulations 1997.
- Equipment maintenance and inspection schedules shall be implemented to ensure that all equipment is operating as per the manufacturer's instructions and within regulatory requirements.
- Under normal circumstances, construction will be restricted to daylight hours between Monday to Friday.
- Use silencers and noise attenuation as required.

- A Complaints Register will be established to record any complaints received, date, nature, and resolution action undertaken
- Signage advising of construction activities and potential for harmful noise be developed with the agreement of the DEC and CEO of the Shire of Busselton and located on the Cape to Cape Track.

### **5.11.3 Monitoring**

Monitoring undertaken may include any or all of the following:

- Where necessary, a specific noise survey will be conducted in accordance DEC noise survey protocols to ensure that noise levels are not excessive;
- Records of any incident that includes unacceptable noise generation shall be maintained;

### **5.11.4 Reporting**

Records of any noise incidents will be maintained by the principal contractor, as will records of any complaints relating to noise. The principal contractor will reach agreement with the CEO of the Shire of Busselton in relation to the number and circumstance of noise related complaints that will result in notification to the Shire, and hierarchy of response.

## **5.12 Non-conformance Penalties**

The Contract documents will specify that the Contractor and subcontractors will be responsible at their own cost to carry out remedial works where native vegetation is damaged in areas specified on the Drawings as not to be cleared, including:

- Where spoil is pushed into otherwise uncleared areas; and
- Where the native vegetation is damaged by equipment seeking additional access, etc.

Remedial works will include stabilisation and rehabilitation to restore the damaged area to a state equivalent to its natural state.

## **6. POST-CONSTRUCTION PROCEDURES**

### **6.1 General**

The Contractor will be required to implement appropriate stabilisation and / or rehabilitation measures to all cleared areas to ensure interim and long-term surface stability against stormwater run-off and wind.

This sections describes the types of stabilising and rehabilitation measures anticipated, and their typical application.

### **6.2 Stabilisation of Cleared Areas**

#### **6.2.1 Road Verges and Corridors**

Cleared road reserves will be stabilised prior to final road construction so as to avoid excessive dust and wind erosion. Adjacent cleared service corridors will also be stabilised prior to being rehabilitated upon completion of road construction activities.

Stabilisation methods will include watering of road corridors and hydromulching of the verges.

#### **6.2.2 Bulk Earthworks Sites**

Areas requiring bulk earthworks will be stabilised using hydromulch.

#### **6.2.3 Fire Breaks**

Potential erosion problems may occur along firebreaks located on sandy soils and steep slopes. As all firebreaks need to remain accessible to fire fighting vehicles and associated equipment, only stabilisation methods which do not impede access will be used. Typically this will involve establishment of minor humps at suitable intervals during the construction of the fire breaks, and subsequent laying over and compaction of imported limestone as necessary to provide a suitable base for vehicle access.

#### **6.2.4 Stockpile Areas**

All stockpiles will be stabilised to avoid loose material from topsoil stockpiles being blown and creating a dust problem. The need to continuously access the stockpiled material dictates that stabilisation be of a short-term nature only (ie light water application).

### **6.3 Rehabilitation**

Areas disturbed by construction activities and not subsequently stabilised by permanent facilities (ie roads) will be rehabilitated according to the following methods.

Prior to implementing any rehabilitation works the proponent will engage a suitably qualified consultant to prepare a Rehabilitation Strategy for the study area which fully details required rehabilitation resources and activities, including for each area type:

- Site preparation works, including topsoil cover and installation requirements (ie. mulch and / or chipped material) and weed control, if required;

- Species to be used, with preference given to local natives, where ever possible;
- Density of planting and / or seeding of reinstated topsoil; and
- Rehabilitation maintenance (ie. watering) and monitoring requirements.



## **7. CONSTRUCTION CONTRACT**

### **7.1 General**

The Contractor will proceed under the currently recognised and increasingly adopted practice of having the Contractor take responsibility for execution of the Works through implementation of an agreed Quality Plan in accordance with AS 3902.

Supervision by the Site Engineer, and at times the Environmental Consultant, will still be required, but essentially in the role of monitoring application of the Contractors quality Procedures.

This section outlines the contractual requirements for the proposed site works at Smith's Beach.

### **7.2 Construction Quality Plan**

The Contractor will be required to develop and submit for approval a Quality Plan in accordance with AS 3902 defining how the requirements of the Contract, including the requirements outlined in this Construction Management Strategy will be met.

A preliminary Quality Plan will be required at the Tender submission stage which will form the basis for the final Quality Plan. No work shall be permitted to commence on-site until the final Quality Plan is accepted by the Site Engineer.

The Quality Plan will:

- Define the requirements for quality practices, resources and activities for the supply of materials and services.
- Demonstrate to the Engineer that the management of quality will be accomplished in a planned, systematic, documented and cost effective manner.

## **8. ON-GOING MANAGEMENT REQUIREMENTS**

### **8.1 Rehabilitation Monitoring and Maintenance**

The preparation of a Rehabilitation Strategy for the study area will include provisions for on-going maintenance and monitoring of rehabilitation areas.

It is anticipated that the proponent will be required to manage rehabilitated areas, including supplementary plants, watering and weed control, for a two year period following the completion of construction activities.

### **8.2 Infrastructure Maintenance**

The following on-going work will be implemented by the proponent during construction. Maintenance of infrastructure will be the responsibility of the developer until hand-over of the works. For public infrastructure, hand-over will be at the time of a Practical Completion inspection whereon the responsibility will lie with the Shire of Busselton. Maintenance of the internal roadways and other infrastructure that are proposed for management by a strata body will be the responsibility of the developer until the strata body is formed.

Construction contracts will have a defects liability of twelve months.

#### **8.2.1 Roads**

Damage to road pavements (including worn pavements), kerbing, signage and road markings will be reinstated as required.

#### **8.2.2 Stormwater Pipes and Basins**

Annual cleaning and inspection of pipework and basins will be undertaken prior to winter months to ensure operation of the drainage system is not impeded.

Any damaged components will be reinstated as necessary.

#### **8.2.3 Walkways**

All footpaths and dual use paths will be maintained on an annual basis to ensure weed growth or vegetation obstructing access is removed. Any damaged sections will be repaired.