NATIVE FOREST
PROPERTY MANAGEMENT PLAN

Prepared December 2019

1. Property Location

1.1. The property is located 12 km from the town site of Pemberton on Nelson Location 5038 (Lot 5038 on Plan 229254), Eastbrook Road, Eastbrook.

1/5/2019 276 Eastbrook Rd - Google Maps

Google Maps 276 Eastbrook Rd

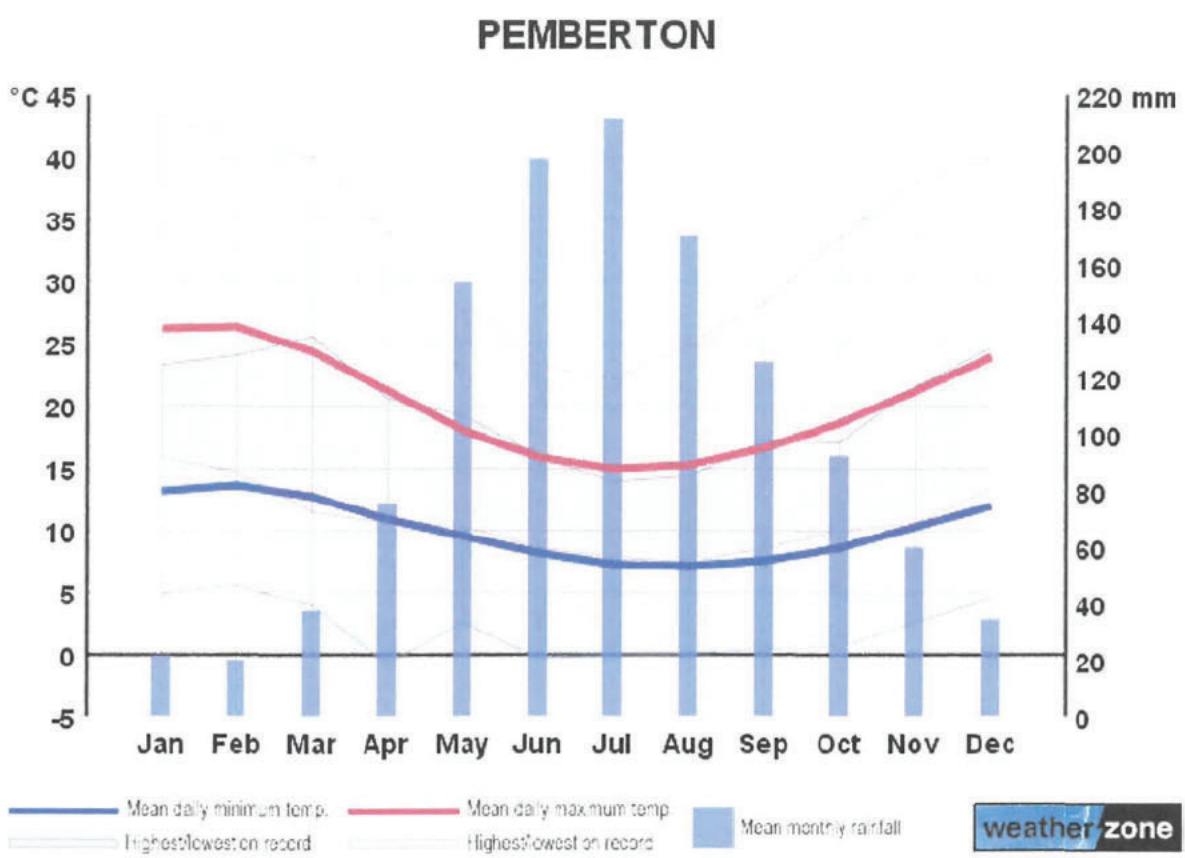
2. Climate

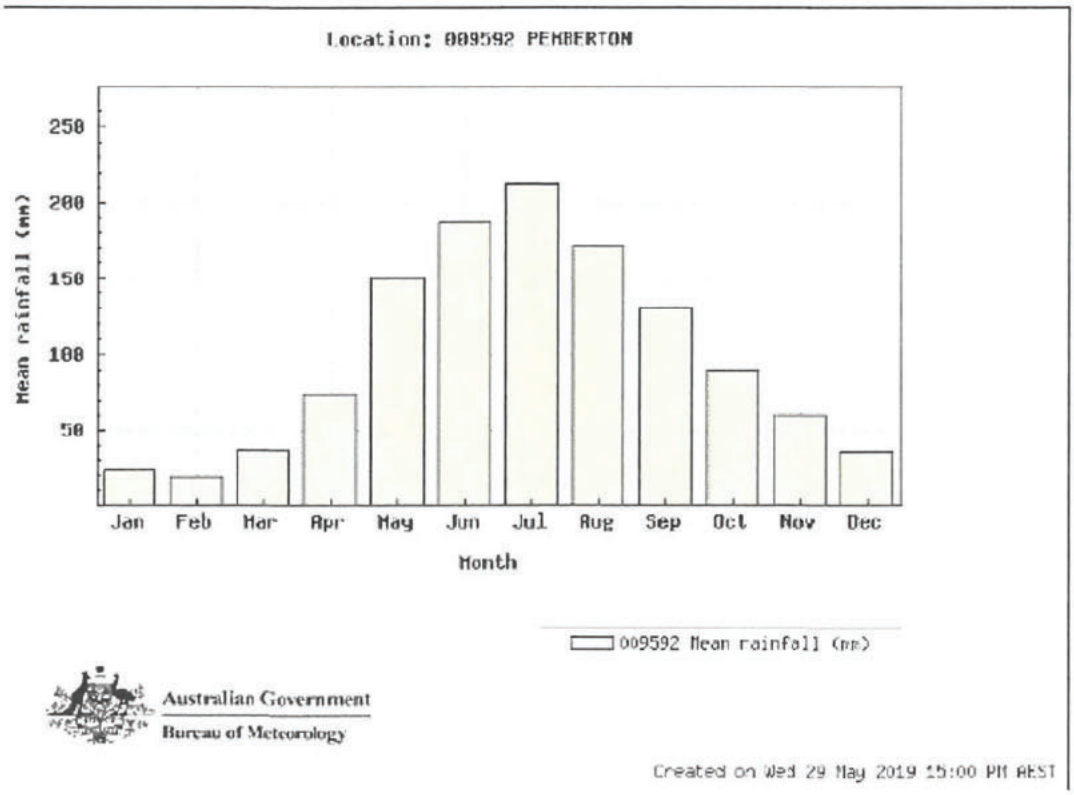
2.1 The site experiences a Mediterranean type climate with a mean annual rainfall above 1100mm.

Tables:

(i) Mean monthly rainfall for Pemberton (WeatherZone/FarmOnline Weather, 2019)

(ii) Mean rainfall data for Pemberton weather station (Bureau of Meteorology, Australian Government 2019).


PEMBERTON
°C
mm
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Mean daily minimum temp.
Mean daily maximum temp.
Mean monthly rainfall
Highest/lowest on record
Highest/lowest on record
weatherzone


Location: 009592 PEMBERTON
Mean rainfall (mm)
Month
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
009592 Mean rainfall (mm)
Australian Government
Bureau of Meteorology
Created on Wed 29 May 2019 15:00 PM AEST

3. Special Values returned from desktop Assessment

Threatened Species:

The following potential threatened species were identified by a desktop search from both the EPBC Act Protected Matters Search Tool and within a 5km radius by NatureMap.

On-site observation eliminates many species, as indicated by notes below.

(https://naturemap.dpaw.wa.gov.au/default.aspx & http://www.environment.gov.au/webgisframework/apps/pmst/pmst.jsf)

	Class	Scientific Name	Common Name	Conservation Status	Likelihood of Occurrence*
1	Bird	*Actitis hypoleucos*	Common Sandpiper	Threatened	Transient
2	Bird	*Apus pacificus*	Fork-tail Swift	Threatened	Marine
3	Bird	*Ardea alba*	Great Egret/White Egret	Threatened	Marine
4	Bird	*Ardea ibis*	Cattle Egret	Threatened	Marine
5	Bird	*Botaurus poiciloptilus*	Australasian Bittern	Endangered	Transient
6	Bird	*Calidris acuminata*	Sharp-tailed Sandpiper	Threatened	Transient
7	Bird	*Calidris ferruginea*	Curlew Sandpiper	Critically Endangered	Transient
8	Bird	*Calidris melanotos*	Pectoral Sandpiper	Threatened	Transient
9	Bird	*Calyptorhynchus banksii naso*	Forest Red-tailed Black Cockatoo	Rare or likely to become extinct	Moderate - Transient
10	Bird	*Calyptorhynchus baudinii*	Baudin's Black Cockatoo	Rare or likely to become extinct	Moderate - Transient
11	Bird	*Calyptorhynchus latirostris*	Carnaby's Black Cockatoo	Rare or likely to become extinct	Moderate - Transient
12	Bird	*Calyptorhynchus sp.*	White-tailed black cockatoo	Rare or likely to become extinct	Moderate - Transient
13	Bird	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Threatened	Marine
14	Bird	*Ixobrychus falvicollis* subsp. *australis*	black bittern (southwest), Australian Black Bittern	Priority 1	Low
15	Bird	*Merops ornatus*	Rainbow Bee-eater	Threatened	Transient
16	Bird	*Motacilla cinerea*	Grey Wagtail	Threatened	Transient

17	Bird	*Numenius madagascariensis*	Far Eastern Curlew	Critically Endangered	Transient
18	Bird	*Pandion haliaetus*	Osprey	Threatened	Marine
19	Bird	*Thinornis rubricollis*	Hooded Plover	Threatened	Marine
20	Bird	*Tyto novaehollandiae* subsp. *novaehollandiae*	Masked Owl (southwest)	Priority 3	Low - Moderate
21	Bi-valve	*Westralunio carteri*	Carter's Freshwater Mussel	Rare or likely to become extinct	Low
22	Fish	*Galaxiella munda*	Mud Minnow	Rare or likely to become extinct	Low
23	Fish	*Galaxiella nigrostriata*	Black-Stripe Minnow	Endangered	Low
24	Fish	*Geotria australis*	Pouched Lamprey	Priority 1	Low
25	Fish	*Nannatherina balstoni*	Balston's Pygmy perch	Vulnerable	Nil
26	Gastropod	*Helicarion castanea*	a helicarionid land snail	Presumed Extinct	Nil
27	Gastropod	*Occirhenea georgiana*	rhytidid land snail, Albany carnivorous snail	Presumed Extinct	Nil
28	Mammal	*Bettongia penicillata* subsp. *ogilbyi*	Woylie, Brush-tailed Bettong	Rare or likely to become extinct	Low - Moderate
29	Mammal	*Dasyurus geoffroii*	Chuditch, Western Quoll	Vulnerable	Low
30	Mammal	*Hydromys chrysogaster*	Water-rat, Rikali	Priority 4	Low
31	Mammal	*Isoodon obesulus* subsp. *fusciventer*	Quenda, Southern Brown Bandicoot	Priority 4	Low - Moderate
32	Mammal	*Pseudocheirus occidentalis*	Western Ringtail Possum	Rare or likely to become extinct	Low - Moderate
33	Mammal	*Setonix brachyurus*	Quokka	Rare or likely to become extinct	Nil
34	Plant	*Caladenia harringtoniae*	Harrington's Spider-orchid	Endangered	Low
35	Plant	*Commersonia apella*		Rare or likely to become extinct	Low
36	Plant	*Sphenotoma drummondii*	Mountain Paper-heath	Endangered	Low

*High – Areas of suitable habitat within FMU; Good connectivity to more areas of suitable habitat; A number of recent (<20years) records of species in area

Moderate – Some areas of suitable habitat; Suitable habitat in vicinity of property; Some recent records of species in area

Low – No or very little suitable habitat within FMU; Suitable habitat may occur in vicinity of property; Very few or old records of species in area

Nil – No suitable habitat within FMU in any case; No recent records of species in immediate area

Transient – Areas in FMU not suitable for permanent residence, however species may spend some there in activities such as foraging.

Long term observation by owners indicate that species 1,2,3,4,5,6,7,8,10,13,14,17,18,19,21,22,23,24,25,26,27,28,29,30,31,32 and 33 are not present on this property. It has no watercourses aside from a seasonal creek feeding a dam on the south-western corner. Ringtail possums were present at one time, but have not been observed since the early 1960s. Woylie, Quenda, Chuditch and Quokka have never been sighted.

The Protected Matters Search Tool, Nature Map Observation Year Report and Nature Map Species Report have all been consulted.

State Heritage Office inHerit Search results:

(http://inherit.stateheritage.wa.gov.au/Public/)

Road name used:	?????????????, Pemberton
Heritage Search Results	No results

Department of Planning, Lands and Heritage, Heritage Inquiry System (AHIS) results:

(http://www.daa.wa.gov.au/heritage/place-search/)

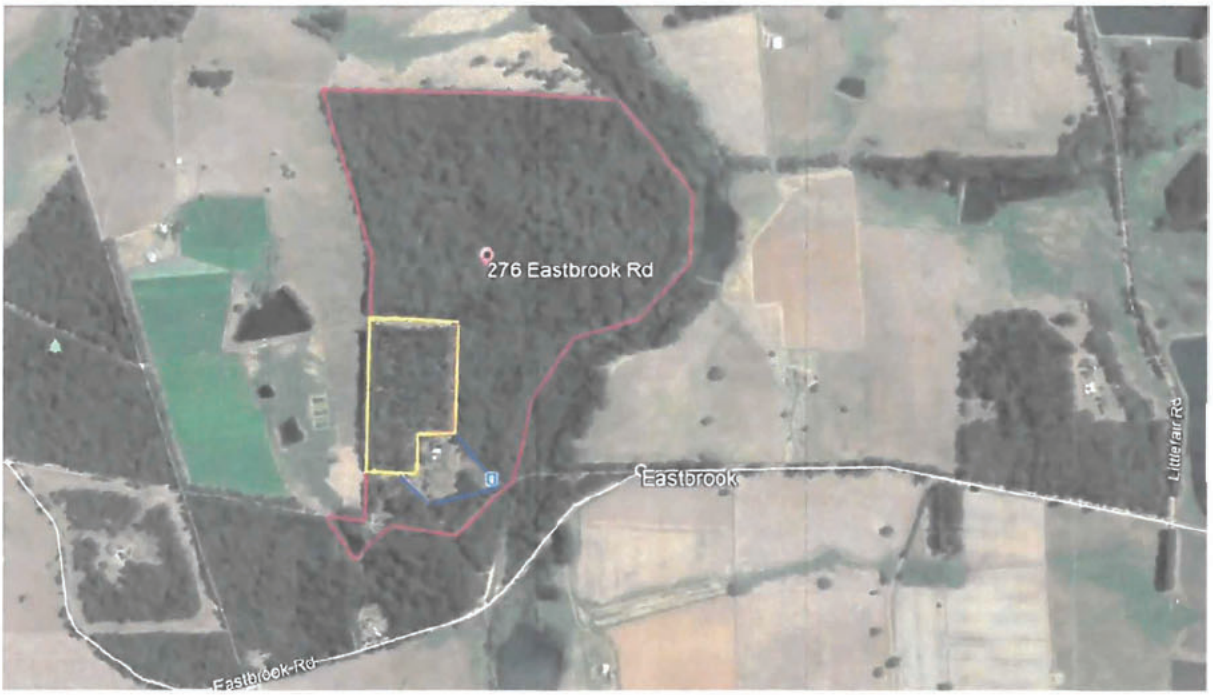
Register Site Search Results	No results
Other Heritage Search Results	No results

4. Property Vegetation Field Assessment

The property was visited by the Department of Water and Environmental Regulation on 15 May 2019 to determine the condition and species composition of the vegetation and if high conservation values were present. However, this property has been in the Collins family's possession since the 1950s. Dan Collins was born in Pemberton in 1948 and as then co-owner Jim Collins (Dan's father) was a teacher, the family spent most school breaks at Eastbrook over many years. Jim Collins retired in 1976 and lived on this property from then. Dan and his family visited him many times during that period. Dan and Carol became caretakers after Jim and Jennie relocated to Perth in 2000, and purchased the property from Jennie's estate in 2016 (Jim having died in 2002, Jennie in 2015). Dan has a very long-term intimacy with the property.

Area proposed for treatment.

4.1 Vegetation Description



Lot 5038 (red boundaries) and sub-components:

Area	Vegetation/ Site Description	Habitat Condition
1 (red boundary)	Timbered. Northern sector largely karri, thinned in 1970s. Eastern sector mostly marri.	Excellent
2 (yellow boundary)	Pine plantation. Wind belts of stringy bark and Tasmanian bluegum	Mostly introduced
3 (blue boundary)	Mostly cleared	Degraded

4.2 Photographs:

See thumb drive provided for a more complete set, covering the boundaries of the area proposed for treatment and internal tracks. A selection is attached below.


West Elevation

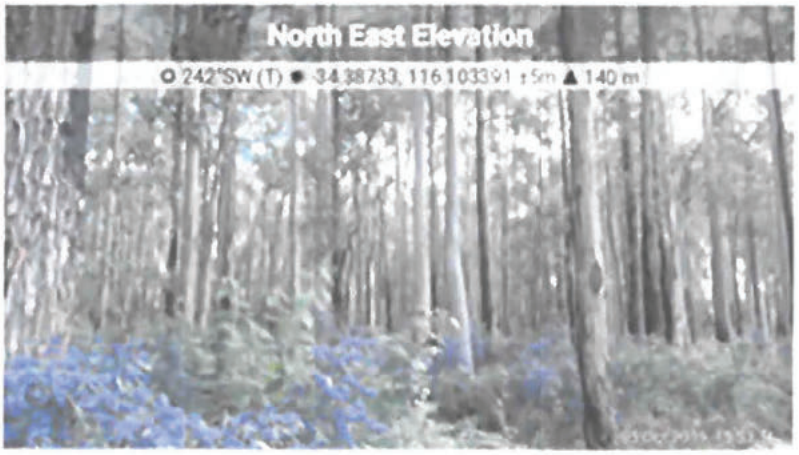

South Elevation


North West Elevation


South West Elevation


North Elevation

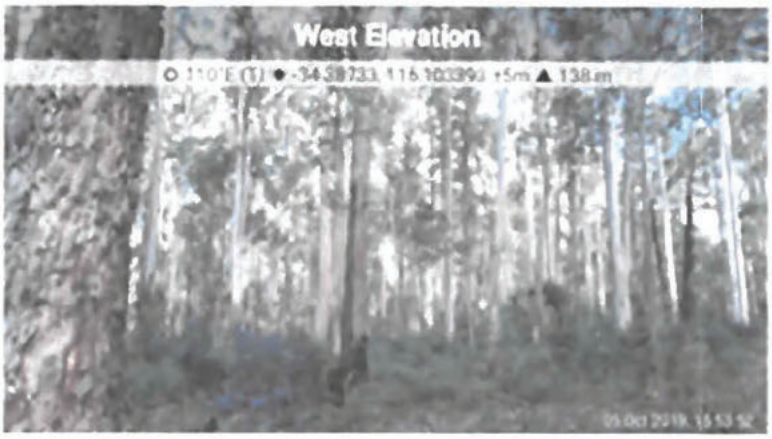

West Elevation

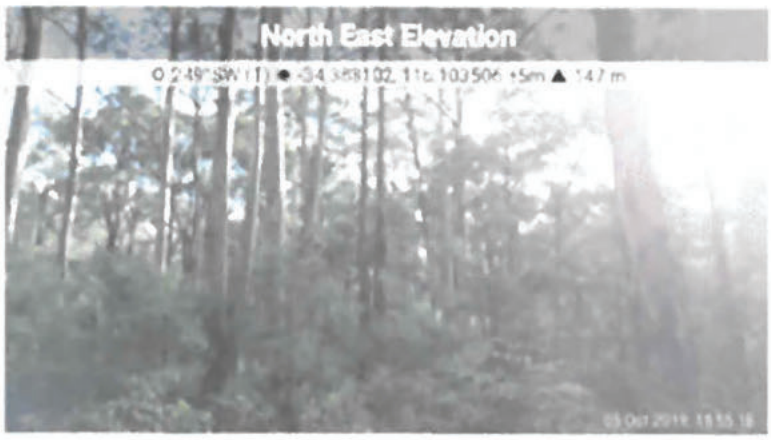

North East Elevation


North Elevation


East Elevation

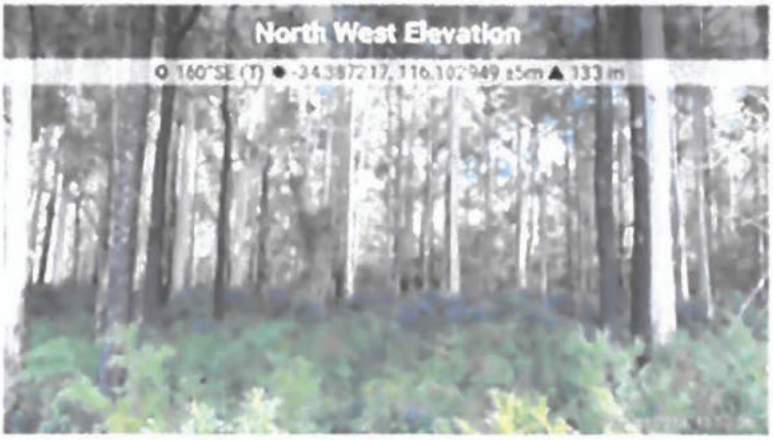

North West Elevation


West Elevation


North East Elevation


South Elevation

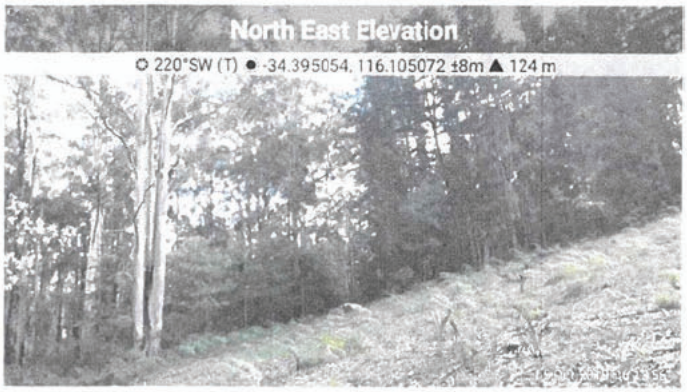

West Elevation

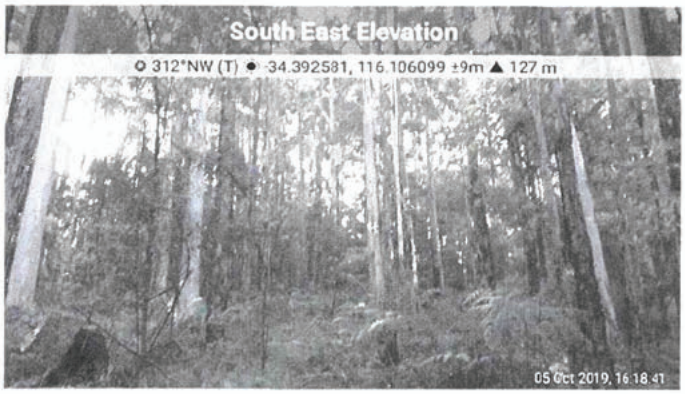

North West Elevation

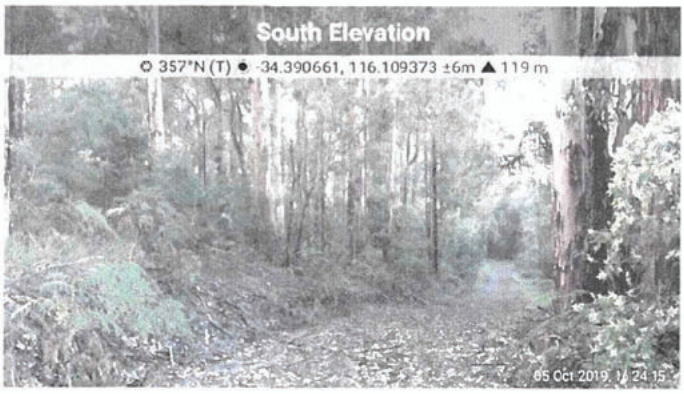

South West Elevation

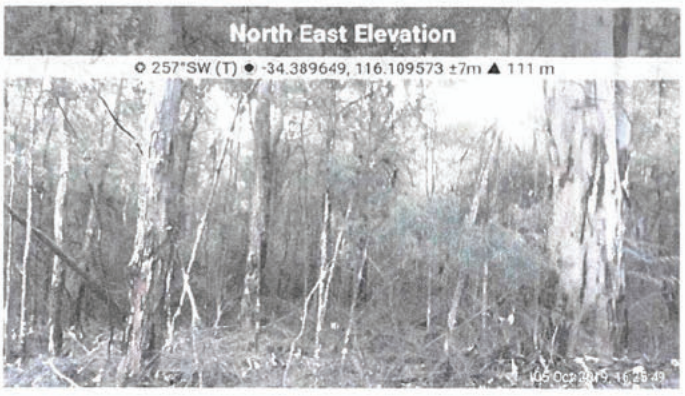

North Elevation

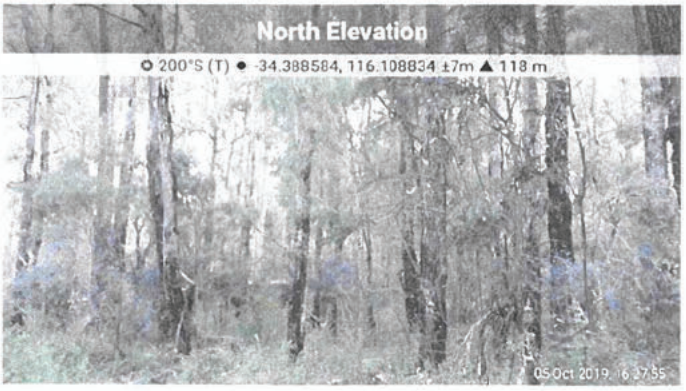

South East Elevation


North East Elevation
220°SW (T) ● -34.395054, 116.105072 ±8m ▲ 124 m


South East Elevation
312°NW (T) ● -34.392581, 116.106099 ±9m ▲ 127 m
05 Oct 2019, 16:18:41


South Elevation
357°N (T) ● -34.390661, 116.109373 ±6m ▲ 119 m


North East Elevation
257°SW (T) ● -34.389649, 116.109573 ±7m ▲ 111 m


North Elevation
200°S (T) ● -34.388584, 116.108834 ±7m ▲ 118 m
05 Oct 2019, 16:37:55


South West Elevation
54°NE (T) ● -34.39156, 116.10796 ±9m ▲ 112 m
05 Oct 2019, 16:21:48


South Elevation
353°N (T) ● -34.395045, 116.105207 ±10m ▲ 121 m
05 Oct 2019, 16:14:12

4.3 List of Flora

	Family	Scientific Name	Common Name	Conservation Status	Site #			
					1	2	3	4
			Trees					
1	Casuarinaceae	*Allocasuarina decussata*	Karri Sheoak	Not Threatened	x	x	x	
2	Fabaceae	*Acacia mearnsii*	Black Wattle	Alien	x	x	x	
3	Myrtaceae	*Agonis flexuosa*	Peppermint	Not Threatened	x	x	x	x
4	Myrtaceae	*Corymbia calophylla*	Marri	Not Threatened	x	x	x	
5	Myrtaceae	*Eucalyptus diversicolor*	Karri	Not Threatened	x	x	x	
6	Myrtaceae	*Eucalyptus patens*	Blackbutt	Not Threatened		x	x	
			Shrubs					
7	Dilleniaceae	*Hibbertia cuneiformis*	Cut-leaf hibbertia	Not Threatened	x	x	x	
8	Dennstaedtiaceae	*Pteridium esculentum*	Bracken	Not Threatened	x	x	x	
9	Elaeocarpaceae	*Tremandra stelligera*		Not Threatened	x	x	x	
10	Ericaceae	*Leucopogon propinquus*		Not Threatened	x	x	x	
11	Ericaceae	*Leucopogon verticillatus*	Tassel Flower	Not Threatened	x	x	x	
12	Fabaceae	*Acacia divergens*		Not Threatened	x	x	x	
13	Fabaceae	*Acacia pulchella*	Prickly Moses	Not Threatened	x	x	x	
14	Fabaceae	*Acacia urophylla*	Net-leaved Wattle	Not Threatened	x	x	x	
15	Fabaceae	*Hovea elliptica*	Tree Hovea	Not Threatened	x	x	x	
16	Rhamnaceae	*Trymalium ledifolium*		Not Threatened	x	x	x	
17	Rhamnaceae	*Trymalium odoratissimum sp*	Soap Bush	Not Threatenend	x	x	x	
18	Thymelaeaceae	*Pimelea clavata*		Not Threatened	x	x	x	
			Herbs, Sedges, Grasses, Climbers					
19	Asteraceae	*Hypochaeris radicata*	Flat Weed	Alien	x	x	x	x
20	Asteraceae	*Silybum marianum*	Variegated Thistle	Declared weed	x	x		x
21	Asteraceae	*Taraxacum officinale*	Dandelion	Alien	x			
22	Brassicaceae	*Raphanus raphanistrum*	Wild Radish	Alien			x	
23	Cyperaceae	*Lepidosperma effusum*	Spreading Sword-sedge	Not Threatened	x	x	x	
24	Cyperaceae	*Lepidosperma tetraquetrum*		Not Threatened			x	
25	Gentianaceae	*Centaurium tenuiflorum*	Slender Centaury	Alien				x
26	Juncaceae	*Juncus pallidus*	Pale Rush	Not Threatened			x	
27	Poaceae		Pasture Grass	Alien	x	x	x	x
28	Ranunculaceae	*Clematis pubescens*	Common Clematis	Not Threatened	x	x	x	
29	Rosaceae	*Rubus ulmifolius*	Blackberry	Alien	x	x	x	
30	Rubiaceae	*Opercularia hispidula*	Hispid Stinkweed	Not Threatened	x	x	x	
Conservation Status (Western Australia) from Florabase					25	25	28	5

Owner advises there are no karri sheoak or blackbutt (items 1 and 6) on this property.

4.4 List of Fauna

	Family	Scientific Name	Common Name	Conservation Status	Site #			
					1	2	3	4
	Artamidae	*Cracticus tibicen*	Australian Magpie	Not Threatened	x	x		
	Macropodidae	*Macropus fuliginosus*	Grey Kangaroo	Not Threatened			x	
	Maluridae	*Malurus splendens*	Splendid Wren	Not Threatened		x	x	
	Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler	Not Threatened		x	x	x
	Petroicidae	*Petroica boodang*	Scarlet Robin	Not Threatened			x	
	Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail	Not Threatened		x	x	x
	Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail	Not Threatened	x		x	
					2	4	6	2

5. Forest Condition and Management History

5.1. The forest may be characterised as (i) predominantly karri in the north west elevations; and (ii) predominantly marri along the eastern descent towards the Eastbrook valley, with some larger karri along the eastern boundary. Area (i) is dominated by two-tiered karri forest last harvested in the 1970s and is showing signs of overgrowth, with excessive stands of immature stems. Similarly, area (ii) has areas of densely aggregated immature stands of marri. Thinning the forest in general would promote its growth and vitality.

5.2. Understorey is dominated by –

Karri Wattle/Soap bush (acacia pentadenia)

Emu Bush (podocarpus drounyianus)

Fine Teatree (taxandria parviceps)

Peppermint (agonis flexuosa)

Waterbush (bossiaea aquifolium).

5.3. Grazing has been largely excluded from the forest area (some grazing occurred around 20 years ago). The understorey is described as moderate to dense with heavy fuel loads throughout.

5.4. Attempts were made in April 2016 to conduct a controlled mild burn from the forest's boundaries. However, due to dense understorey and dampness, the fires burnt no more than 100m inwards. These burnt areas currently contain lower levels of understorey. The forest along the western boundary has a more parkland aspect than other areas.

5.5. There is evidence of minor weed invasion, with some occurrences of blackberry. Efforts were made to find and control these outgrowths in the past, but the terrain is steep and with increasing density of undergrowth and advancing age, these efforts have diminished.

6. Owners' Management Objectives

6.1. To utilise timber resources within the existing vegetation without impacting nature conservation values.

6.2. To maintain wildlife habitat and water quality.

6.3. Thin to remove sub-dominant and co-dominant trees.

6.4. Retain more mature trees as a rate of two per hectare (where present) for habitat trees.

6.5. Primarily, to thin undergrowth to enable mild burning to mitigate the threat of summer wildfires and associated fatalities and destruction of forest and adjoining properties.

7. Silvicultural Thinning Prescription

The objectives are to improve the health and growth of remaining trees, reduce competition to allow regeneration to develop into saplings and minimise damage to new growth if retained trees are felled in future.

7.1. The proposed area for thinning is 40 ha, with extent of thinning of particular areas dependent on existing forest density and type.
  7.1.1. Thin from below, retaining trees in the dominant to co-dominant class, for potential future sawlogs.
  7.1.2. Remove up to 25% of available millable material.
  7.1.3. Retain approximately 16 – 18 m2/ha basal area.
7.2. Remove supressed and poor quality trees
7.3. Retain habitat trees at a rate of 2 trees per hectare where present.
7.4. Current maximum tree height approximately 30 metres.

8. Harvesting

8.1. All harvesting equipment is to be cleaned of soil and vegetation prior to entering and leaving the area to be harvested.
8.2. Harvesting operations to be conducted during dry soil conditions to avoid soil compaction and rutting, and the movement of soil in wet conditions.
8.3. Restrict the movement of machines and other vehicles to the areas to be harvested.
8.4. Exclude all stock from the area of the harvesting operation.
8.5. Avoid damage to retained crop trees and remove tops debris from the around the base of retained trees.
8.6. Following the completion of harvest, water off shoot drains to be constructed as required across extraction tracks at the following spacing;

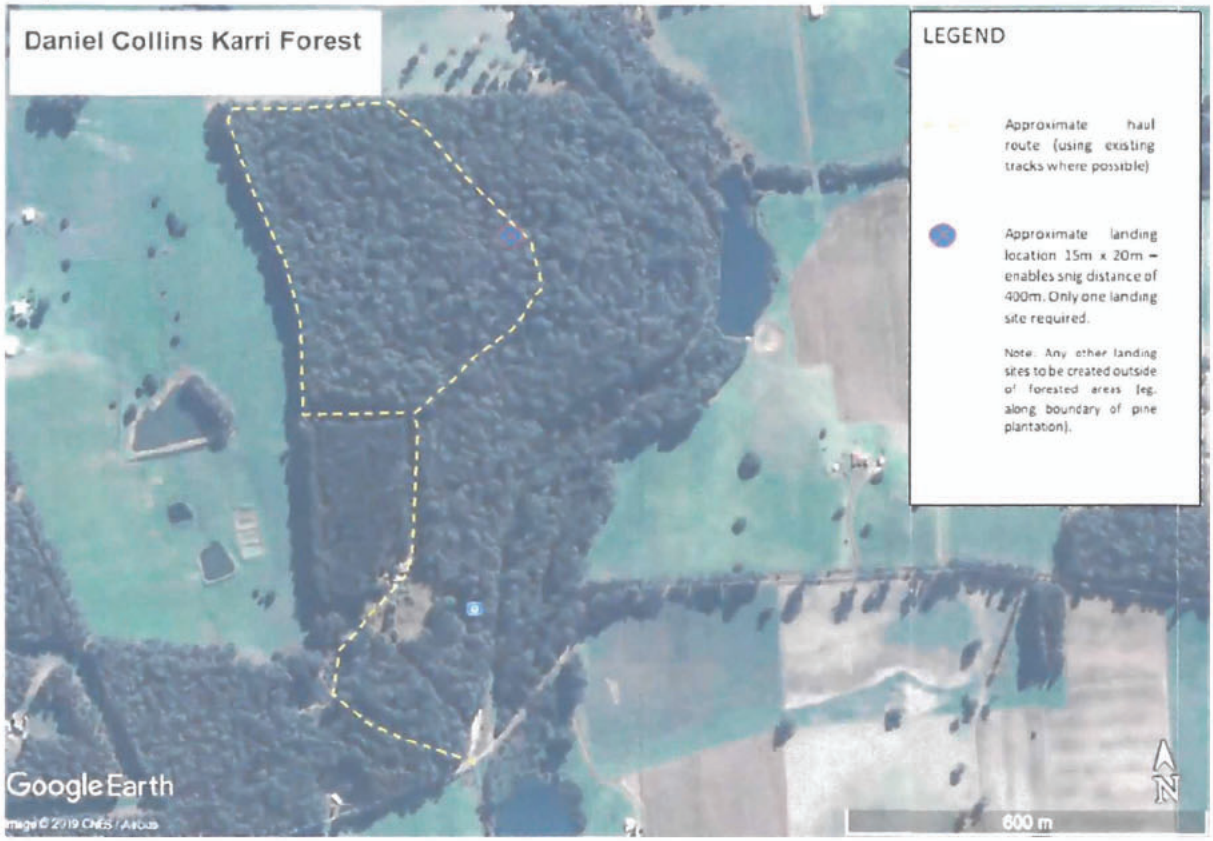
Spacing of drains	Slope of Land
100m	3.5°
50m	6° - 10°
30m	11° - 20°
15m	over 20°

8.7. Landing sites to be ripped to allow natural regeneration
8.8. All boundaries and water courses captured using GPS
8.9. No harvesting within 30 m of the riparian vegetation of any watercourse or wetland.
8.10. Harvesting will be done under the management of WA Plantation Resources, who carry FSC and AFS accreditation, are experienced in Private Native Forest thinning, and who closely supervise harvesting operations.

8.11. Notes for harvesting: Understorey may be scrub rolled for the safety of harvesting personnel, but not cleared to bare mineral earth. Snig tracks will be planned to minimise disturbance. Primary and secondary habitat trees and logs will be retained in accordance with the Karri Silviculture guidelines. Tops disposal will be conducted around retained habitat and crop trees to minimise damage by fire.

8.12. Notes for SW Ecological Linkage: Treatment will consist of thinning only, with retention of habitat trees in the upper storey, and retention of habitat logs. Any harvesting disturbance to mid and understoreys will naturally regenerate. Fuel load will be reduced (either by mechanical removal or fire) so that in the event of a fire these species may be able to survive. Usual harvesting protocols will apply, with minimisation of vehicle access and disturbance of native vegetation, use of existing access tracks where possible, only one landing required in native vegetation, provision to the contractor with Threatened Species Identikit, and cessation of work in the event of Threatened Species being encountered and resumption only when the species has moved on.

8.13. Logging tracks and landing point are proposed to be sited as shown on the attached map:



9. Fire Management

9.1. A well-managed low intensity fuel reduction burn, to reduce the potential of fire damage to life, property and the surrounding environment (the forest, understorey and wildlife). This will be preceded by preparatory mechanical fuel reduction, as indicated in paras 8.11 and 8.12 above.

10. Monitoring and Record Keeping

10.1. Records kept to demonstrate minimum basal area retention;
10.2. Visual monitoring of soil damage;
10.3. Records kept to demonstrate tops disposal from the base of retained stems;
10.4. Habitat trees retained and with GPS location recorded;
10.5. GPS mapping of the thinning boundary and location of habitat trees, including regular sampling of retained basal areas will be carried out either during or at the completion of the operation.
10.6. Records of utilisation of forest produce.
10.7. Determine the species composition, structure and density of the understorey of areas subject to thinning within twelve months of the completion of the harvesting operation

11. Permit/Licence Applications

11.1. Permits and Licences required from the Department of Parks and Wildlife;

- Clearing Permit
- Private Land Suppliers Licence
- Application for an Owner's Identification Code.

[redacted]