



WEED MANAGEMENT PLAN

LOT 1794 FINN RD, MYALUP

July 2022

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CONTENTS

1	INTRODUCTION	2
1.1	BACKGROUND	2
1.2	PURPOSE AND SCOPE	2
2	EXISTING ENVIRONMENT	3
2.1	LAND USE	3
2.2	TOPOGRAPHY AND SOILS	3
2.3	CLIMATE	3
2.4	VEGETATION AND FAUNA	4
3	EXTRACTION ACTIVITIES.....	7
3.1	OPERATIONAL WORKS.....	7
3.1.1	Sand Extraction	7
3.1.2	Limestone Extraction.....	7
3.1.3	Final Contours	8
4	ENVIRONMENTAL IMPACTS AND MANAGEMENT.....	9
4.1	CURRENT WEED STATUS	9
4.2	MANAGEMENT ZONES.....	9
4.3	WEED MONITORING.....	9
4.4	WEED MANAGEMENT	9
	REFERENCES	11
	FIGURES	12

TABLES

Table 1. Weed management measures.....	9
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FIGURES

Figure 1. Regional Location of the Subject Site

Figure 2. Extent of the Subject Site

1 INTRODUCTION

1.1 Background

GM Giacci Family Trust acting on behalf of MGM Bulk Pty Ltd (the applicant) is proposing to extract sand and limestone from a 9.17 ha area (herein referred to as the subject site) located within Lot 1794 Finn Road, Myalup (refer to **Figure 1** and **Figure 2**). The subject site is located in the municipality of the Shire of Harvey, approximately 20 km north-west of the Harvey town centre, 10 km north of Myalup to the west of Forrest Highway.

The subject site is zoned “Rural” under the *Greater Bunbury Region Scheme* (GBRS) and “General Farming” pursuant to the Shire of Harvey *Local Planning Scheme No. 1*. Under the Scheme the use class “Extractive Industry” is as an “SA” use in the “General Farming” zone. The “SA” designation “means that the council may, at its discretion, permit the use after notice for application has been given in accordance with Clause 2.3”.

This application is made for a five-year period however, the exact life of the project is difficult to estimate as it will be dependent on supply and demand trends.

The available volume of sand and limestone (*insitu* volume ranges from approximately 46,000 m³ to 963,000 m³) is to be extracted in five stages of approximately 2 ha each. Extraction will commence from the southern boundary and progress in a northerly direction. The post extraction landform will be designed with minimum batters of 1:4.

1.2 Purpose and Scope

This Weed Management Plan (Weed MP) has been prepared to fulfil the relevant requirements provided within the Shire of Harvey’s *Local Planning Scheme No. 1* and the Shire of Harvey’s *Extractive Industries Local Law*. It has been prepared in accordance with guidelines prepared by the Department of Agriculture and Food WA (DAFWA) for weed control procedures for extractive industries. It is intended to provide the Shire of Harvey, the public and relevant government agencies with an understanding of the proposal and the environmental strategies and commitments proposed to address weeds within the subject site.

The scope of this Plan is to:

- Describe the current weed status of the site;
- Define responsibilities for weed control;
- Define the weed management zones for pit management and buffer zones; and
- Describe the management measures and monitoring programme to reduce the impact of weed species during and after excavation.

2 EXISTING ENVIRONMENT

2.1 Land Use

The subject site is zoned 'General Farming' pursuant to the Shire of Harvey's *Local Planning Scheme No. 1*. The extraction area has previously been cleared of all remnant vegetation.

The surrounding properties are also zoned 'Rural' under the GBRS and 'General Farming' pursuant to the Shire of Harvey *Local Planning Scheme No. 1*.

2.2 Topography and Soils

The current topography of the subject site can be described as undulating with a survey undertaken by Metric Surveying in 2023 indicating an elevation ranging between approximately 6.5 to 16.5 metres (m) Australian Height Datum (AHD) with the highest point a hill located in the north of the subject site.

The subject site lies on the western side of the Swan Coastal Plain. The Plain at this point consists of a broad almost flat alluvial plain that slightly undulates, with seasonal wetlands occurring in the depressions.

The subject site is located within the Perth Coastal Zone landform characterised by coastal sand dunes and calcarenite, and the Spearwood Land System described as "*sand dunes and plain. Yellow deep sands, pale deep sands and yellow/brown shallow sands*" (Tille 2006).

Within the Spearwood Land System, the subject site is located within the following sub-system:

- Spearwood S1b Phase – Dune ridges with deep siliceous yellow brown sands or pale sands with yellow brown subsoil and slopes up to 15%
- Spearwood S2b Phase – Lower slopes (1-5%) of dune ridges with shallow to deep siliceous yellow-brown sands and common limestone outcrops.

The Quaternary deposits within the subject site are the Tamala Limestone. This and its associated sand form the Spearwood Dunes physiographic unit and are located immediately west of the Bassendean Sand. In general, these dunes are higher than the Bassendean Dunes, have steeper slopes, especially at their eastern edge and exist in two continuous ridges running parallel to the coast (Geological Survey of Western Australia 1978).

2.3 Climate

The climate of the locality is classified as Mediterranean with warm to hot summers and cool wet winters.

The closest weather recording station is Bunbury (Station 9965). Temperatures are highest on average in February, at approximately 30.0°C. July has the lowest average temperature of the year of 7.3°C.

Rainfall for the area is approximately 730 mm per annum with approximately 90% of the rain falling during the winter months, April to October inclusive. Evaporation exceeds rainfall in all but the wettest winter months.

Rainfall intensity has been calculated using the Bureau of Meteorology (BoM) Intensity-Frequency-Duration (IFD) data system which yields the two hour, 1 in 10 (10%) annual exceedance probability storm event for the subject site as 38 mm/hr.

The wind direction is predominantly from the east in the morning and from the southwest in the afternoon during the summer months. During the winter months the directions are more variable and lighter but with

a predominance of east - northeast in the morning and south west in the afternoon due to the presence of winter lows (BoM 2023).

2.4 Vegetation and Fauna

The flora and vegetation within the subject site has been subjected to prolonged land degradation processes including land clearing and horticulture. Vegetation within the subject site has been cleared previously to accommodate the existing land use (horticulture). Vegetation has been planted on the northern and portions of the eastern boundary of the subject site. This vegetation is comprised of introduced *Eucalyptus* spp. and introduced *Acacia* spp. (i.e. *Acacia longifolia*) (refer to **Plates 1 - 3**). This planted and non-endemic vegetation will be removed to accommodate the batters.



Plate 1. Planted non-endemic vegetation on eastern boundary which will be removed.



Plate 2. Planted non-endemic Acacia spp. on the northern boundary.



Plate 3. Planted non-endemic Eucalyptus and Acacia spp. on northern boundary.

In the absence of any native vegetation, the subject site does not provide any habitat suitable for native fauna of conservation significance.

3 EXTRACTION ACTIVITIES

The sand and limestone quarry will cover an area of approximately 9.17 ha with a current maximum elevation of 16.5 m AHD. It will be excavated to approximately 6 m AHD in five stages, each approximately 2 ha in size. Indicative stages are shown within **Figure 2** to illustrate their relative scale.

It is anticipated that between approximately 46,000 m³ and 963,000 m³ of sand and limestone will be extracted in total with a maximum of approximately 200,000 m³ excavated each year, depending on supply and demand. The proposal involves the screening of the sand and crushing of limestone onsite. The duration of screening and crushing operations will be dependent on the timing and requirements of specific campaigns.

The planned end use of the quarry is to restore a natural soil profile and return the area to horticulture, ensuring that there is no net loss of productive agricultural land.

3.1 Operational Works

Using a loader, the topsoil (nominally 15 cm of the soil profile) will be stripped and placed in stockpiles less than 5 m high, as per **Figure 2**. Overburden, if present, will be removed using a dump truck and stockpiled to the perimeter of the proposed pit area.

Typical operating hours for quarries will be adopted for the subject site which involves 0700 am to 1700pm each Monday to Friday and Saturdays 0700 am to 1200 pm, with no activities to occur on Sundays or public holidays. The site will be worked by 2 - 3 persons, depending on market demand.

3.1.1 Sand Extraction

The sand within each cell will be excavated by a bulldozer to a stockpile. It will then be screened to produce products of the correct size. A summary of the proposed sand extraction activities is provided below:

- Prior to excavation commencing the site will be ground surveyed, the excavation footprint marked out and a 1 m contour plan developed.
- The topsoil (nominally 15 cm of the soil profile) and overburden (if present) will be stripped and stockpiled using a loader.
- An excavator or front-end loader will be used to dig the sand and transport it to a stockpile.
- The sand will then be picked up by a loader and fed to the mobile screening plant.
- All static and other equipment, such as screening equipment (where used), will be located on the floor of the quarry to provide visual and acoustic screening.
- Excavation will commence in the south of the quarry and then move in a northerly direction. The face and walls of the pit will act as noise barriers.
- Upon completion of each section of quarry, if no limestone is present, the section will be reformed and back filled, where subgrade material is available, to achieve the proposed final contours.
- At the end of excavation, the floor of the quarry will be deep ripped, covered by overburden and topsoil, and rehabilitated to a constructed soil.

3.1.2 Limestone Extraction

The limestone within the quarry is relatively soft and can be removed with an excavator or loader without the need for a bulldozer or blasting. It will then be crushed and screened to produce products of the correct size. A summary of the proposed limestone extraction activities is provided below:

- An excavator or front-end loader will be used to dig the sand and transport it to a stockpile.
- The sand will be screened to enable grading.
- Limestone interburden, if encountered, will be incorporated into the overburden dumps for later use in re-contouring the land surface at the conclusion of excavation.
- An excavator or front-end loader will be used to dig and push the limestone down the excavation face and track roll the limestone in the process.
- The limestone will then be picked up by a rubber tyred loader and fed to the mobile crusher.
- All static and other equipment, such as crushers and screens (where used), will be located on the floor of the quarry to provide visual and acoustic screening.
- Excavation will commence in the south of the quarry and then move in a northerly direction. The face and walls of the pit will act as noise barriers.
- Upon completion of each section of quarry the section will be reformed and back filled, where subgrade material is available, to achieve the proposed final contours.
- At the end of excavation, the floor of the quarry will be deep ripped, covered by overburden and topsoil, and rehabilitated to a constructed soil.

3.1.3 Final Contours

The slope of the final contours of the quarry will be an undulating surface at around 6 m AHD which is consistent with the adjoining land. This will ensure a separation of around 5 m between the final contours and the maximum groundwater elevation.

Slopes of the batters at the end of excavation will be retained at a minimum of 1:4 vertical to horizontal.

4 ENVIRONMENTAL IMPACTS AND MANAGEMENT

4.1 Current Weed Status

The flora and vegetation within the subject site has been subjected to prolonged land degradation processes including land clearing and horticulture. Vegetation within the subject site has been cleared previously to accommodate the existing land use (horticulture). Vegetation has been planted on the northern and portions of the eastern boundary of the subject site. This vegetation is comprised of introduced Eucalyptus spp. and introduced Acacia spp. (i.e. *Acacia longifolia*). This planted and non-endemic vegetation will be removed to accommodate the batters. Due to ongoing weed control as part of the horticultural activities, limited weed species are present within the subject site.

4.2 Management Zones

For the purpose of this Weed Management Plan, as per the *Department of Agriculture and Food WA guidelines for weed control procedures for extractive industries licence*, the site has been separated into two management zones as follows:

- Zone A – defined as the quarry extraction area, including road ways, stockpiles and heaped soil.
- Zone B – defined as all land at natural ground level which extends 100 m beyond the perimeter of Zone A. This Zone will include the overburden pushed from the perimeter of the Zone A and stockpiled for future rehabilitation/ back fill.

4.3 Weed Monitoring

Monitoring of weeds within both Zones A and B will be undertaken by the applicant biannually. This will occur in April- May after the first autumn rains and again at the end of spring. All employees working on the site will be instructed to report any infestations to the Site Manager if observed.

4.4 Weed Management

Earthworks, transportation of topsoil and overburden, and vehicle movement have the potential to introduce additional weeds and spread existing populations of introduced flora within the extraction area. Given that weeds are not readily observed currently within the extraction area, management measures will be implemented to prevent the introduction of new species.

These management measures are documented below within **Table 1**.

Table 1. Weed management measures.

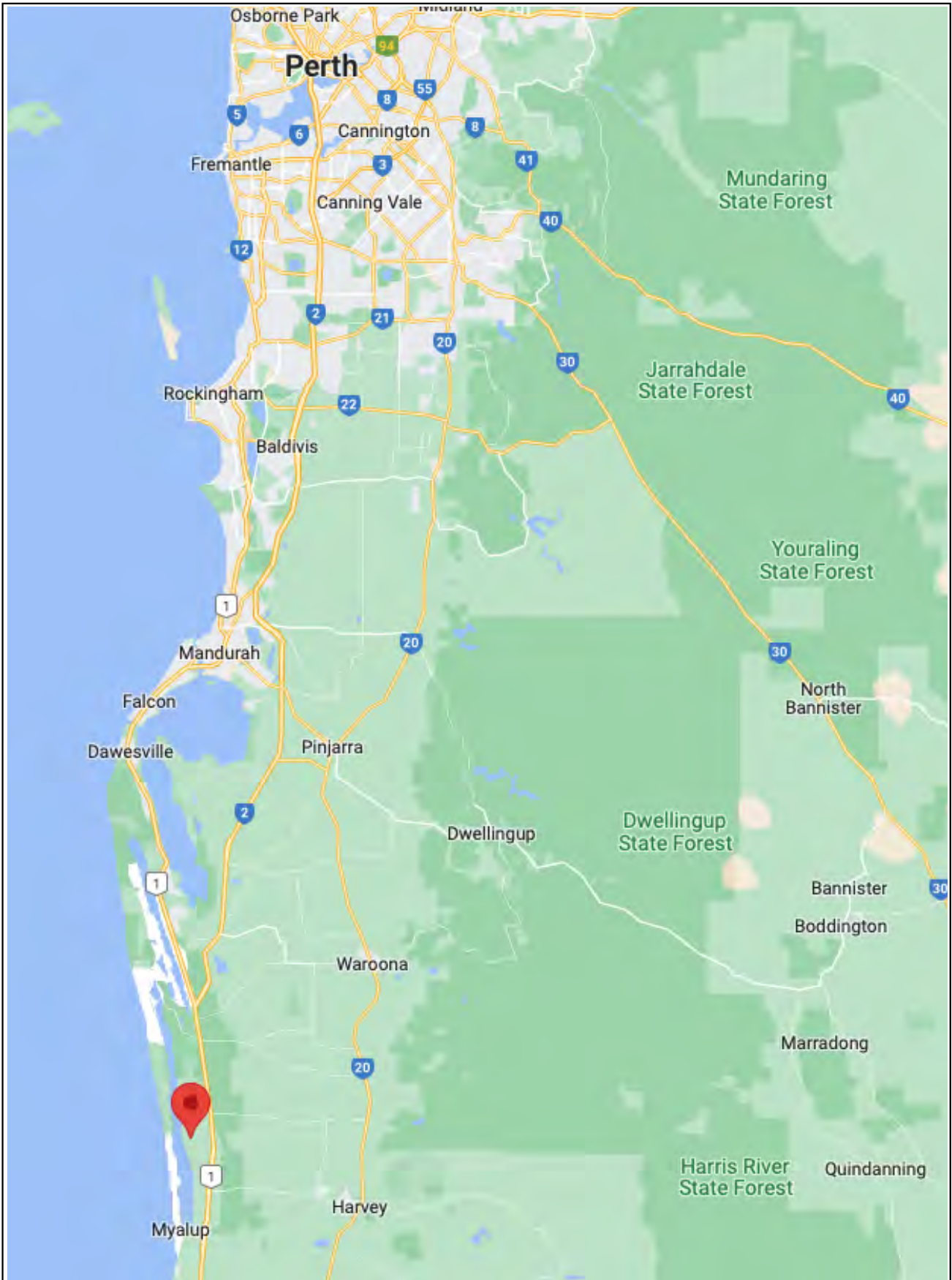
Timing	Management Measure	Responsibility
Prior to ground disturbing works	Assess weed potential within topsoil material prior to removal and separate weed affected topsoil for treatment or disposal.	Site Manager
	Store significantly weedy surface material separately to clean surface material.	Site Manager
During quarry operations	Avoid moving surface material or fill material from weed infected areas to non-infested areas.	Site Manager
	No soil and vegetation should be brought to the extraction area apart from that to be used in revegetation and plants used in revegetation should be free of weeds.	Site Manager

Timing	Management Measure	Responsibility
	Control access within the extraction area to reduce the spread of weeds, especially off-road vehicle access, to prevent disturbance to vegetation and weed invasion.	Site Manager
	Restrict access to areas outside of the extraction area to reduce the spread of weeds into or out of the site.	Site Manager
	Undertake biannual monitoring for emergent weed species.	Applicant
	Weeds within the extraction area are to be sprayed as required in autumn prior to the winter rains.	Applicant
	Spot spraying and hand pulling of emergent weed species within revegetation areas will be carried out when required to eliminate any new colonies generated by quarry operations.	Applicant

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FIGURES



PROJECT Lot 1794 Finn Rd, Myalup

DRAWING TITLE Figure 1 – Site Locality

CLIENT GM Giacci Family Trust



Project Number 2342
 Drawing Number Figure 1
 Revision A

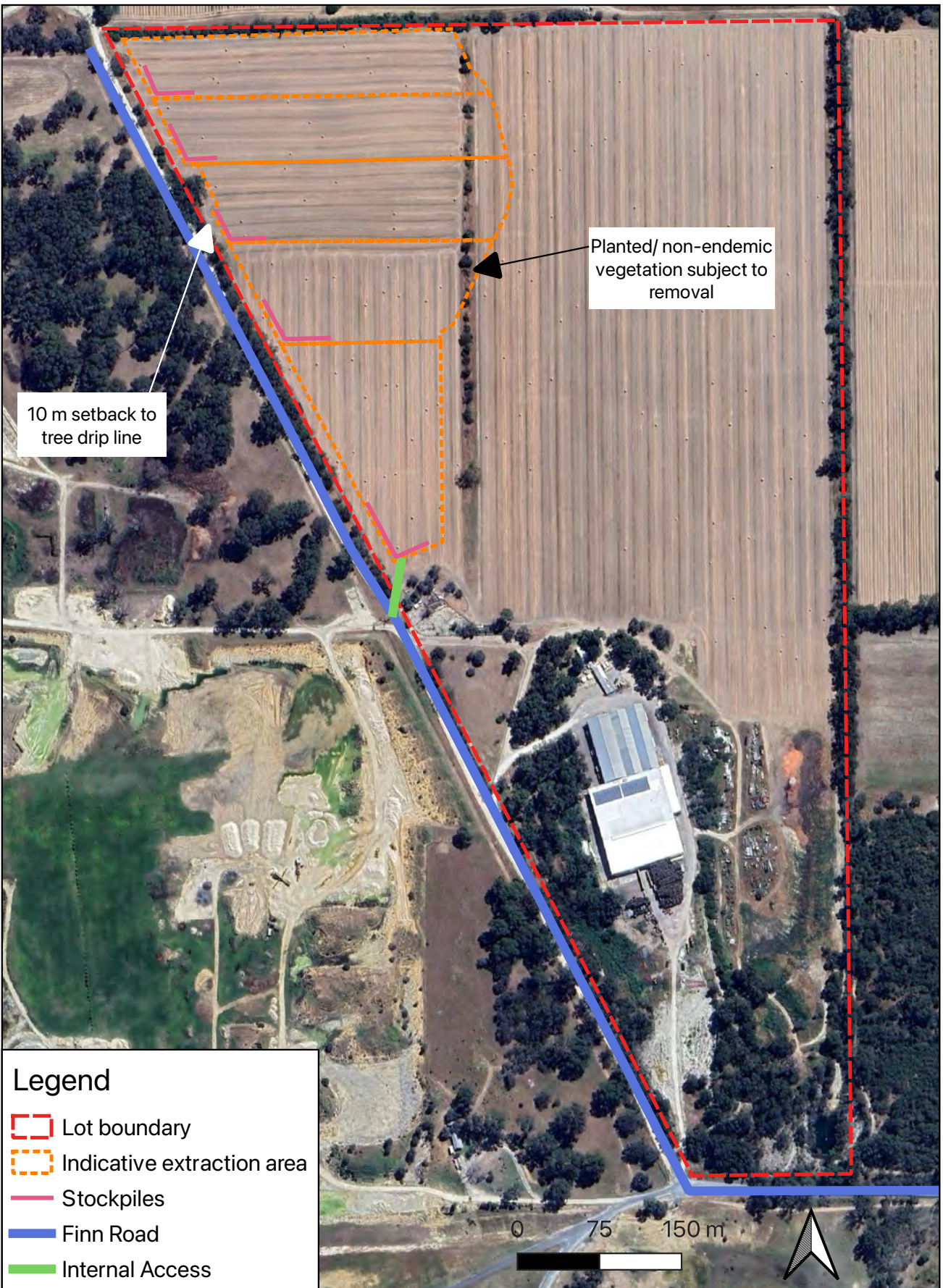
Designed PN
 Drawn PN
 Checked Approved

Date 27/06/2023
 Local Authority Shire of Harvey

Sheet 1 of 1

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Legend

- Lot boundary
- Indicative extraction area
- Stockpiles
- Finn Road
- Internal Access

PROJECT Lot 1794 Finn Rd, Myalup

DRAWING TITLE Figure 2 – Site Locality

CLIENT GM Giacci Family Trust



Project Number	Drawing Number	Revision
2342	Figure 2	A
Designed PN	Checked	
Drawn PN	Approved	
Date	10/07/2023	
Local Authority	Shire of Harvey	
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