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**House of Cards**  
**Viticultural Land Capability Evaluation**  
**Lot 108 – 3219 Caves Rd, Yallingup, WA**

**May 2017**

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## 1.1 Background:

Lot 108 – 3219 Caves Rd, Yallingup was recently purchased by the parent company of House of Cards Wines. The property was acquired with the primary intention to grow additional premium grapes to further expand their growing wine business.

The property is 46.6 Ha in total area and is comprised of approximately 30 Ha (65%) of remnant vegetation and 16Ha (35%) of semi-cleared and parkland cleared paddocks. From the first inspection it is clear that the property has not been actively farmed for many years. The cleared areas are very overgrown with volunteer native species; the pasture is weedy & of poor quality and both the internal & external fencing is inadequate.

## 1.2 Methods:

A series of test pits were excavated across the site to assess the suitability of the soil profile for viticultural development. For each soil pit, a morphological description was performed and comments regarding limitations were made where necessary. These can be seen in detail in Appendix A.

See figure 2 for pit locations, and attached photograph files for pit illustrations (appendix B).

## 1.3 Previous Surveys:

Tille and Lantzke (T & L) have surveyed the area at scale of 1:50,000 (1990). The authors assigned land capability ratings for the region based on a number of soil quality criteria and associated limitations in regard to agricultural land use. Soils have been given capability classifications from I (very high) to V (very low).

## 2.1 Results:

Tille and Lantzke have classified the property as being part of the Cowaramup uplands land system with the following land units:

**C—Cowaramup Flats and Gentle Slopes:** Flats (0-2% gradient) and with gravelly duplex (Forest Grove) and pale grey mottled (Mungite) soils. Also included in areas mapped as C are areas of:

**C2—Cowaramup Gentle Slopes:** Gentle slopes (2-5% gradient) with gravelly duplex (Forest Grove) soils. The flats (C) are the dominant unit; the gentle slopes (C2) occur on the margins of the land system, usually adjacent to the Wilyabrup slopes.

**Ci—Cowaramup Ironstone Flats:** Flats and gentle slopes (0-5% gradient) with some laterite outcrop and shallow gravelly sands over laterite.

**Cvw—Cowaramup Wet Vales:** Small, broad U-shaped drainage depressions with swampy floors. Gravelly duplex (Forest Grove) soils on side slopes and poorly drained alluvial soils on valley floor. This unit can be subdivided into the (side) slopes and the (valley) floor.

For this property, C; C2 & Ci – were the dominant land units found across the property and are the most relevant with respect to a proposed new vineyard site.

T & L have assigned the following rating system for these land units.

	Grazing	Market Gardening	Vineyards	Orchards	Forestry
<b>C</b>	I	III pw	III w	IV w	II tw
<b>C2</b>	I	III p	II tw	III w	II rtw
<b>Ci</b>	IV dr	V r	V r	V r	V r

Table 1: Land capability rating for C, C2, Ci, and Cvw land units (see below for subscript notations of land quality issues).

**Rating Values:** I=Very High; II=High; III=Moderate; IV=High; VI=Very High

#### Limitations:

**d**—soil moisture availability

**p**—water supply—relates to the potential availability of good quality water from bores, rivers, farm dams and soaks.

**r**—rooting conditions—relates to factors such as soil depth and rockiness which affect plant growth (as well as the ease of cultivation).

**t**—wind exposure—the exposure to winds which can damage crops, vines and trees.

**w**—waterlogging

## 2.2 Suitable Sites:

**Proposed New Vineyard Sites:** From the current survey, two areas; Areas A & B have been identified as potential areas well suited for vineyard development. These can be given the following land capability ratings according to T & L. (See table 1.)

**Area A – (4 Hectares approx.):** This area is comprised entirely of the C2 unit. The soil is mostly the well-drained Forest Grove gravelly duplex profile. This has been assigned a High (II) suitability with the only restrictions being the potential for wind exposure (t) and waterlogging (w). These limitations are of a very low risk for this site as there is good natural wind protection and the profiles are very well drained. Therefore the rating could be upgraded to a Very High (I) rating for viticultural suitability for this area.

**Area B - (1.5 Hectares approx.):** This area is a combination of C, C2 & Ci land units. A significant amount of surface ironstone rock was observed in this area. Soil pits were not excavated in this area so as to not disturb the site. However it can be confidently assumed a very similar soil profile will be present in this area albeit with the inclusion of the surface rock. As it stands this site would be assigned a Very Low (V) to Moderate (III) level of suitability. This rating restriction is mainly due to the presence of the high level of ironstone which can be costly to remove and if left behind interferes with vineyard management and vine establishment. However it is well known that some of the best quality wine grapes can be produced on this type of profile and this high cost of development can be therefore warranted. Prior to development it is suggested to confirm the soil depth with test pits. This area will also require approval to clear the remnant vegetation from the Department of Environmental Regulation (DER).

### 2.3 Ground Preparation Prior to Planting:

Soil chemistry results have confirmed that the property has not been farmed in recent years. All the macro and trace element levels are very low and indicate very little fertiliser had been applied to the site. Phosphorus, Potassium, Calcium & magnesium are all very low as are Zinc, Copper & Manganese. A comprehensive nutrient program will be needed to address these shortcomings before planting to ensure successful vine establishment.

The soil type observed in the survey area is highly suited to the growing of premium wine grapes, however it very important that sufficient ground preparation is carried out. Industry standard practices such as deep ripping to 1m to break up the subsoil clay hardpans should be carried out. Deep placement of fertiliser and lime should also be considered. If possible a green manure crop should be seeded after the clearing and ripping has occurred so as to stabilise the surface and to avoid erosion.



**Photographs 1-4.** Typical examples of the well-drained ‘Forest Grove’ soil profile in the main survey Area A.



**Legend**

- Lot 108 Property area
- Buildings
- Watercourses
- Proposed Vineyard Area A
- Proposed Vineyard Area B
- New Dam Site

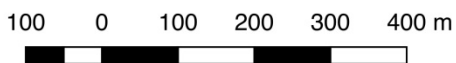


Figure 1. House of Cards: Lot 108 property boundary and proposed areas for vineyard expansion

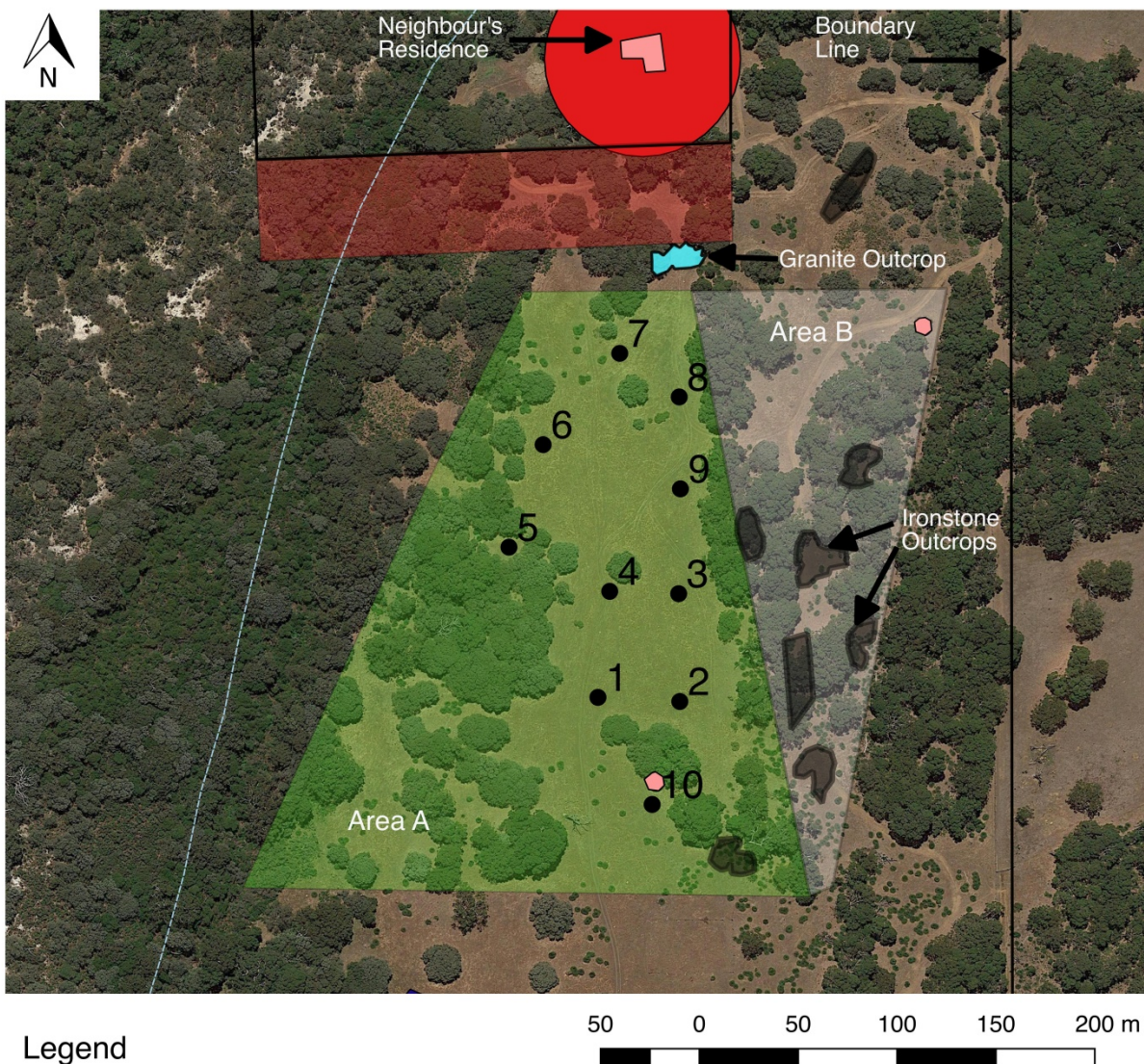


Figure 2. Proposed areas for vineyard expansion and soil pit site locations

### 3.1 Proposed Clearing of Vegetation.

For the development of a vineyard to occur in either area A or B, some small areas of native vegetation need to be cleared. The main area of interest (area A) is mostly regrowth trees on previously cleared land and the remnant portion (Area B) is of little conservation value.

**Area A** is mostly a parkland cleared paddock with volunteer Peppermint (*Agonis flexuosa*) trees dotting the area. (See photographs below). There is also a number of Jarrah (*Eucalyptus marginata*), Marri (*Eucalyptus calophylla*) and Blackbutt (*Eucalyptus patens*) specimens around the periphery of the area. Of the 4 hectare total area, about 1.5 hectare of canopy area (estimated in Nearmaps) is required to be removed to prepare the site for planting.



**Photographs 5-6:** Area A showing volunteer peppermint trees.

**Area B** is immediately adjacent to the east of Area A. It is mostly remnant bush with some parkland cleared areas on both the north and south ends. A fire break to the east terminates the edge of Area B. Similar to the vegetation for the rest of the property, Area B is made up of mainly Jarrah, Marri & Peppermint trees. An abundance of Grass trees (*Xanthorrhoea preissii*) is also present in this area. A number of the Marri trees present in the area are showing signs of Marri Canker (*Quambalaria coyrecup*). See photographs below. Of the 1.5 hectare total area, there is approximately 0.8 – 1.2 hectare of canopy area to be cleared for development. (Estimated in Nearmaps)

The total potential area to be cleared is between 2.3 – 2.8 Ha.





**Photographs 7-8:** Area B showing Jarrah, Marri & Grass trees and also Canker infested Marri tree.

#### 4.1 Summary and Conclusions

The current survey has confirmed the presence of suitable ground for viticultural establishment on Lot 108 Caves Road Yallingup. Two areas, namely Areas A & B show a high degree of potential to grow premium wine grapes. Area A is largely cleared and is comprised of the well-drained forest grove soil profile famed for producing some of the finest wines in the Margaret River region. Area B is mostly uncleared native vegetation. The soil type in this area is very similar to Area A - but with the presence of a significant amount surface ironstone rock. This rock will be expensive to remove to prepare for vine establishment. Soil depth needs to be confirmed for this area but the potential for growing premium fruit is good.

Provided that the relevant approvals to clear the small amount of vegetation are granted, there is at least 5.5 hectares of well suited ground to plant to wine grapes. A number of deficiencies exist with respect to soil chemistry. Significant amounts of minerals need to be added to the soil achieve balance and provide enough nutrient energy to ensure a successful vine establishment.

Feel free to contact me for any queries.

Regards

Anthony Quinlan

#### 5.1 References:

1. Tille P.J. and Lantzke N,C, (1990). Busselton Margaret River Land Capability Study. Land resources series No.5, Western Australian Department of Agriculture. ISSN 1033-1670.
2. McArthur W.M. (1991) Reference Soils of south-western Australia.