

Environmental Report

Proposed Stockpile Area: Great
Southern Lime Nullaki Operations

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Environmental Scientists
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Prepared for:
Great Southern Lime



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EXECUTIVE SUMMARY

Great Southern Lime is the operator of a lime pit and haulage operation at Lot 9005 Cliff Circle Nullaki, some 12.5 km south-east of the township of Denmark.

Over its first years of business, strong product demand and operational factors have been identified which require the establishment of a new lime product stockpile area located within the same lot and approximately 1.5 km to the north of the lime pit and crushing operation.

A clearing permit application is to be made to add to the approvals to clear set down in CPS 8392/1, which accompanied the award by the City of Albany of appropriate development approval and extractive industry licenses and allowed development of the operation to proceed.

The purpose of this document is to provide the necessary scientific information so as to assist in the assessment of the application by the Department of Water and Environmental Regulation.

Botanical and relevant environmental survey of the clearing area has been done.

Evaluation of the findings indicate the proposal is compliant with government guidance on where clearing should be allowed, and the principles for assessment of clearing proposals.

This document presents the findings of survey and analysis which show that the clearing accords with acceptability criteria and should be approved by the DWER.

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1 Introduction

On the 17th July 2020 Clearing Permit CPS 8392/1 was granted to allow clearing within a prescribed area on Lot 9005 Cliff Circle Nullaki, to proceed in accordance with conditions of approval.

The clearing was required in order to allow establishment of a lime pit and haul road on the land.

The works followed a proposal by the applicant to mine limestone from a high-grade deposit, process the limestone by crushing on-site, then exporting the product via trucks using a new heavy haulage and road network connection to the existing local road network.

The proposal received all necessary government approvals and has been in operation for approximately 2 years.

Great Southern Lime is now the operator of the business and wishes to establish new stockpile area as a means of increasing operational efficiencies. The stockpile area is located within the land tenure of the operator and comprises a 3.5 ha area within Lot 9005 Rock Cliff Circle, Nullaki.

This report provides environmental scientific information to assist the Department of Water and Environmental Regulation in their assessment of the application by Great Southern Lime for a Clearing Permit to enable a new separate 2.5 ha stockpile area to be established at its Nullaki Lime Pit operations.

The report presents aerial photographic information, location, topographic, soil, landform and groundwater information together with a description of the vegetation flora and habitats which exist within the proposed clearing area.

Finally, the report evaluates the proposed clearing in the context of the principles of clearing published by the Department of Environmental Regulation.

This evaluation shows that the application is compliant with all assessment criteria and on this basis should be approved by the Department.

2 Description of the Existing Environment

2.1 Location and general characteristics of the land

Figure 1 presents the proposed clearing area and its surroundings and shows its relationship to the clearing area approved for Clearing Permit CPS 8392/1

The proposed clearing area comprises an approximate 3.5 ha parcel of land located within lot 9005 Cliff Circle Nullaki, which itself has an area of approximately 473.3287 ha.

Lot 9005 is located some 12.5km to the south-east of the township of Denmark but within the City of Albany boundaries, within a large tract of native vegetation and agricultural land which presents a combined rural and natural landscape setting typical for the district.

Surrounding land uses include farming to the east, and rural living residences on 40 ha lots on the Nullaki peninsula which presents as a very high limestone dune ridge, dune slopes and lowlands adjacent to Wilson inlet and is located to the west of the site. To the south of the site lies the steeply cliffed Southern Ocean shoreline and to the north lies a further extent of sand plain and the margins and water body of the Wilson Inlet.

2.2 Landforms Soils and Groundwater

The land and its locality lie within an extensive system of coastal limestone ridge terrain of Pleistocene age which forms a dominant element of the local coastal landforms and geology.

At the coast there is a very high dune system which is aligned on a north-west/south-east direction. The ridge in this area reaches maximum elevations of around 185 to 200 m AHD, is steeply cliffed at its ocean margin to the south-west, then to the north-east the ridge falls to lowlands which comprise gently undulating sandplains with overlying low stature linear dunes. Please refer to Figure 1.

The proposed clearing area is located on a flat section of sandplain and dune terrain at an elevation of approximately 10m AHD. Please refer to Figure 2.

At a district to regional scale, the soils on the site are described as Meerup Podzols over Calcareous Sand Phase (254NkMRp) which are podzols over calcareous sand typically associated with Banksia-Bullich-Yate woodland. A small area to the east is mapped as Meerup Podzols over Siliceous Sand Phase (254NkMRS) which are podzols in siliceous sand typically associated with Banksia-Bullich-Yate-Sheoak woodland (PVG Environmental 2017).

Site observations confirm that the surface soils comprise grey siliceous to calcareous sands with a thin organic layer at the surface. Whilst no specific soil profile investigation at this site has been conducted it is reasonable to infer that the sands extend for several meters depth and overlay either limestone or granitic basement sediments.

The surface soils are highly permeable and allow a large proportion of incident rainfall to infiltrate and recharge an underlying unconfined aquifer. A nearby wetland (about 300m to the north of the proposed clearing area) suggest the water table of the unconfined aquifer is located around 3 to 4 m below ground level within the lower flatter parts of the proposed clearing area. Groundwater flow direction is inferred to be towards the north.

The water quality within the unconfined aquifer is likely to be fresh to slightly brackish.

2.3 Vegetation

The vegetation and flora of a transect located a short distance to the north of the proposed clearing area in equivalent terrain was surveyed by specialist botanists PGV Environmental in October 2019. (PGV Environmental, 2017). A full copy of their report is provided as Attachment 1 to this document.

The botanical information presented in this present report is based on the findings of the PGV report together with observations by this firm's personal inspection during February 2023 and on many earlier site inspections of the site and locality dating back to 2017.

Figure 3 presents an extract from the PGV report, which is a part vegetation map, overlain on an aerial photograph of the site and locality. The diagram presents an added interpolation of the vegetation types in the local area based on the PGV mapping and its assignment of vegetation mapping units to vegetation patterns visible on the photography. This provides a key to mapping of the vegetation on the proposed clearing area site. A later figure presents this information.

The PGV Environmental Flora and Vegetation survey was undertaken in accordance with the Detailed survey requirements contained in *EPA Technical Guidance: Flora and Vegetation Surveys* (EPA, 2016). The survey included the following:

- Desktop search and review of the Department of Biodiversity, Conservation and Attractions (DBCAs) Naturemap database;
- A search of the Commonwealth Government's Protected Matters Search Tool to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*;
- Examination of historic and recent aerial photography and contour and soil maps to provisionally identify vegetation types and condition;
- Field survey using quadrats to record native and introduced species as well as a thorough site walkover of any areas of native vegetation;
- Recording of any significant plant species using a hand-held GPS;
- Description and mapping of vegetation types and vegetation condition; and
- Compilation of a flora list.

The relevant findings of this survey and analysis, as they apply to the proposed clearing area are summarized below.

Vegetation Complex

The vegetation on the site is part of the Owingup Complex. There is approximately 65.85% of the Owingup Complex remaining in the Shire of Denmark based on the pre-European extent with 39.81% of the entire vegetation complex in secure tenure (WALGA, 2018).

The retention and amount of the vegetation complex found at the site exceeds the 30% retention and 10% reservation targets (Commonwealth of Australia, 2001).

Threatened and Priority Ecological Communities

The vegetation types on the site are not representative of any Threatened or Priority Ecological Communities that occur in the Denmark-Albany area.

Flora

None of the species found within the site is a Threatened (Declared Rare) or Priority species;

Conclusions

The flora and vegetation survey of the Lee Road Reserve and proposed Emergency Access Track on Lot 9005 Rock Cliff Circle resulted in the following findings:

- A total of 93 species including 75 native and 18 introduced species were recorded on the emergency access track site which includes the proposed clearing area,
- None of the species is a Threatened (Declared Rare) or Priority species;
- Three vegetation mapping units were described and mapped for the site. The vegetation types nearly all contained Peppermint trees (*Agonis flexuosa*) at density of low open woodlands. *Leucopogon insularis*, *Bossiaea linophylla* and *Spyridium globulosum* were common shrub species. Dryland sedges were common as ground cover in the drier sites.
- The condition of the vegetation in the emergency access track site (which lies to the north of the proposed clearing area and is representative of local vegetation condition) was all Very Good to Excellent;
- The amount remaining of the Owingup vegetation complex is above the EPA's target of 30% with greater than 30% in secure reserves; and

- The vegetation is not representative of any Threatened or Priority Ecological Communities that occur in the Denmark-Albany area.

The consistency of the vegetation types visible on the photography enables interpretation at the site-specific scale for the proposed clearing area.

Figure 4 transfers this analysis of vegetation types to the proposed clearing area, with specific reference to the vegetation mapping shown on Figure 3.

In this way it is possible to describe the vegetation within the proposed clearing area as having two elements.

- Vegetation mapping unit Af SH, a sedgeland of native species which dominates the proposed clearing area and is described in detail based on quadrat data in the PGV report, and,
- Vegetation mapping unit Af LOW, which is a low open to closed woodland of peppermint (*Agonis flexuosa*), with a native sedge and shrub understory which has a floristic species overlap with the surrounding sedgeland's vegetation.

Each of these vegetation types is common and widespread in the locality, both within Lot 9005 and the Reserve 17464 to the east.

2.4 Habitats and Fauna

The site supports native vegetation and habits in good to excellent condition and is expected to support a fauna typical for the large expanses of sandplain which typify this area.

Habits include low coastal shrublands and sedgeland's to about 1m height over sandy soil substrate, together with stands of peppermint woodlands with a native flora understory.

There are no environmental characteristics of the site, or information in the published literature which indicates that the proposed site has any specific special values as a fauna habitat within itself and in the context of the surrounding environment.

The site is situated within a very large expanse of equivalent to identical fauna habitat, being coastal sandplain and dune terrain with low sedgeland's, low coastal shrublands and low open woodlands.

At regional scale, using the vegetation complex type as a surrogate indicator of fauna habitat type, the Owingup Vegetation complex is widespread in the Shire of Denmark and remains at 65% extant and 38% in secure tenure.

It is reasonable to conclude that if there are any fauna species dependent upon Owingup vegetation complex type/habitat type, the fauna could not be reliant upon the proposed clearing area for maintenance because there are vast local areas which also support this habitat type.

At a local and district level, there is an extensive contiguous and continuous expanse of equivalent native vegetation of approximately 2 km width which extends for approximately 8km to the west along the Nullaki peninsula, and a similar distance to the east, within Reserve 17464.

This presence of this adjacent expanse of equivalent fauna habitat indicates that it is reasonable to conclude that no fauna species is reliant upon the habitats at the proposed clearing area for their survival.

Aurora Environmental (2016) prepared a Level 1 Fauna Survey of the locality and the mine pit and haulage road.

One species, the Assassin spider (*Zephyrarchaea mainii*), was identified as a possible species which could occur in the area.

Main's Assassin Spider favours Peppermint (*Agonis*) coastal habitats where it inhabits shaded, long unburnt groves with an understorey of sedges (*Lepidosperma*), grasses and 'wiry' herbs (Restionaceae). Its microhabitat within these Peppermint groves is the elevated leaf-litter layer which collects amongst the crowns of the understorey plants (Rix and Harvey, 2009).

Anecdotal evidence suggests that Lot 9005 was last burnt in 1994 but had been subject to repeated frequent burns at approximately 5-year intervals for decades before that, in order to encourage feed for sheep which were grazed in the area. This may explain why there is an almost complete absence of suspended leaf litter underneath stands of *Agonis flexuosa*.

The survey indicates that Main's Assassin Spider is unlikely to occur within the area proposed to be cleared as it contains very few peppermint trees and has been subjected to regular burning in previous decades, which has diminished the ability for elevated leaf litter habitat to develop and accumulate.

3.0 Evaluation of Proposal Against Principles for Clearing

This section assesses the vegetation proposed to be cleared against the principles set down in the Department of Environmental Regulation explanatory document “A guide to the assessment of applications to clear native vegetation”, (December 2014).

3.1 Principle (a) Native Vegetation should not be cleared if it contains a high level of biodiversity.

Factors listed in the guidance document and the status of the proposal area in this context are as follows:

- (i) *Biodiversity hotspots*: the site is not located at any of the listed hotspots
- (ii) *Priority or other significant flora* – there are no priority or other special significant flora at the site
- (iii) *Priority ecological communities* – there are no PECs present at the site
- (iv) *Ecosystem diversity*
 - At the complex scale, there is only one vegetation complex present within the proposal area, being the Owingup Complex. There is approximately 65.85% of the pre-European extent with 39.81% of the entire vegetation complex in secure tenure (PGV Environmental, 2019),
 - it is reasonable to conclude that at a local scale there is only one plant ecosystem present within the clearing area, which is reasonably described as “low coastal dry shrubland with occasional peppermint groves, over flat to very gently undulating sandplain and low dune terrain”,
 - the floristic diversity determined by quadrat analysis found that the assigned vegetation mapping units for the proposal area had about 30 species in total: this is not a high species diversity in the context of floristic community types of the south-west part of the state,
 - the soil types throughout the site are equivalent from place to place with swale areas expected to have a slightly deeper organic layer compared to dunes, whilst the soils and geological setting are typical, common and identical to very large areas of surrounding land,
 - the microscale topography is consistent throughout the site consisting of repeating elements of low elevation dune and swale terrain with a maximum variation in level of around 1.5 m between dunes and swales.

On the basis of this analysis, it is reasonable to conclude that the proposed clearing area does not have a high level of biodiversity when assessed against these criteria.

3.2 Principle (b) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna

indigenous to Western Australia.

There are no environmental characteristics of the site, or information in the published literature which indicates that the proposed site could be included within this criterion.

The site is situated within a very large expanse of equivalent to identical fauna habitat, being coastal sandplain and dune terrain with low sedgeland, low coastal shrublands and low open woodlands.

At regional scale, using the vegetation complex type as a surrogate indicator of fauna habitat type, the Owingup Vegetation complex is widespread in the Shire of Denmark and remains 65% extant and 38% in secure tenure. It is reasonable to conclude that if there are any fauna species dependent upon Owingup vegetation complex type/habitat type, the fauna could not be reliant upon the proposed clearing area for maintenance.

At a local and district level, there is an extensive contiguous and continuous expanse of equivalent native vegetation of approximately 2 km width which extends for approximately 8km to the west along the Nullaki peninsula, and a similar distance to the east, within Reserve 17464.

This presence of this adjacent expanse of equivalent fauna habitat indicates that it is reasonable to conclude that no fauna species is reliant upon the habitats at the proposed clearing area for their survival.

3.3 Principle (c) Vegetation should not be cleared if it includes or is necessary for the continued existence of, rare flora.

In October 2017, specialist botanists PGV Environmental surveyed a transect across the proposed clearing area, and evaluated the flora, both from direct site survey using quadrats, and from published technical information describing the rare and priority flora of the proposed clearing area and the locality and district.

The survey found that there were no declared rare flora species to be found within the transect area, nor was the site and relevant parts of the locality prospective for the occurrence of any species or rare flora.

3.4 Principle (d) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a threatened ecological community.

Two specialist biological surveys of the site and the locality have been conducted.

- Lee Road and Lot 9005 Rock Cliff Circle, Emergency Access Track, Nullaki (PGV Environmental November 2017)
- Level 1 Fauna Survey Proposed Lime Pit and Access, Rock Cliff Circle Nullaki (Aurora Environmental, August 2018)

The PGV environmental report advises that no Threatened Ecological Communities, or indeed priority Ecological Communities are located either within the proposed clearing area or within a 2km radius of this area.

Full copies of each of these reports are provided as attachments to this document.

3.5 Principle (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area which has been extensively cleared.

This criterion does not apply to the proposed clearing area as there are several thousand hectares of equivalent vegetation in the district and region.

3.6 Principle (f) Native vegetation should not be cleared if the clearing of the vegetation is growing in or in association with a watercourse or wetland.

The vegetation within the proposed clearing area is not growing in or in association with a watercourse or wetland.

3.7 Principle (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

There are no characteristics of the proposed clearing area in and of itself or in its local environmental setting which indicates that any land appreciable degradation could result from its clearing. There are many local examples where clearing of this vegetation type in this characteristic environmental setting has caused any appreciable land degradation. The aerial photography of the local dune terrain shows that small areas of cleared land, if left unmanaged, will regenerate naturally within a period of years.

3.8 Principle (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

There are no environmental features of the proposed clearing or functioning environmental processes which could cause any impact or the environmental values of any adjacent conservation reserve.

3.9 Principle (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration of the quality of surface of underground water.

The proposed clearing area is not connected to any local surface water expression by surface drainage. The land is flat and has highly permeable soils so surface runoff is not a relevant process to this site's hydrology

There is an unconfined aquifer beneath the site which is inferred from local conditions and the presence of a small groundwater-based wetland set in a local swale some 100m to the north. This wetland indicates the water table beneath the proposed clearing area is approximately 3 to 4 m below ground level. Flow direction is inferred to be to the north, generally towards Wilson Inlet.

The vegetation within the wetland infers the groundwater quality is at least fresh and possibly

brackish.

Clearing of the vegetation in itself, has no capacity to effect groundwater quality, whilst the storage of the local native limestone over the site during its operation as a stockpile could not cause water quality deterioration as the limestone is the same sediment type as the host sediments of the aquifer and its recharge area.

4.0 Summary and Conclusions

A clearing permit application for 3.5 ha of land has been submitted to the DWER by Great Southern Lime Partnership Pty Ltd.

Botanical and other relevant environmental investigations of the site have been conducted in accordance with published biological survey procedures.

Survey has found that there are no special conservation values present at the site, or any other values which are inconsistent with the published guidelines for clearing permit vegetation analysis, and the principles for clearing published by the Department of Environment

The findings of investigation indicate that the application for a clearing permit should be approved by the Department of Water and Environmental Regulation.

Figure 1: Proposed Clearing Area and CPS 8392/1 Approved Area

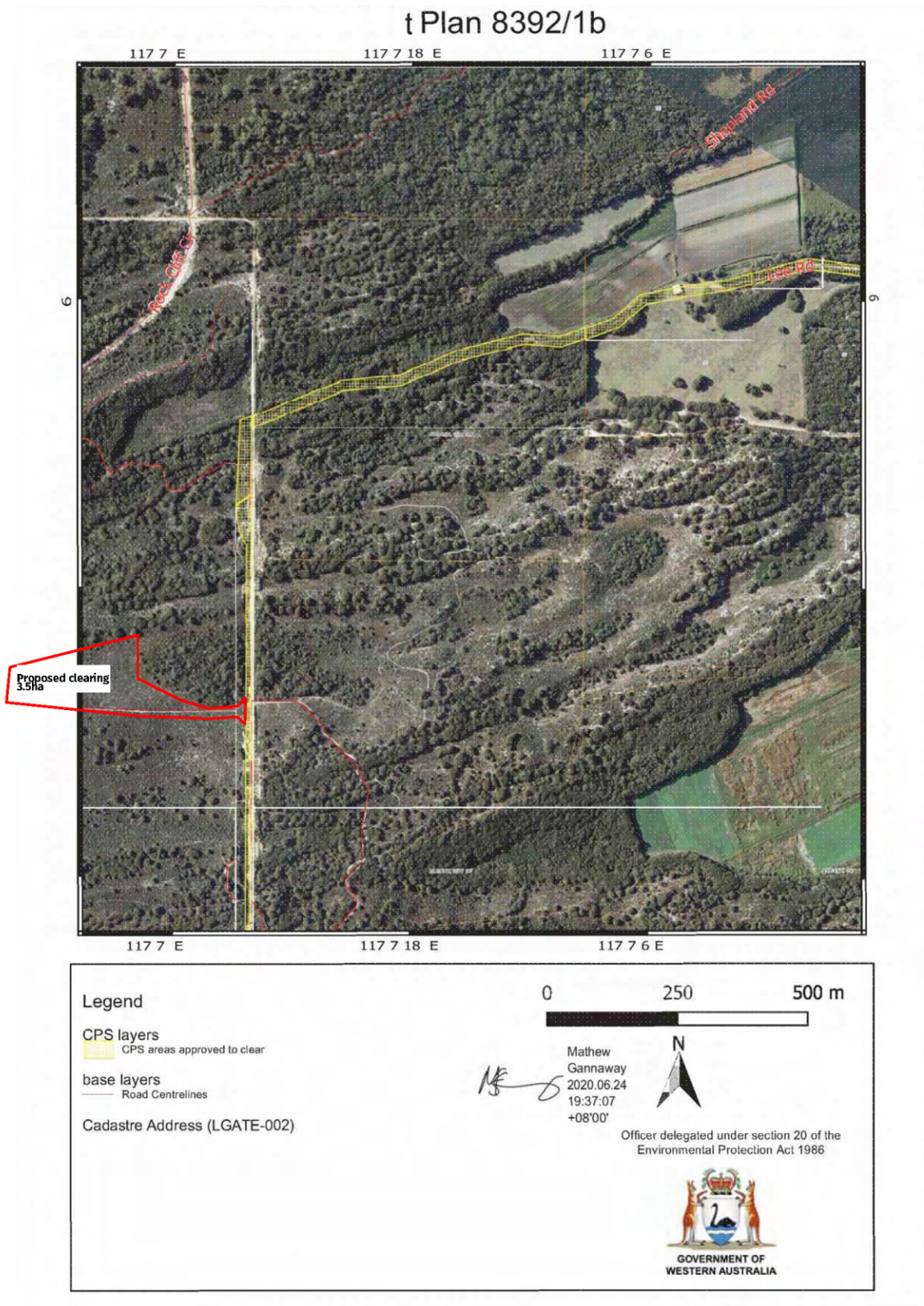


Figure 2: Location of the Proposed Clearing Area

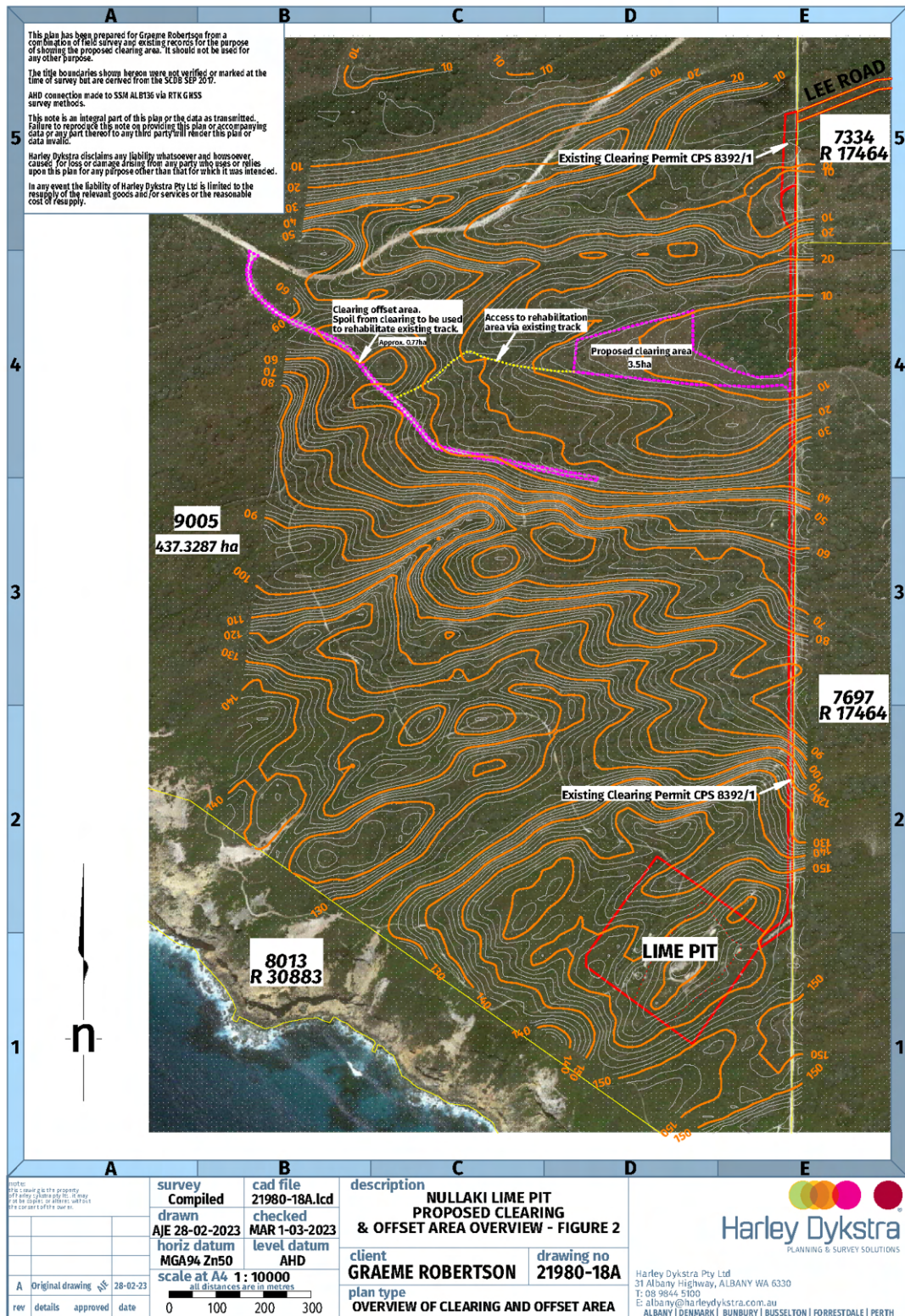


Figure 3: Extract from PVG Report

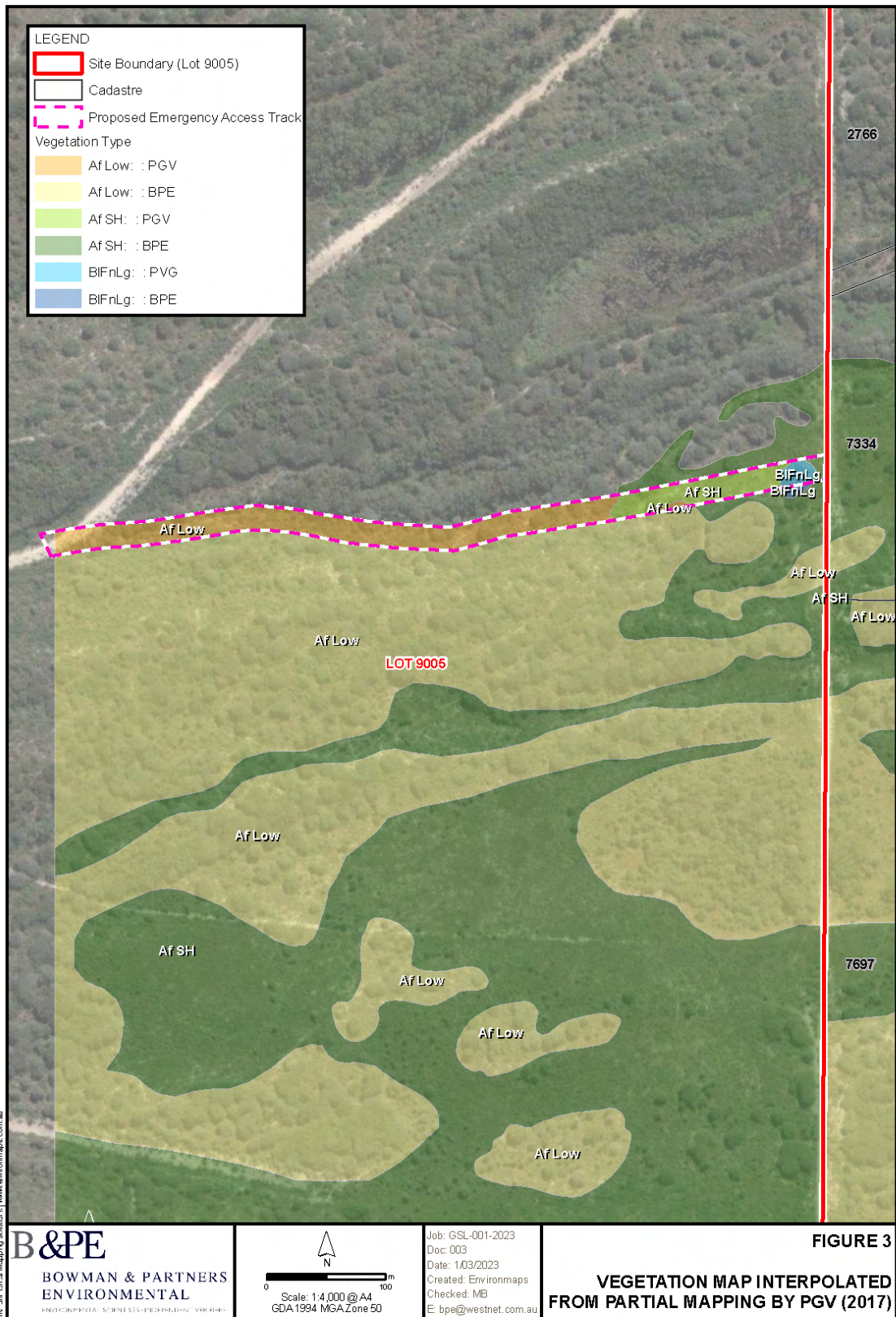


Figure 4: Vegetation map of Proposed Clearing Area

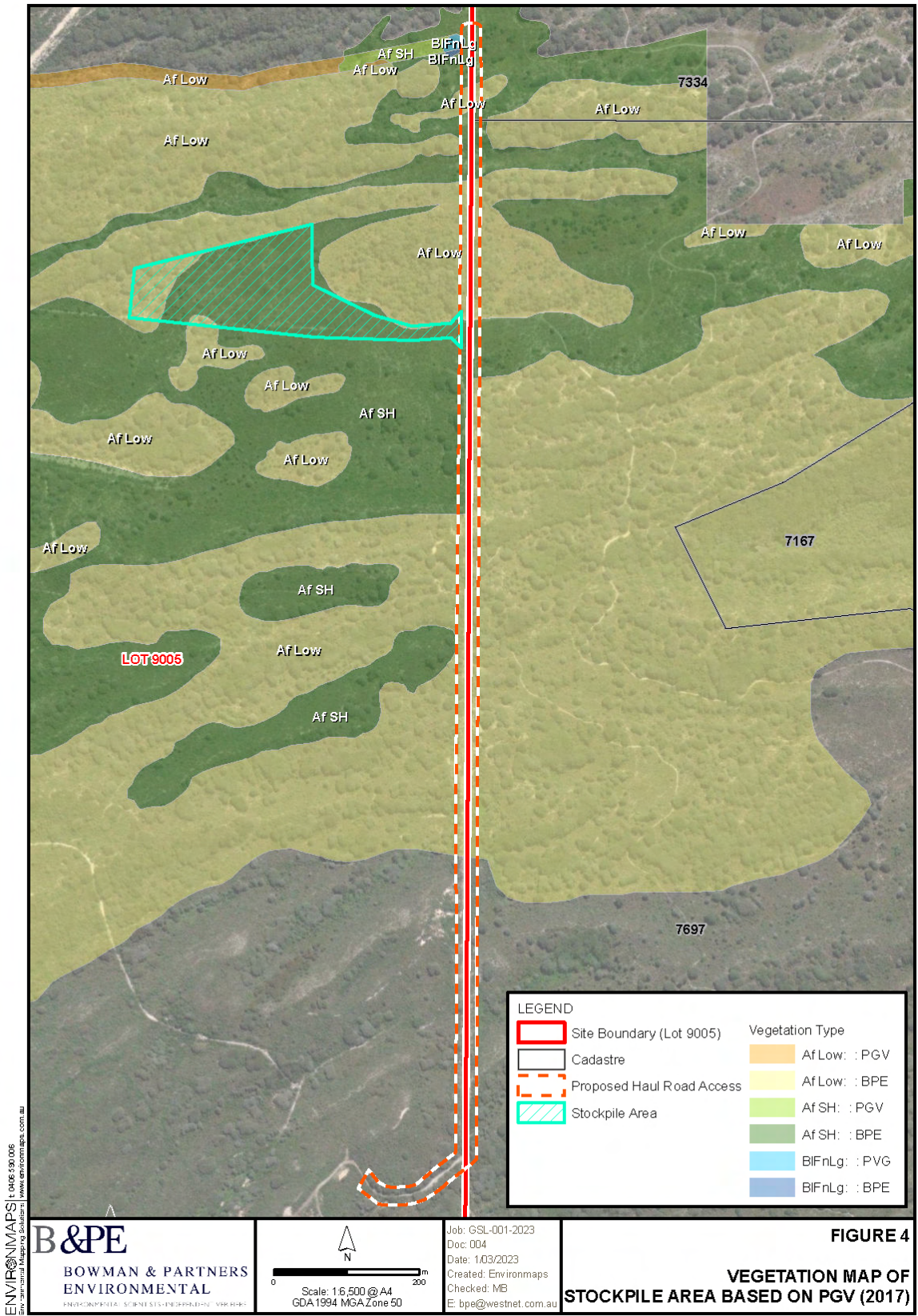


Plate 1: View of the proposed stockpile location looking west from the haul road.
The stockpile clearing area will occupy the sedgeland area in the foreground and background and will not include the peppermint woodland in the right of the frame.

See Figure 4 for a plan view of the area.

