Dieback Management Plan

LOTS 1498 and 1504 FINN ROAD, MYALUP

Harley Dykstra®

PLANNING & SURVEY SOLUTIONS

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1 INTRODUCTION

This Extractive Industry development application has been prepared by Harley Dykstra on behalf of Ietto Farms Pty Ltd for an extractive industry over a portion of Lots 1498 and 1504, Finn Road, Myalup.

Ietto Farms owner, Mr John Ietto, wishes to gain approval to continue to extract limestone and sand from the site for the main purpose of road construction projects throughout the south west of the state.

APH Contractors have been operating the pit on behalf of the licensee and landowner (Mr John Ietto – Ietto Farms Pty Ltd) for approximately ten years.

This report details the Dieback Management practices and procedures and is prepared to support the application for the Extractive Industry Licence and Development Approval.

This Dieback Management Plan is prepared in accordance with the Department of Biodiversity, Conservation and Attraction's "Phytophthora Dieback Management Manual – October 2017" (hereafter known as "The DBCA Manual") and the Best Practice Guidelines for the Management of Phytophthora Dieback in Extractive Industries published by the Dieback Working Group.

Phytophthora Dieback is readily spread through the use of infected soil, sand and gravel during construction activities. Any activity that transfers soil and plant material from one location to another is a potential source of spread of contamination. The objectives of this Dieback Management Plan are to minimise the spread of Phytophthora Dieback transfer.

Figure 1 below shows the subject site.

Figure 1 – Subject Site

2 SUBJECT LAND AND EXTRACTION AREAS

Lots 1498 and 1504 are situated approximately 2km west of the Forrest Highway, the primary Regional Road connecting Perth and Bunbury and within the Shire of Harvey. Access to the site is from Finn Road.

The site is approximately 11km north of Myalup townsite and 13km south of Preston Beach townsite in the locality of Parkfield as shown in Figure 1 – Locality Plan.

The project area is bounded by Lake Preston to the west; grazed pastures, bushland and the Yalgorup National Park to the north; grazed pastures, state forest and pine forests to the east; grazed pastures, limestone quarries and intensive horticulture to the south and southeast. Other extractive industries are operating in the area.

The project area is largely flat cleared open pasture with isolated remnant paddock trees and is currently stocked with cattle. The existing remnant paddock trees consist of regrowth Tuart (*Eucalyptus gomphocephala*) and Peppermint (*Agonis flexuosa*) Jarrah (*Eucalyptus marginata*), and Paperbark (*Melaleuca spp.*).

The existing sand extraction pit and expansion area in the north west portion of the site (Pit A) covers approximately 20.8ha while future expansion to the north east (Pit B) is approximately 6.9ha and the south east (Pit C) has an area of approximately 2.6ha.

Figure 2 below shows the context of the site.

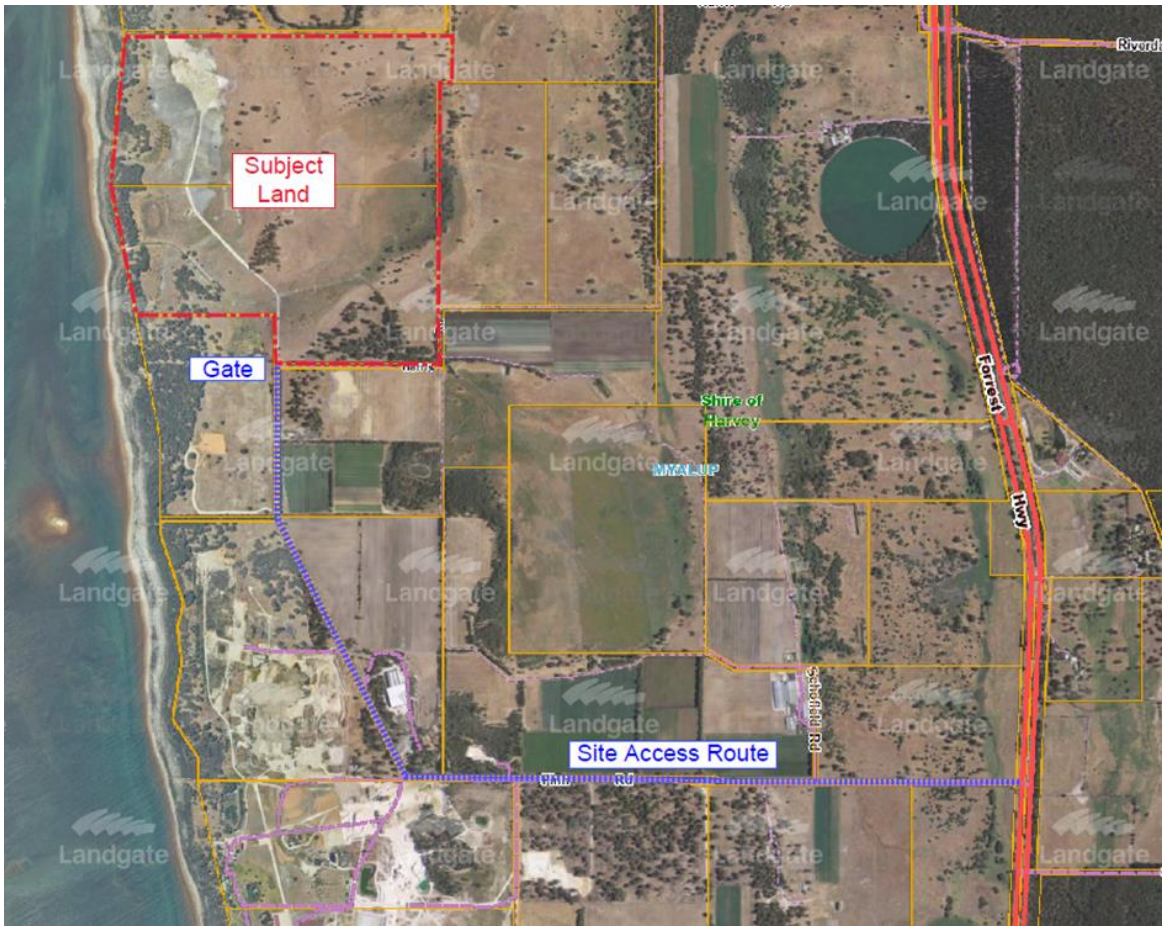

Figure 2 – Site Context

3 EFFECTS AND IMPLICATIONS

Phytophthora dieback is a soil-borne pathogen that kills a wide range of plant species in South Western Australia by destroying their root systems. There are over fifty species of Phytophthora that occur Worldwide and seven that have been found in WA. The most common of these is *Phytopthora cinnamoni*.

The life cycle of *Phytopthora cinnamon* depends on moist conditions that favour survival, sporulation and dispersal of the pathogen. The highest levels of the pathogen occur within soils after significant rainfall (greater than 5-10 mm) and remain at high levels for a significant period of time. The exact period of time is unclear and is dependant on a number of variables including soil type, presence of vegetation and temperature.

After infection the pathogen invades root bark and forms lesions that may extend in to the plant's stem collar. Under ideal environmental conditions, *Phytopthora cinnamon* reproduces vegetatively. It is also capable of producing millions of tiny spores that reproduce the fungus.

Phytopthora Dieback weakens or kills the host plant by reducing or stopping the movement of water and nutrients within the plant.

Phytophthora Dieback has had a significant impact on the biodiversity of native plants and animals from WA. Furthermore, the pathogen has had a significant effect on the nursery, horticultural, mining, floricultural and forestry industries in WA.

Over 40% of native WA plant species are susceptible to *Phytophthora* dieback. Some of the region's more common plants are susceptible, including Jarrah, banksias, grass trees and zamia palms.

The extractive industry has the opportunity to reduce the rate of spread of *Phytopthora* by taking steps to minimize the accidental spread of the pathogen.

Site access track with vegetation on site in background

4 PROPOSED WORKS AND POTENTIAL IMPACTS

Autonomous spread by the dieback pathogen moving along plant root systems is generally slow. However, human-related activities can spread the pathogen much more quickly and are likely to have caused its widespread distribution in WA.

Any activity that transfers soil and plant material from one location to another has the potential to spread the pathogen. Road construction, earth moving, stock movement, re-vegetation and four-wheel driving are some examples of activities that can contribute to its spread.

Effective site management practises assist in the objectives to minimise the spread of the pathogen during the extraction, stockpiling and transportation of sand. 'Clean on entry' is essential to maintain the site free of disease. All equipment and vehicles are to be free of mud and soil prior to entering the site.

Hygiene is essential to any operation aiming to minimise the spread of *Phytophthora* Dieback by way of the cleaning of vehicles, equipment and footwear.

The following table, extracted from the Management of Phytophthora Dieback in Extractive Industries, Best Practice Guidelines describes the management strategies to be undertaken to maintain a site free from the pathogen.

Action Description	Rationale
Training	Train all staff about *Phytophthora* Dieback, its impact, management and the value of *Phytophthora* Dieback free materials.
Signage	Inform personnel entering the site that it is free of *Phytophthora* Dieback and the need to washdown any equipment/vehicles/ foot wear that enter the quarantined area.
Wash-down facility	Clean-on-entry. All vehicles should be washed down prior to entering the site. Quarry workers should wash foot wear prior to entry on the site.
Quarantine area	Restrictive fencing surrounding the site and provision of parking areas outside the site. Establish a split phase operation to separate loading and excavation areas. Limestone makes an ideal material for use in construction of the loading area due to its high pH being very suppressive of *Phytophthora* Dieback.
Containment of surface water on-site	Surface and sub-surface water are an efficient means for the spread of *Phytophthora* Dieback. To ensure the pathogen would not be spread around the site if accidentally introduced it is important to contain any surface water. Ensure drainage does not enter the site from surrounding areas.
Water management	Ideally water used on site (e.g. to reduce dust) should be either from main's supply or a deep bore. If the water is from a dam or creek it is essential to sterilise the water prior to its use.
Rehabilitation using *Phytophthora* Dieback free materials	Only bring in certified *Phytophthora* Dieback free materials (e.g. soil, mulch and compost). Purchase plants from accredited nurseries. Consider direct seeding rather than planting seedlings.
Customer notification	Advise customers that the material is free of *Phytophthora* Dieback.
Regular testing of the stockpile and extraction area	Regular testing can be used as evidence that the dieback-free status of the quarry and its extracted materials is maintained.

Figure 3 - Dieback Management Strategies

5 SITE REHABILITATION

Following completion of extraction activities, the site will be rehabilitated as detailed in the Rehabilitation Management and Monitoring Plan.

Although revegetation works have taken place on site previously, it is unlikely that future revegetation works will need to be undertaken with most of the site being returned to grazing pasture following the extraction activities.

Should any planting of tubestock be undertaken, it is important that the rehabilitation process of the site does not actually lead to the pathogen being introduced. *Phytophthora* species have been regularly isolated from plant stock originating from nurseries in WA. Therefore, it is important that all plants are purchased from nurseries with Nursery Industry Association wholesale accreditation, or nurseries with excellent hygiene standards.

Direct seeding can often be preferred as the chance of accidentally introducing the pathogen is vastly reduced. Direct seeding should be conducted either during autumn or winter to allow the plants to be established with the autumn-to-spring rainfall. The use of mulch is not recommended unless the mulch has been well composted (the heating of the mulch during the compost process will kill *Phytophthora* Dieback).