TECHNICAL MEMORANDUM

Revegetation Plan

PROJECT NUMBER	EP20-088(12)	**DOC. NUMBER**	EP20-088(12)--017a KK
PROJECT	Montague Estate	**CLIENT**	Montague VY No. 1 Pty Ltd ATF Montague Trust
AUTHOR	KK	**REVIEWER**	KK
VERSION	A	**DATE**	July 2021

1 OVERVIEW

Emerge Associates have been engaged by Montague VY No. 1 Pty Ltd ATF Montague Trust (the proponent) to provide environmental advice to support the expansion of an existing winery operation at Lot 32 (No. 325) Tom Cullity Drive, Wilyabrup (herein referred to as 'the site').

This technical memorandum has been prepared to outline the approach to support mitigation measures proposed as part of the proposed expansion, namely revegetation of a 20 m-wide strip adjacent to Tom Cullity Drive. The area proposed to be subject to revegetation is shown within **Figure 1**.

2 MANAGEMENT PLAN

This purpose of this *Revegetation Plan* is to detail how the 20 m-wide strip adjacent to Tom Cullity Drive will be revegetated and includes a planting list, timeframe for implementation and completion criteria.

Various guidance documents are available, however this document has been prepared in consideration of the Water Quality Protection Note 6 (WQPN 6) *Vegetation Buffers to Sensitive Water Resources* (DoW 2006) and the *Shire of Augusta Margaret River Revegetation Guidelines* (SAMR 2016), which are useful documents for revegetation and planting for landscape connection. While the site is not within the Shire of Augusta Margaret River (it is near the border), their revegetation guidelines are a useful document for landowners to implement revegetation at the scale proposed for this project.

3 IMPLEMENTATION OF THE REVEGETATION PLAN

3.1 Revegetation location

The revegetation will be undertaken within a 20 m-wide area adjacent to the eastern boundary of the site, as shown in **Figure 1.** This area is 0.65 ha in area.

3.2 Timeframe

The planting will be implemented within three years of the first winter following environmental approval and over a maximum 3-year period.

The revegetation program will be completed within 3 years, based on a two-year establishment period for the planting event to enable the completion criteria to be achieved.

3.3 Hygiene

The soil borne water mould *Phytophthora cinnamomi* or other Phytophthora sp. (phytophthora dieback) kill susceptible plants by attacking their root system which inhibits uptake of water and nutrients. It is unknown whether phytophthora dieback occurs in the site

Dieback is spread through movement of soil and mud, especially by vehicles and footwear (DPaW 2015; Commonwealth of Australia 2018). To ensure dieback or other pathogens and weeds are not introduced to or spread within the site (if present) the following management measures shall be undertaken during implementation of this plan:

- Vehicles, tools, equipment and machinery shall be free of all mud, soil and plant material on arrival at the site.
- If vehicles, tools, equipment and machinery are temporarily removed from the site during works they must be free of all mud, soil and plant material on return.
- Imported fill, mulch material and tubestock shall be certified free of dieback and disease.

3.4 Weed control

Weed species can compete for and utilise soil moisture and nutrients that would instead be utilised by the native plants (SAMR 2016). Therefore, an important component of success for the revegetation will be minimising the potential for weeds to outcompete the native species, improving overall success of planting.

Following planting, weed control will be carried out within the revegetation area using minimum disturbance techniques and may include hand pulling or spot spraying. The specific weed control technique will be determined on an 'as required' basis and be based on the particular weed species present. Existing paddock grasses are not proposed to be removed at this stage, to ensure soil material does not erode away.

If chemical weed control is undertaken, use of a herbicide specifically formulated to be frog friendly is recommended.

Weed control should be undertaken prior to planting and as needed during the establishment of planting within the revegetation area.

3.5 Plant installation

3.5.1 Timing

In the south west of Western Australia, the growing season for most native plant species begins once the winter rains have started and the ground is sufficiently moist. The tubestock will be installed as soon as possible once winter rains have begun, to allow plants time for establishment before the summer dry period.

Planting is to be undertaken at a time following reasonable rainfall and if required, supplementary hand watering (or similar) should be undertaken to support establishment.

3.5.2 Species selection

A list of species to be planted in revegetation areas is provided in **Table 1**. The species selected comprises a diverse list based on species identified by Emerge Associates (2020) as occurring within or adjacent to the site and species known to occur in similar habitats.

The species listed in **Table 1** are all commercially available and should not need to be substituted or omitted. However, if any of the species in **Table 1** are not available they will be omitted and tubestock densities of other species of the same lifeform will be adjusted accordingly.

3.5.3 Tubestock densities

All species will be planted as tubestock.

A planting density of 1 plant/m^2 has been used for understorey species (herbs, shrubs and rushes/sedges) and a planting density of 1 plant/5 m^2 has been used for trees. If required supplementary infill planting will be undertaken as outlined in **Section 4**.

Where trees are already present at the appropriate density, no planting will be undertaken.

Table 1: General species list for revegetation within the site

	Upper layer	Mid layer	Ground/lower layer
Proposed plant species mix	*Agonis flexuosa*	*Acacia pulchella var. pulchella*	*Adenanthos barbiger*
	Corymbia calophylla	*Banksia grandis*	*Banksia dallanneyi subsp. Dallanneyi*
	Eucalyptus marginata	*Billardiera fusiformis*	*Clematis pubescens*
		Bossiaea aquifolium subsp. aquifolium	*Dampiera linearis*
		Hakea ruscifolia	*Hovea elliptica*
		Hakea trifurcata	*Hybanthus calycinus*
		Hibbertia hypericoides	*Lechenaultia biloba*
		Macrozamia riedlei	
		Mirbelia dilatata	
		Philotheca spicata	
		Podocarpus drouynianus	
		Xanthorrhoea preissii	
Proposed planting density based on layer (approximate)	**1 plant per 5 m^2**	**1 plant per 1m^2**	**1 plant per 1m^2**

An example of the planting approach is outlined in **Plate 1**. Planting will be offset 5 m from the property boundary. Spacing can be varied to create a more natural looking area.

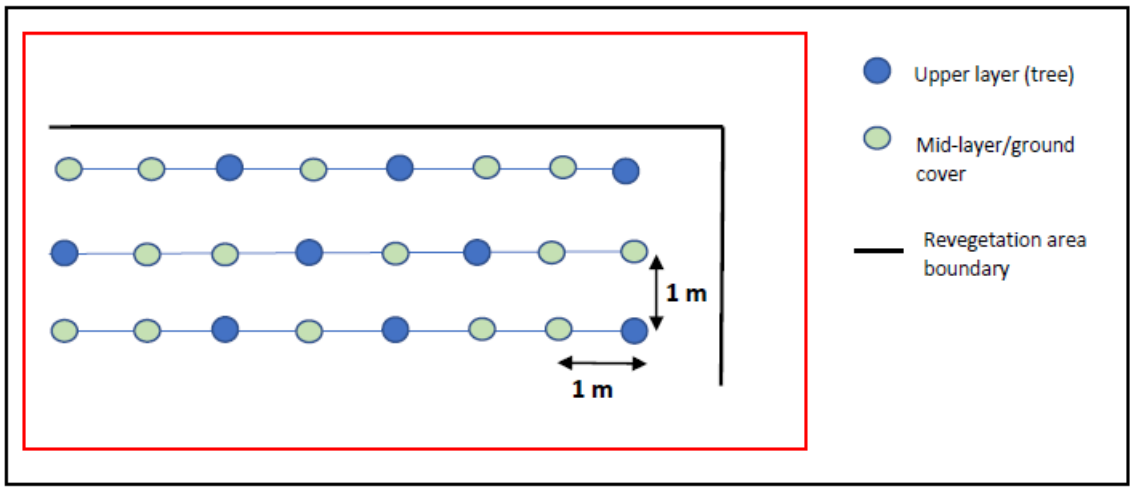

Plate 1: Example of how planting could be implemented within the revegetation area to achieve densities.

The completion criteria, and required planting success rates for the revegetation works are outlined below in **Section 4**.

3.5.4 Sourcing tubestock

Tubestock will be sourced from a *Nursery Industry Accreditation Scheme* supplier and grown as far as practical, from local seed or cuttings with genetic diversity. The tubestock will be grown as tall as possible to facilitate deep planting as outlined in **Section 3.5.5**. The tubestock will be disease and pest free, hardened off and in good condition.

3.5.5 Installing tubestock

It is recommended that tubestock are installed as deeply as possible to position roots closer to water supplies and decrease water loss in hot conditions. For example, tubestock of suitable species grown to 300 millimetres (mm) tall can be planted with only 50-75 mm of stem showing above the surface (WAPC 2003). Deep planting may also prevent or reduce the effects of herbivory by kangaroos or rabbits as the top of the plant can easily resprout if removed.

Tree guards are not recommended as these increase installation time, can become loose and become litter and require a return visit to remove bags once plants are established. Requirement for tree guards can be reviewed and installed at a later date if herbivory is identified as significant and affecting success.

3.6 Fencing

Fencing will be installed adjacent to the revegetation area, as indicated in **Figure 1**, to minimise unauthorised access, protect plants and minimise livestock grazing.

3.7 Pest control

Pests and/or animals can play a role in the success of a revegetation program, and if not appropriately controlled can detrimentally affect the planting establishment success rate. Pests can include slugs/snails, grasshoppers, rabbits, kangaroos, as well as livestock. Potential grazing by rabbits and kangaroos (as well as livestock) are likely to be the main issue requiring control.

The area will be fenced, and if required trees guards, such as plastic or mesh guard, will be used as required. The use of these measures will be determined by the proponent on an as required basis. No population control or similar is proposed.

4 COMPLETION CRITERIA

To determine the success of the proposed rehabilitation, the following completion criteria is proposed:

- A plant survival rate of 75 % within the revegetation area.

The planting survival rate will be assessed in autumn for the two years following implementation, with additional planting to be undertaken as required (where plants have died and the overall 75% survival rate is not being achieved).

5 MONITORING AND MAINTENANCE

Monitoring will need to be undertaken to assess the outcomes of the implementation measures against the completion criteria in **Section 4**.

Monitoring (i.e. visual inspection) should commence from the beginning of the revegetation to provide baseline information with which to compare progress over time.

Regular inspections should be undertaken to monitor the success of the revegetation accurately. The monitoring program will include:

- Weed control: inspections one month following planting for weed infestations.
- Plant success: survival rate of plants should be checked 1 month, 9 months and 2 years following planting. With plant losses replaced when required to achieve the overall 75% survival rate.
- Pest and livestock control: inspections for evidence of overgrazing pests such as kangaroos and rabbits during the implementation stage (i.e. two years from planting). Livestock should be excluded until planting is established. Pest management measures should be implemented as required.
- Water requirements: inspections of plant health to determine whether additional follow up watering is required, especially during dry summer months.

6 ROLES AND RESPONSIBILITIES

The actions within this *Revegetation Plan* will be the responsibility of the proponent. All contractors engaged to undertake works within the site will be required to adhere to this plan.

7 REFERENCES

Commonwealth of Australia 2018, *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi*

Cooperative Research Centre for Australian Weed Management 2005, *Herbicides: Guidelines for use in and around water*.

Department of Parks and Wildlife (DPaW) 2015, *Corporate Policy Statement No. 3 - Management of Phytophthora Disease*, Perth. August 2015.

Emerge Associates 2020, *Detailed Flora and Vegetation Assessment - Lot 32 (No.325) Tom Cullity Drive, Wilyabrup*, EP20-088(01)--007 RAW, Version 1.

Shire of Augusta Margaret River (SAMR) 2016, *Shire of Augusta Margaret River - Revegetation Guidelines*, Margaret River.

Western Australian Local Government Association and Perth Biodiversity Project (WALGA and PBP) 2004, *Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region*, Perth.

West Australian Planning Commission (WAPC) 2003, *Coastal Planning and Management Manual*, West Australian Planning Commission.

Figures

Figure 1 – Updated Disturbance Area

319500 320000 320500 321000 321500

6258000

6257500

6257000

Tom Cullity Drive

Site boundary
Cadastral boundary
Development layout
Proposed vineyard location
Proposed revegetation area
Proposed extent of clearing
Proposed vegetation modification area
Proposed new fencing
Tree survey area

Black cockatoo habitat tree (Emerge Associates 2020)
Nest (0)
Potential nest (0)
Suitable hollow(s) (3)
Potentially suitable hollow(s) (2)
No suitable hollow(s) (332)

Figure 1: Updated Disturbance Area

Project: EPBC Act Referral (2020/8866) - Preliminary Documentation
Lot 32 (No.325) Tom Cullity Drive, Wilyabrup
Client: Montague VY No. 1 Pty Ltd ATF Montague Trust

Plan Number:
EP20-088(12)--F59a
Drawn: GAR
Date: 28/05/2021
Checked: KK
Approved: KK
Date: 02/07/2021

N

0 100 200
Metres
Scale: 1:6,000@A3
GDA 1994 MGA Zone 50

emerge ASSOCIATES