



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6952/1
Permit Holder:	Commissioner of Main Roads Western Australia
Duration of Permit:	17 June 2016 to 17 December 2032

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

Clearing for the purpose of extracting road building materials.

2. Land on which clearing is to be done

Land Identification Number 4066337 (Shire of Yilgarn)
Land Identification Number 4067310 (Shire of Yilgarn)
Land Identification Number 4067190 (Shire of Yilgarn)
Land Identification Number 3107621 (Shire of Yilgarn)
Land Identification Number 3107617 (Shire of Yilgarn)
Land Identification Number 4110303 (Shire of Yilgarn)
Land Identification Number 3504718 (Shire of Yilgarn)
Land Identification Number 3124762 (Shire of Yilgarn)
Land Identification Number 4066338 (Shire of Yilgarn)
Land Identification Number 3235656 (Shire of Yilgarn)
Land Identification Number 4078207 (Shire of Yilgarn)
Land Identification Number 4078400 (Shire of Yilgarn)
Land Identification Number 3455794 (Shire of Coolgardie)
Land Identification Number 1971735 (Shire of Coolgardie)
Land Identification Number 3235677 (Shire of Coolgardie)
Land Identification Number 3455793 (Shire of Coolgardie)
Land Identification Number 1903194 (Shire of Coolgardie)
Land Identification Number 3122900 (Shire of Coolgardie)
Land Identification Number 3235679 (Shire of Coolgardie)
Land Identification Number 3235661 (Shire of Yilgarn)
Land Identification Number 1971736 (Shire of Coolgardie)
Land Identification Number 3083452 (Shire of Coolgardie)
Land Identification Number 1903193 (Shire of Coolgardie)
Land Identification Number 3304058 (Shire of Coolgardie)
Land Identification Number 3380704 (Shire of Coolgardie, Shire of Yilgarn)
Land Identification Number 3380664 (Shire of Yilgarn)
Land Identification Number 3389690 (Shire of Yilgarn)
Land Identification Number 3723974 (Shire of Coolgardie)
Land Identification Number 4105205 (Shire of Coolgardie)
Land Identification Number 1971745 (Shire of Coolgardie)

3. Area of Clearing

The Permit Holder must not clear more than 290 hectares of native vegetation within the combined areas cross-hatched yellow on attached Plan 6952/1a, Plan 6952/1b, Plan 6952/1c, Plan 6952/1d, Plan 6952/1e, Plan 6952/1f, Plan 6952/1g, Plan 6952/1h, Plan 6952/1i, Plan 6952/1j, Plan 6952/1k, Plan 6952/1l and Plan 6952/1m.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 17 June 2026.

6. Type of clearing authorised

This Permit authorises the Permit Holder to clear native vegetation for the project activities described in condition 1 of this Permit to the extent that the Permit Holder has the power to carry out works involving clearing for those project activities under the *Main Roads Act 1930* or any other written law.

PART II –MANAGEMENT CONDITIONS

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in order of preference:

- (a) avoid the clearing of native vegetation;
- (b) minimise the amount of native vegetation to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

8. Weed control

When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no *weed-affected soil, mulch, fill* or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

9. Fauna management

(a) Prior to undertaking any clearing authorised under this Permit within the areas cross-hatched yellow on attached Plan 6952/1h, Plan 6952/1i, Plan 6952/1j, Plan 6952/1k, Plan 6952/1l and Plan 6952/1m, the Permit Holder shall engage a *fauna specialist* to inspect those areas for the presence of *Leipoa ocellata* (Malleefowl) mounds.

(b) Where *Leipoa ocellata* (Malleefowl) mounds are identified under condition 9(a) of this Permit, the Permit Holder shall ensure that no clearing within 50 metres of the identified *Leipoa ocellata* (Malleefowl) mounds occurs, unless first approved by the CEO.

10. Retain vegetative material and topsoil, revegetation and rehabilitation

The Permit Holder shall:

- (a) retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.
- (b) within 3 months following completion of extraction operations in any area cleared under this Permit, *revegetate* and *rehabilitate* the area(s) by:
 - (i) re-shaping the surface of the land so that it is consistent with the surrounding 5 metres of uncleared land; and
 - (ii) ripping the pit floor and contour batters within the extraction site; and
 - (iii) laying the vegetative material and topsoil retained under condition 10(a) on the cleared area(s).

- (c) within 3 years of laying the vegetative material and topsoil on the cleared area(s) in accordance with condition 10(b) of this Permit:
 - (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated*; and
 - (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 10(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
- (d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 10(c)(ii) of this permit, the Permit Holder shall repeat condition 10(c)(i) and 10(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
- (e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 10(c)(i) and (ii) of this permit, that determination shall be submitted for the CEO's consideration. If the CEO does not agree with the determination made under condition 10(c)(ii), the CEO may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 10(c)(ii).

11. Flora management

The Permit Holder shall ensure that no clearing occurs within 50 metres of *priority flora* species *Cryptandra crispula* where its written locations have been provided to the *Department* in the report 'Main Roads Western Australia – Great Eastern Highway Material Pits, Southern Cross to Kalgoorlie, SLK 432 – 484 – Biological Assessment – January 2016', unless first approved by the CEO.

PART III - RECORD KEEPING AND REPORTING

12. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

- (a) In relation to the clearing of native vegetation authorised under this Permit:
 - (i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the date that the area was cleared; and
 - (iii) the size of the area cleared (in hectares).
- (b) In relation to fauna management pursuant to condition 9 of this Permit, the location of each *Leipoa ocellata* (Malleefowl) mound recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees.
- (c) In relation to the *revegetation* and *rehabilitation* of areas pursuant to condition 10 of this Permit:
 - (i) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) a description of the *revegetation* and *rehabilitation* activities undertaken;
 - (iii) the dates of the *revegetation* and *rehabilitation* activities undertaken;
 - (iv) the size of the area *revegetated* and *rehabilitated* (in hectares);
 - (v) the species composition, structure and density of *revegetation* and *rehabilitation*; and
 - (vi) a copy of the environmental specialist's report.

13. Reporting

- (a) The Permit Holder must provide to the CEO on or before 30 June of each year, a written report:
- (i) of records required under condition 12 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no clearing authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the CEO on or before 30 June of each year.
- (c) Prior to 15 September 2032, the Permit Holder must provide to the CEO a written report of records required under condition 12 of this Permit where these records have not already been provided under condition 13(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

Department means the Department of Environment Regulation;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist: means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist;

fauna specialist: means a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion;

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared.

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

priority flora means those plant taxa described as priority flora classes 1, 2, 3, 4 or 5 in the *Department of Parks and Wildlife's Threatened and Priority Flora List for Western Australia* (as amended);

regenerate/ed/ion means re-establishment of vegetation from in situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch;

rehabilitate/ed/ion means actively managing an area containing native vegetation in order to improve the ecological function of that area;

revegetate/ed/ion means the re-establishment of a cover of *local provenance* native vegetation in an area using methods such as natural *regeneration*, *direct seeding* and/or *planting*, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area; and

weed/s means any plant -

- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Simon Weighell
A/MANAGER CLEARING REGULATION

Officer delegated under Section 20 of the Environmental Protection Act 1986

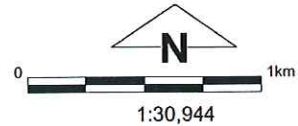
26 May 2016

Plan 6952/1a



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



(Approximate when reproduced at A4)
GDA 94 (Lat/Long)
Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
S Weighell

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986



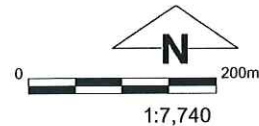
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Plan 6952/1b



Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
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Plan 6952/1c



Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell

Date *26/5/16*

S Weighell

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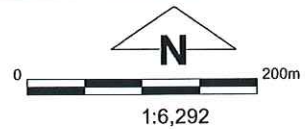
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Plan 6952/1d



Legend

-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)
Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
S Weighell

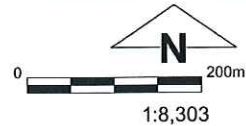
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Plan 6952/1e



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

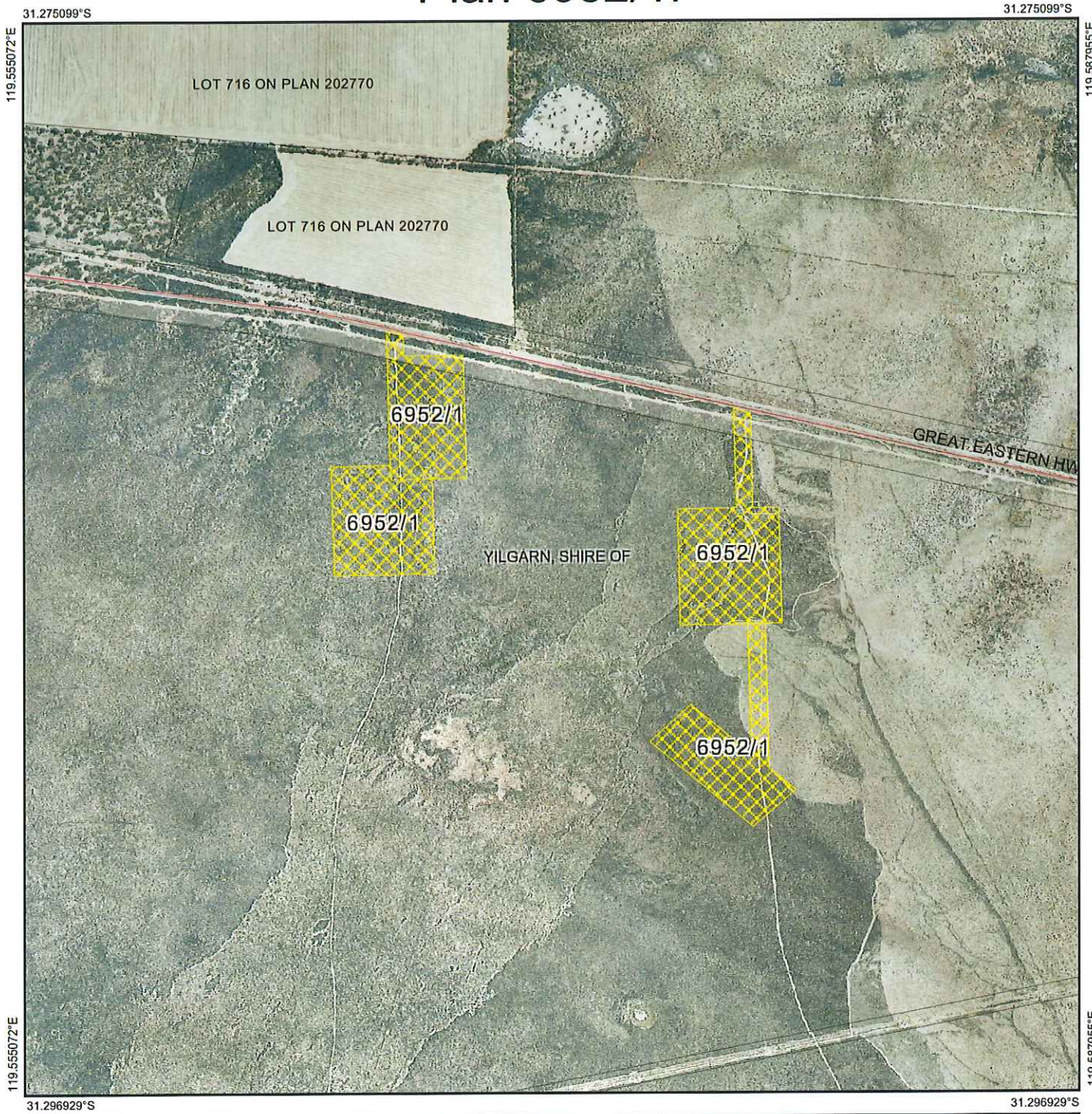
S. Weighell Date *26/5/16*
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Plan 6952/1f



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*

S Weighell

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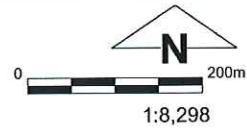
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Plan 6952/1g



Legend

- Localities
- Roads
- Imagery
- Clearing Instruments Activities
- Local Government Authority



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(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*

S Weighell

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Plan 6952/1h



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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Geocentric Datum of Australia 1994

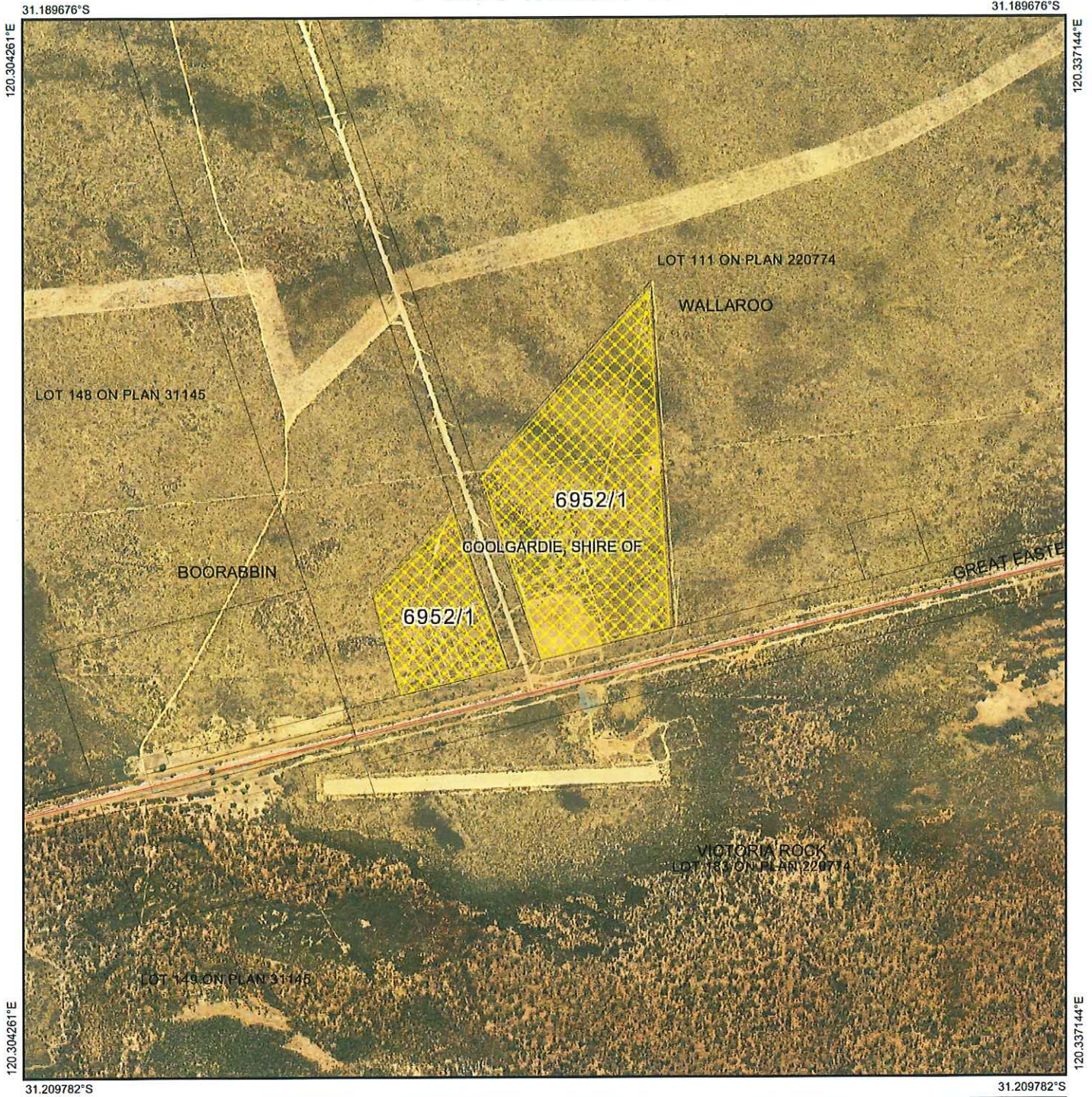
S. Weighell Date *26/5/16*
S Weighell

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Plan 6952/1i



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



1:16,611

(Approximate when reproduced at A4)
GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
S Weighell

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986



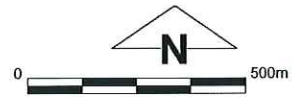
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Plan 6952/1j



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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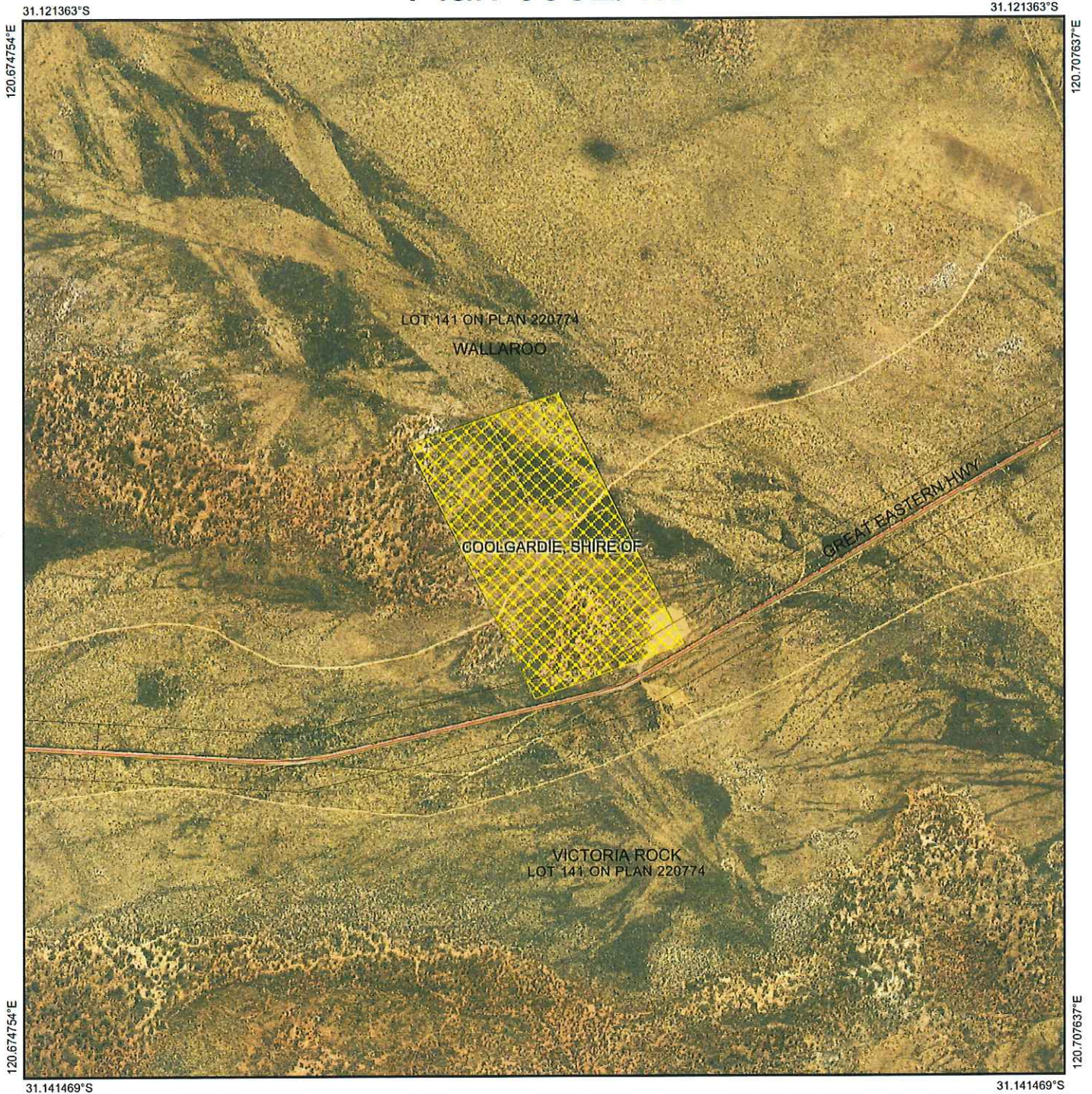
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Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
S Weighell

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Plan 6952/1k



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

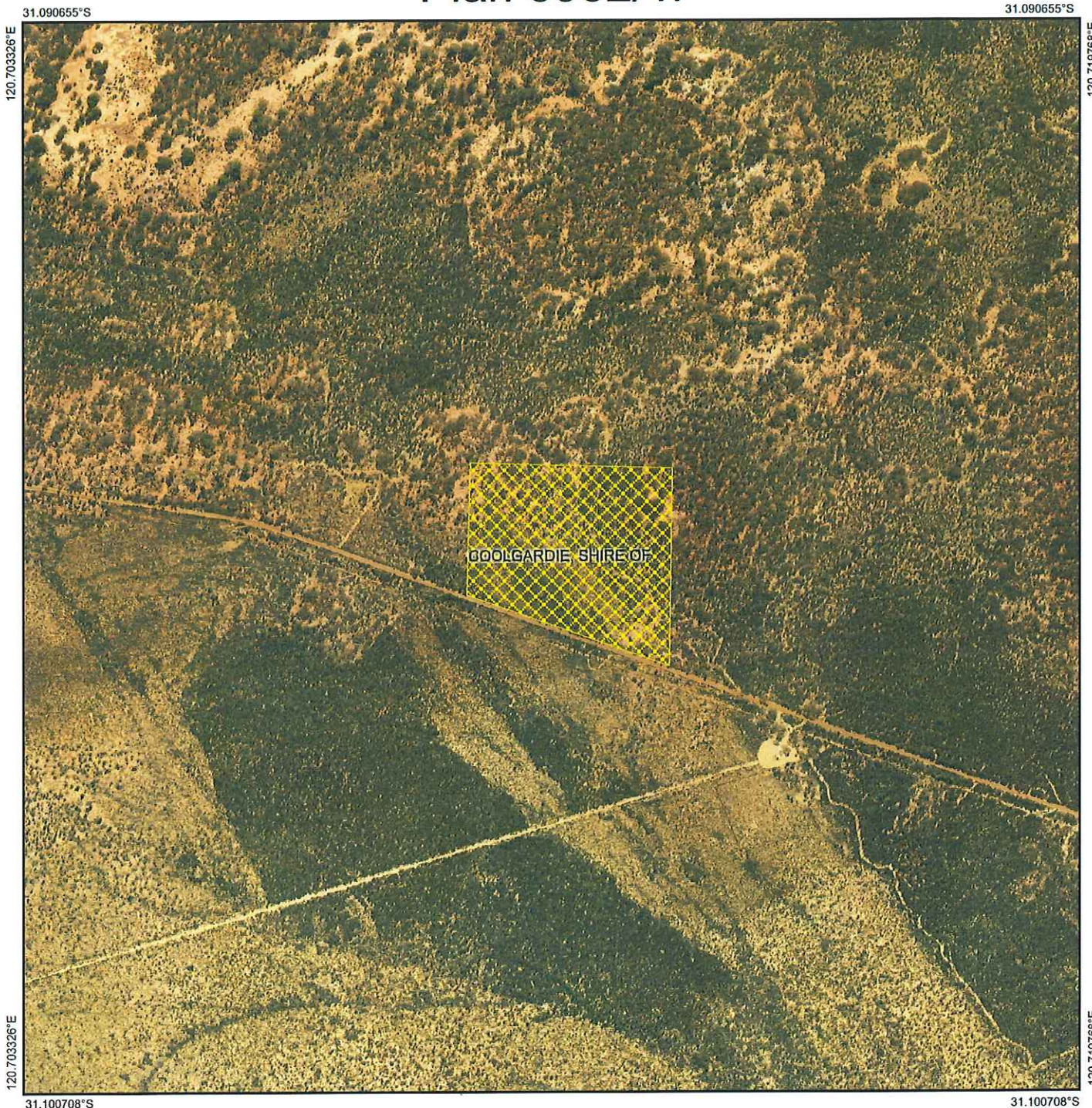
S. Weighell Date *26/5/16*
S Weighell

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986



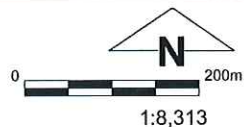
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Plan 6952/11



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority

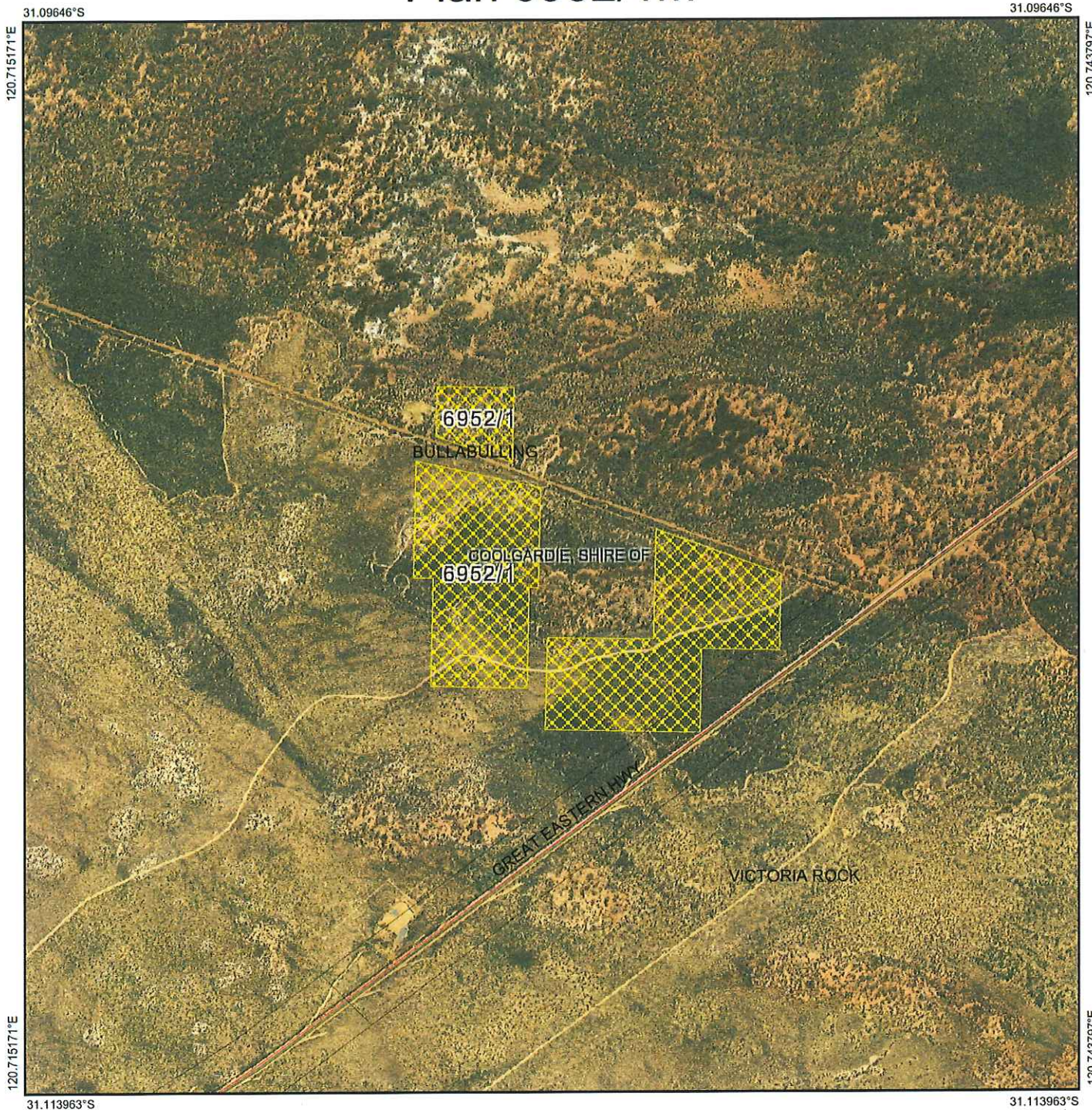


(Approximate when reproduced at A4)
GDA 94 (Lat/Long)
Geocentric Datum of Australia 1994

S. Weighell Date *26/9/16*
S Weighell

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Plan 6952/1m



Legend

-  Localities
-  Roads
-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

S. Weighell Date *26/5/16*
S Weighell

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1. Application details

1.1. Permit application details

Permit application No.: 6952/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Commissioner of Main Roads Western Australia

1.3. Property details

Property: Land Identification Number 4066337
Land Identification Number 4067310
Land Identification Number 4067190
Land Identification Number 3107621
Land Identification Number 3107617
Land Identification Number 4110303
Land Identification Number 3504718
Land Identification Number 3124762
Land Identification Number 4066338
Land Identification Number 3235656
Land Identification Number 4078207
Land Identification Number 4078400
Land Identification Number 3455794
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Land Identification Number 3380664
Land Identification Number 3380664
Land Identification Number 3380664
Land Identification Number 3389690
Land Identification Number 3723974
Land Identification Number 4105205
Land Identification Number 4105205
Land Identification Number 1971745

Local Government Authority: COOLGARDIE, SHIRE OF and YILGARN, SHIRE OF
DER Region: Goldfields
Localities: BULLABULLING and GHOOOLI and BOORABBIN and WALLAROO and VICTORIA ROCK and MOUNT PALMER

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
290		Mechanical Removal	Extraction

1.5. Decision on application

Decision on Permit Application: Granted
Decision Date: 26 May 2016

Reasons for Decision: The clearing application has been assessed against the clearing principles, planning instruments and other matters in accordance with s51O of the Environmental Protection Act 1986, and it has been concluded that the proposed clearing may be at variance to principles (a), (b) and (h), and is not likely or not at variance to any of the remaining clearing principles.

A new location of priority flora *Cryptandra crispula* has been identified within one of the proposed material pits. Given the potential significance of this new location and that all the recorded individuals occur within the application area, a permit condition has been included requiring the species be avoided, including a 50 metre buffer, unless approved

otherwise by the CEO. If further survey work identifies impacts to the species are not likely to be significant, clearing of the individuals may be approved.

Portions of the application area (Plans 6952/1h to 6952/1m) have the potential to provide nesting habitat for malleefowl (*Leipoa ocellata*). To mitigate the potential impacts to this species a condition has been placed on the permit requiring the identification of malleefowl mounds and the retention of a 50 metre buffer to any identified mounds.

Through assessment it has been determined that the clearing may impact the environmental values of conservation areas and remnant vegetation through the introduction or spread of weeds. Weed management measures will minimise impacts to these areas.

Relevant State policies and other relevant policies have been taken into consideration in the decision to grant a clearing permit.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Seven Beard vegetation associations are mapped over the application area:	The application is to clear 290 hectares within various properties within the localities of Boorabbin, Mount Palmer, Victoria Rock, Ghooli, Wallaroo and Bullabulling for the purpose of extracting raw materials. This includes 21 material pits each identified as follows:	Excellent; Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994). To Completely Degraded: No longer intact; completely /almost completely without native species (Keighery 1994).	The vegetation condition was determined via biological assessments undertaken by GHD (2016a; 2016b; 2016c). The biological assessments incorporated Level 1 flora and fauna surveys, undertaken within 17 of the 21 proposed material pits. Four pits included in the application (Pits 18 to 21) have not been surveyed, however, based on aerial imagery the vegetation types and condition within these pits are similar to Pits 1 to 7. Pits 18 to 21 cover a combined area of approximately 82.5 hectares.
Beard vegetation association 8 is described as medium woodland; salmon gum & gimlet (Shepherd et al., 2001).	Plan 6952/1a – Pits 18-19 (north to south) Plan 6952/1b – Pit 2 Plan 6952/1c – Pit 1 Plan 6952/1d – Pit 20 Plan 6952/1e – Pit 21 Plan 6952/1f – Pits 3-6 (north to south) Plan 6952/1g – Pit 7 Plan 6952/1h – Pits 8-9 (east to west) Plan 6952/1i – Pits 10-11 (east to west) Plan 6952/1j – Pit 12 Plan 6952/1k – Pit 13 Plan 6952/1l – Pit 14 Plan 6952/1m – Pits 15-17 (north to south)		The biological assessments identified 11 native vegetation types within Pits 1 to 17 with each type described below: Allocasuarina and Acacia shrubland (VA03) comprises <i>Callitris preissii</i> , <i>Acacia yorkrakinensis</i> subsp. <i>acrita</i> , <i>A. resinimarginea</i> , <i>Hakea</i> spp. Tall open shrubland with <i>Eucalyptus rigidula</i> , <i>E. horistes</i> low isolated mallee over <i>Allocasuarina corniculata</i> , <i>A. campestris</i> , <i>Acacia beauverdiana</i> , <i>Melaleuca atroviridis</i> mid shrubland over <i>Thryptomene kochii</i> , <i>Micromyrtus obovata</i> , <i>Phebalium filifolium</i> , <i>Euryomyrtus maidenii</i> , <i>Beyeria sulcata</i> var. <i>sulcata</i> low open shrubland over <i>Triodia rigidissima</i> isolated hummock grasses (Pit 1, Pit 3, Pit 5, Pit 7, Pit 8).
Beard vegetation association 214 is described as mosaic: medium woodland; goldfield eucalypts / Succulent steppe with open low woodland; myoporum over saltbush (Shepherd et al., 2001).			Mixed shrubland (VA04) comprises <i>Hakea erecta</i> , <i>H. platysperma</i> , <i>Callitris preissii</i> tall sparse shrubland with <i>Grevillea pterosperma</i> , <i>H. francisiana</i> emergent low trees/tall shrubs and <i>Eucalyptus leptopoda</i> subsp. <i>leptopoda</i> mallees over <i>Allocasuarina campestris</i> , <i>A. corniculata</i> , <i>Melaleuca atroviridis</i> , <i>Baeckea elderiana</i> mid shrubland over <i>M. calyptroides</i> , <i>Micromyrtus obovatus</i> , <i>Euryomyrtus maidenii</i> , <i>M. cordata</i> low shrubland over <i>Ecdeiocolea monostachya</i> , <i>Lepidosperma sanguinolentum</i> , <i>Lepidobolus preissianus</i> subsp. <i>volubilis</i> sedgeland /rushland and <i>Triodia rigidissima</i> isolated hummock grasses (Pit 8, Pit 10, Pit 11).
Beard vegetation association 435 is described as shrublands; <i>Acacia neurophylla</i> , <i>A. beauverdiana</i> & <i>A. resinomarginea</i> thicket (Shepherd et al., 2001).			
Beard vegetation association 522 is described as medium woodland; redwood (<i>Eucalyptus transcontinentalis</i>) & <i>merritt</i> (<i>E. floctoniae</i>) (Shepherd et al., 2001).			
Beard vegetation association 536 is described as medium woodland; morrell & rough fruited mallee (<i>Eucalyptus corrugata</i>) (Shepherd et al., 2001).			
Beard vegetation association 1148 is described as shrublands;			

scrub-heath in the Coolgardie Region (Shepherd et al., 2001).

Beard vegetation association 1413 is described as shrublands; acacia, casuarina & melaleuca thicket (Shepherd et al., 2001).

Allocasuarina tall shrubland (VA05) comprises *Allocasuarina corniculata*, *A. spinosissima* tall open shrubland with *Eucalyptus leptopoda* subsp. *leptopoda*, *E. eremophila* subsp. *eremophila* isolated mallees over *Acacia beauverdiana*, *Baeckea elderiana*, *Melaleuca atroviridis* mid- open shrubland over *Thryptomene kochii*, *Micromyrtus obovata*, *Melaleuca cordata*, *Hibbertia eatoniae* low sparse shrubland (Pit 1, Pit 2, Pit 3, Pit 4, Pit 5, Pit 6, Pit 7).

Eucalyptus low open forest over *Acacia acuminata* (VA14) comprises *Eucalyptus loxophleba* subsp. *lissophloia*, *E. yilgarnensis* low open forest interspersed with *Acacia acuminata*, *Leptomeria preissiana*, *Acacia tetragonophylla* tall open shrubland over *Eremophila ionantha*, *Acacia hemiteles*, *Senna artemisioides* subsp. *filifolia* mid open shrubland over *Olearia pimelioides*, *Rhagodia eremaea*, *Platysace trachymenioides* low sparse shrubland over *Austrostipa elegantissima*, *Amphipogon caricinus* var. *caricinus* isolated tussock grasses over *Waitzia acuminata* var. *acuminata*, *Rhodanthe chlorocephala* subsp. *rosea* isolated herbs (Pit 12).

Eucalyptus pileata, *E. flocktoniae* subsp. *flocktoniae* low mallee woodland (VA15) comprises *Eucalyptus pileata*, *E. flocktoniae* subsp. *flocktoniae* low mallee woodland over *Acacia rigens*, *Melaleuca atroviridis* midsparse shrubland over *Phebalium tuberculatum*, *Bossiaea celata*, *Petrophile circinata* low open shrubland over *Triodia rigidissima* sparse hummock grassland and *Chamaexeros fimbriata* isolated rushes (Pit 10, Pit 11).

Mixed *Acacia* shrubland (VA18) comprises *Acacia yorkkrakinensis* subsp. *acrita*, *Allocasuarina corniculata*, *Callitris preissii* tall shrubland with *Eucalyptus pileata*, *E. leptopoda* subsp. *leptopoda* low open mallee woodland over *A. resinimarginea*, *A. yorkkrakinensis* subsp. *acrita*, *Melaleuca atroviridis*, *Thryptomene kochii* mid shrubland over *Beyeria sulcata* var. *sulcata*, *Phebalium filifolium*, *Euryomyrtus maidenii*, *Stenanthemum stipulosum* over *Triodia rigidissima* isolated hummock grasses (Pit 12, Pit 13, Pit 14, Pit 15, Pit 16, Pit 17).

Eucalyptus transcidentalis woodland (VA20) comprises *Eucalyptus transcidentalis* woodland over *Melaleuca sheathiana*, *Acacia acuminata*, *Eremophila caperata*, *E. interstans* subsp. *interstans* tall open shrubland over *E. caperata*, *A. resinimarginea*, *A. hemiteles* mid-open shrubland over *Olearia pimeleoides*, *Maireana* spp., *O. muelleri* low isolated shrubs and *Lomandra effusa* isolated tufted herbs (Pit 13).

Mixed mallee low woodland (VA21) comprises *Eucalyptus pileata*, *E. flocktoniae* subsp. *flocktoniae*, *E. salubris*

low mallee woodland over *Alyxia buxifolia*, *Acacia acuminata*, *Eremophila oppositifolia* subsp. *angustifolia* tall open shrubland over *Leptomeria preissiana*, *Dodonaea microzyga*, *Scaevola spinescens* mid- to low sparse shrubland over *Austrostipa elegantissima* isolated tussock grasses (Pit 14).

Eucalyptus salubris woodland over *Eremophila caerulea* subsp. *caerulea* (VA22) comprises *Eucalyptus salubris* woodland over *Eremophila caerulea* subsp. *caerulea* low sparse shrubland (Pit 14).

Eucalyptus eremophila low woodland (VA23) comprises *Eucalyptus eremophila* var. *eremophila*, *E. loxophleba* subsp. *lissophloia*, *E. pileata* low mallee woodland with *E. salmonophloia* over *Santalum spicatum* low isolated trees over *Eremophila caperata*, *Westringia cephalantha*, *E. oppositifolia* subsp. *angustifolia* mid- open shrubland over *Olearia exiguifolia*, *O. muelleri*, *Scaevola spinescens* low isolated shrubs over *Triodia rigidissima* isolated hummock grasses and *Austrostipa elegantissima* isolated tussock grasses (Pit 15, Pit 16, Pit 17).

Eucalyptus eremophila low woodland (VA23) *Eucalyptus eremophila* var. *eremophila*, *E. loxophleba* subsp. *lissophloia*, *E. pileata* low mallee woodland with *E. salmonophloia* over *Santalum spicatum* low isolated trees over *Eremophila caperata*, *Westringia cephalantha*, *E. oppositifolia* subsp. *angustifolia* mid- open shrubland over *Olearia exiguifolia*, *O. muelleri*, *Scaevola spinescens* low isolated shrubs over *Triodia rigidissima* isolated hummock grasses and *Austrostipa elegantissima* isolated tussock grasses (Pit 15, Pit 16, Pit 17).

Mixed *Eucalyptus* mallee woodland (VA28) comprises *Eucalyptus oleosa* subsp. *oleosa*, *E. concinna*, *E. cylindrocarpa*, *E. yilgarnensis*, *E. loxophleba* subsp. *lissophloia*, *E. pileata* low open mallee woodland over *Acacia tetragonophylla*, *Melaleuca eleuterostachya*, *Exocarpos aphyllus* tall isolated shrubs over *Beyeria sulcata* var. *sulcata*, *Eremophila caperata*, *A. merrallii*, *Scaevola spinescens* mid open shrubland over *Olearia muelleri*, *Westringia rigida* and *O. exiguifolia* low sparse shrubland, over *Triodia rigidissima* sparse hummock grassland over *Austrostipa elegantissima* isolated tussock grasses which grew in gravelly sands and occurred on slight rises and on higher portions of sand plains (Pit 9).

GHD (2016a); GHD (2016b); GHD (2016c)

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposed clearing may be at variance to this Principle

The application is to clear 290 hectares of native vegetation across 21 pits within various properties within the localities of Boorabbin, Mount Palmer, Victoria Rock, Ghooli, Wallaroo and Bullabulling for the purpose of extracting raw materials. There is approximately 115 kilometres between the most eastern and western pits with the majority of the pits occurring adjacent to Great Eastern Highway.

Three biological assessments were undertaken for 17 of the 21 pits. The first biological assessment encompasses Pits 1 to 7 (GHD, 2016a) and identified 95 flora taxa representing 27 families and 54 genera. Two vegetation types were identified within the first biological assessment with the dominant vegetation type being *Allocasuarina* tall shrubland (VA05) (GHD, 2016a). Based on aerial imagery, the vegetation types and condition of the four pits not included in the surveys (Pits 18 to 21), are similar to that of Pits 1 to 7. Recent geotechnical investigations have resulted in cleared tracks and test pits in a grid pattern that cover approximately 20-30 per cent of the area (GHD, 2016a). Aerial imagery shows that geotechnical investigations have also occurred within Pits 18 to 21. The vegetation under application is in a completely degraded to excellent (Keighery, 1994) condition (GHD, 2016a).

Beard vegetation association 1148 and soil type AC1 have been mapped as occurring within the unsurveyed pits. Beard vegetation association 1148 and soil type AC1 also occurs within Pits 1 to 6. A biological assessment undertaken within Pits 1 to 6 did not identify any priority flora (GHD, 2016a). Based on the commonality of the mapped soil and vegetation type within Pits 1 to 6 and the unsurveyed pits, and that a biological assessment undertaken within Pits 1 to 6 did not identify any priority flora, it is unlikely the unsurveyed pits contain priority flora.

The second biological assessment encompasses Pits 8 to 12 (GHD, 2016b) and identified 169 flora taxa representing 44 families and 98 genera. Four vegetation types were identified within the second biological assessment with the dominant vegetation type being shrubland vegetation growing in yellow sands on sand plains (VA04) (GHD, 2016b). The vegetation under application is in a degraded to excellent (Keighery, 1994) condition (GHD, 2016b).

The third biological assessment encompasses Pits 13 to 17 (GHD, 2016c) and identified 116 flora taxa representing 29 families and 70 genera. Five vegetation types were identified within the third biological assessment with the dominant vegetation type being mixed *Acacia* shrubland growing in yellow sands (occasionally with gravel) on sand plains (VA18) (GHD, 2016c). The vegetation under application is in a degraded to excellent (Keighery, 1994) condition (GHD, 2016c).

Two priority ecological communities (PEC's) have been mapped within the local area (20 kilometre radius), with the closest being the Parker Range vegetation complexes (Priority 3) located approximately 8.8 kilometres south of Pit 2. The vegetation units identified in the surveys do not align with the mapped PEC's (GHD, 2016a; GHD 2016b; GHD 2016c). No threatened ecological communities have been mapped within the local area (20 kilometres radius).

Sections of the application area are within the mapped occurrence of the Great Western Woodlands (GWW), which is recognised as an internationally significant area of great biological richness (DEC, 2010). The GWW cover an area of nearly 16 million hectares, whereby it comprises a continuous band of native vegetation that stretches from the edge of the Western Australian Wheatbelt to Kalgoorlie-Boulder in the north, to the inland deserts to the north-east and the Nullarbor Plain to the east (DEC, 2010). Woodland communities cover approximately 63 per cent of the GWW, shrublands comprise 20 per cent and mallee vegetation 10 per cent, with bare areas (five per cent) and grassland (two per cent) over the remainder (DEC, 2010). Approximately 158 hectares of the application area is within the GWW which is a highly significant landscape conservation area. However, approximately 90 per cent vegetation cover remains in the local area, within the GWW, and considering the application is for extraction which will be revegetated upon the decommissioning of the pits, it is unlikely the proposed clearing will significantly impact on the GWW.

A total of 62 priority and five rare flora species have been recorded within the local area. Level 1 flora surveys identified six priority flora taxa within the application area (GHD, 2016a; GHD 2016b; GHD 2016c). This includes approximately 503 individuals (within Pit 13) of *Melichrus* sp. Coolgardie (K.R. Newbey 8698) (Priority 1), approximately 156 individuals (within Pit 8) of *Acacia* desertorum var. *nudipes* (Priority 3), approximately three individuals (within Pit 8) of *Banksia* lullfitzii (Priority 3), approximately 590 individuals (within Pit 10, Pit 11, Pit 12) of *Acacia* cylindrica (Priority 3), approximately 746 individuals (within Pit 10, Pit 11) of *Bossiaea* celata (Priority 3) and approximately 10 individuals (within Pit 11) of *Cryptandra* crispula (Priority 3).

Melichrus sp. Coolgardie (K.R. Newbey 8698) is a low, often compact shrub that grows to approximately 0.5 metres high and is characterised by pink and white flowers (Western Australian Herbarium, 1998-). This species has been located further to the north and north-west of the application area, and is likely to occur throughout the Coolgardie sandplain area, but access through this area is limited (Parks and Wildlife, 2016). The proposed clearing is unlikely to have an impact on the local population or conservation status of this species (Parks and Wildlife, 2016).

Banksia lullfitzii is a lignotuberous shrub that grows to approximately 0.8 to two metres high with its flowers being of a yellow-orange to orange-brown (Western Australian Herbarium, 1998-). The species has been

previously recorded south of Pit 8 and the proposed clearing of three individuals will not have a significant impact on the local population or conservation status of this species (Parks and Wildlife, 2016).

Acacia desertorum var. *nudipes* is a dense or open shrub or tree (rarely) that grows to approximately 0.6 to two metres high and is characterised by yellow flowers (Western Australian Herbarium, 1998-). There are six known locations of this species, with many of the collections recording this species as common or frequent (Parks and Wildlife, 2016). There have also been two other populations recorded in the local area close to the population proposed to be impacted. Considering this the application is not likely to have a significant impact on the local population or conservation status of this species (Parks and Wildlife, 2016).

Acacia cylindrica is a spreading shrub that grows to approximately 1.5 to three metres high and is characterised by yellow flowers (Western Australian Herbarium, 1998-). The species is known from 13 locations over a range of approximately 240 kilometres east-west and 120 kilometres north-south (Parks and Wildlife, 2016). The population of the species located in Pit 10, Pit 11 and Pit 12 (approximately 20 kilometres east of Pit 10 and Pit 11) are new records and are the most south-easterly occurrences recorded for this species, with the closest known population being 50 kilometres west of the application area (Parks and Wildlife, 2016). The applicant proposes to impact on 482 individuals within Pit 10 and an unknown quantity within Pit 11 but similar to the density found in Pit 10. An additional 22 individuals were located outside of the application area adjacent to Pit 10. The application also proposes to impact all 115 individuals recorded from Pit 12. It is possible that this species has been under collected in this area, and the species has been recorded in other areas where it is frequent and abundant (Parks and Wildlife, 2016). Therefore no significant impacts to this species are expected.

Bossiaea celata is a compact, intricately-branched shrub that grows to approximately 0.8 metres high with its flowers being yellow-red-orange (Western Australian Herbarium, 1998-). The species is known to occur from five locations, with a range of approximately 46 kilometres east-west and 72 kilometres north-south in the Coolgardie bioregion (Parks and Wildlife, 2016). The populations identified within Pit 10 and Pit 11 are new and the application proposes to impact 100 per cent of these populations (Parks and Wildlife, 2016). As the surrounding areas of Pit 10 and Pit 11 were not surveyed it is difficult to accurately determine the proposed impacts. However, whilst common but localised, two other populations are known within close proximity to Pit 10 and Pit 11, and the species is likely to occur throughout the Coolgardie sandplain area (Parks and Wildlife, 2016). Based on current knowledge, the proposed clearing is not likely to have a significant impact on the local population or on the conservation status of this species (Parks and Wildlife, 2016).

Cryptandra crispula is a non-spinescent shrub that grows to approximately 0.25 to 0.9 metres high (Western Australian Herbarium, 1998-). The species is known from seven locations, two of which have not been observed since 1981 and 1974 (Parks and Wildlife, 2016). The population recorded in Pit 11 is a new location for this species with the nearest record of this species being recorded approximately 40 kilometres north (Parks and Wildlife, 2016). The proposed clearing will impact on 100 per cent of the recorded plants. Further survey work in the local area, outside of the application area and within suitable habitat, would determine this species' distribution in the local area and hence put the proposed impacts into context (Parks and Wildlife, 2016). In the absence of this information, the proposed impacts to this species may be significant.

Aerial imagery indicates that the local area (20 kilometre radius) surrounding the application area is extensively vegetated and retains approximately 90 per cent vegetation cover.

Biological assessments undertaken for the application area (excluding four pits) identified that the vegetation types present are likely to provide suitable habitat for conservation significant fauna species being; chuditch (*Dasyurus geoffroii*), malleefowl (*Leipoa ocellata*) and numbat (*Myrmecobius fasciatus*) (GHD, 2016a; GHD, 2016b; GHD 2016c). Fauna surveys did not identify any of these species within the application area although a dead malleefowl (roadkill) was identified nearby on Great Eastern Highway. Given the presence of extensive undisturbed areas of native vegetation surrounding the application area, the vegetation proposed to be cleared is not likely to provide unique habitat for fauna (GHD, 2016a; GHD, 2016b; GHD 2016c).

The application area includes a potentially significant population of *Cryptandra crispula*. Based on this, the vegetation under application may comprise a high level of biological diversity and the proposed clearing may be at variance to this principle. A condition requiring no clearing to occur within 50 metres of this species, unless approved by the CEO, shall reduce the risk of significant impacts to this species.

Methodology

References:

DEC (2010)
GHD (2016a)
GHD (2016b)
GHD (2016c)
Keighery (1994)
Parks and Wildlife (2016)
Western Australian Herbarium (1998-)

GIS Databases:

SAC Bio Datasets (accessed April 2016)
NLWRA, Current Extent of Native Vegetation

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposed clearing may be at variance to this Principle

Three fauna species listed as rare or likely to become extinct under the Wildlife Conservation Act 1950 have been recorded within the local area (20 kilometre radius), being; malleefowl (*Leipoa ocellata*), chuditch (*Dasyurus geoffroii*) and numbat (*Myrmecobius fasciatus*) (Parks and Wildlife 2007-).

Biological assessments undertaken for the application area (excluding four pits) considered that the vegetation types present are likely to provide suitable habitat for the abovementioned conservation significant fauna (GHD, 2016a; GHD, 2016b; GHD 2016c).

A biological assessment undertaken over Pits 1-7 identified two vegetation habitat types of which 51 fauna species were recorded. None of the fauna species identified were of conservation significance (GHD, 2016a).

A biological assessment undertaken over Pits 8-12 identified five vegetation habitat types of which 60 fauna species were recorded. None of the fauna species identified were of conservation significance (GHD, 2016b).

A biological assessment undertaken over Pits 13-17 identified five vegetation habitat types of which 57 fauna species were recorded. None of the fauna species identified were of conservation significance (GHD, 2016c).

Despite the above, a dead malleefowl (roadkill) was identified nearby on Great Eastern Highway. Malleefowl are found in southern Australia, in semi-arid shrublands and low woodlands dominated by mallee eucalypts and acacias, and feed opportunistically on a variety of flora, fungi and invertebrates (DotE 2016). Malleefowl require sandy substrate and abundant leaf litter for breeding (DotE 2016).

The biological assessments determined that whilst fauna species of conservation significance may utilise the application area for traversing and foraging, none of the fauna habitats recorded are considered to be exclusive to the area with all habitats identified being well represented at a local and regional scale (GHD, 2016a; GHD, 2016b; GHD 2016c). However, given the presence of malleefowl in the local area and that Pits 8 – 17 have a moderate coverage of leaf litter and a deep layer within some pits, it is possible that malleefowl could utilise Pits 8 – 17 for breeding.

Given the above the proposed clearing may be at variance to this principle. A condition requiring a survey for malleefowl mounds prior to clearing within Pits 8 to 17 will ensure impacts to this species are minimised.

Methodology

References:

DotE (2016)
GHD (2016a)
GHD (2016b)
GHD (2016c)
Parks and Wildlife (2007-)

GIS Databases:

NLWRA, Current Extent of Native Vegetation

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

Comments

Proposed clearing is not likely to be at variance to this Principle

Five rare flora species have been recorded within the local area (20 kilometre radius), with the closest being recorded approximately 3.6 kilometres from the application area.

Biological assessments undertaken over the application area (excluding four pits) did not identify any rare flora (GHD, 2016a; GHD, 2016b; GHD 2016c).

No rare flora species have been recorded within 20 kilometres of the unsurveyed pits, with the closest recorded species being approximately 23 kilometres west of these pits. The species has been mapped within different soils and vegetation types to the unsurveyed pits.

Given the above it is unlikely that the application area includes or is necessary for the continued existence of rare flora and the proposed clearing is not likely to be at variance to this principle.

Methodology

References:

GHD (2016a)
GHD (2016b)
GHD (2016c)

GIS Databases:

SAC Bio Datasets (accessed April 2016)

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
 No threatened ecological communities (TEC) have been recorded within the local area (20 kilometre radius).
 The proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
 SAC Bio Datasets (accessed April 2016)

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

Comments **Proposed clearing is not at variance to this Principle**
 The application area is located within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion. This IBRA bioregion has approximately 98 per cent of its pre-European vegetation extent remaining (Government of Western Australia 2014).

The application area is mapped as comprising Beard vegetation associations 8, 214, 435, 522, 1148 and 1413 which have approximately 98 to 100 per cent of their pre-European vegetation extents remaining in the Coolgardie bioregion (Government of Western Australia 2014). The application area also contains mapped Beard vegetation association 536 which has approximately 73 per cent of its pre-European vegetation extent remaining in the Coolgardie bioregion (Government of Western Australia 2014).

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

Aerial imagery indicates that the local area (20 kilometre radius) surrounding the application area retains approximately 90 per cent vegetation cover.

Given the remaining vegetation extents outlined above, the application area is not within an extensively cleared landscape.

The proposed clearing is not at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in Parks and Wildlife Managed Lands (%)
IBRA Bioregion*				
Coolgardie	12,912,204	12,648,491	98	16
Shire*				
Coolgardie, Shire of	3,029,732	3,017,747	99	14
Yilgarn, Shire of	3,042,759	2,480,372	81	29
Beard Vegetation Association in Bioregion*				
8	280,248	275,589	98	9
214	16,584	16,584	100	29
435	738,214	732,470	99	28
522	688,407	687,920	99	6
536	2,006	1462	73	0
1148	254,931	252,775	99	17
1413	1,061,213	1,042,554	98	18

Methodology References:
 Commonwealth of Australia (2001)
 *Government of Western Australia (2014)

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposed clearing is not likely to be at variance to this Principle**
Numerous watercourses, lakes and wetlands are located within the local area (20 kilometre radius) the closest being a minor non-perennial watercourse mapped intersecting Pits 3 and 4. No other watercourses, lakes or wetlands have been mapped within the other pits under application.

Biological assessments undertaken over the application area (excluding four pits) identified no vegetation growing in, or in association with a watercourse or wetland (GHD, 2016a; GHD, 2016b; GHD 2016c).

Therefore the proposed clearing is not likely to be at variance to this principle.

Methodology References:
GHD (2016a)
GHD (2016b)
GHD (2016c)

GIS Databases:
Hydrography, hierarchy
Hydrography, linear
Wheatbelt Wetlands

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
Two soil types have been recorded within the application area which Northcote et al. (1960 – 1968) describe as:

Soil type AC1: gently sloping to gently undulating plateau areas, or uplands, on granites, gneisses, and allied rocks, with long gentle slopes and, in places, abrupt erosional scarps, some granitic bosses, and tors; and irregularly traversed by narrow shallow valleys and flats: chief soils are yellow earthy sands and sandy yellow earths on depositional sites, and ironstone gravels together with and, both containing ironstone gravels on erosional sites where they are underlain by hardened mottled-zone material. Soil dominance varies locally.

Soil type Mx41: flat to undulating pediments marginal to unit AC1; granitic rock outcrop; some low escarpments: chief soils are alkaline red earths, often underlain by nodular limestone pans at shallow depth.

The application area is located within the Norseman Zone of the Kalgoorlie Soil-landscape Province and Southern Cross Zone of the Kalgoorlie Soil-landscape Province (GHD, 2016a; GHD, 2016b; GHD 2016c). These zones are generally characterised by undulating plains and uplands (with some salt lakes and low hills) on deeply weathered mantle, colluvium and alluvium over greenstone and granitic rocks of the Yilgarn Craton (GHD, 2016a; GHD, 2016b; GHD 2016c).

Based on the areas landscape and soil types, it is likely the application area is highly permeable.

The annual rainfall typically experienced by the region is approximately 300 to 400 millimetres. The topography, based on the Australian Height Datum, ranges from 400 to 450 metres above mean sea level. The landscape over the application area is relatively flat.

Aerial imagery indicates that the local area (20 kilometre radius) retains approximately 90 per cent vegetation cover. Considering this along with the soil type, relatively low annual rainfall and flat landscape, the proposed clearing is unlikely to cause appreciable land degradation.

The proposed clearing is not likely to be at variance to this principle.

Methodology References:
GHD (2016a)
GHD (2016b)
GHD (2016c)
Northcote et al. (1960-68)

GIS Databases:
Rainfall, Mean Annual
Topographic Contours

(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.

Comments **Proposed clearing may be at variance to this Principle**
There are several Department of Parks and Wildlife managed lands within the local area. The closest of these are the Goldfields Woodlands Conservation Park located adjacent to Pit 13, and the Goldfields Woodlands National Park located adjacent to Pit 10, Pit 11 and Pit 12.

Given the close proximity of the Goldfields Woodlands Conservation Park and National Park to some of the pits, there is potential for weeds to spread or be introduced into these areas as a result of the clearing.

The proposed clearing may be at variance to this principle. Weed management measures will assist in mitigating this risk of weeds spreading into the abovementioned conservation areas.

Methodology GIS Databases:
Parks and Wildlife Tenure

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

Comments **Proposed clearing is not likely to be at variance to this Principle**
A minor non-perennial watercourse has been mapped as intersecting Pits 3 and 4. Biological assessments undertaken over the application area (excluding four pits) did not identify any watercourses or wetlands within the application area (GHD, 2016a; GHD, 2016b; GHD 2016c). Therefore, it is unlikely the proposed clearing will impact surface water in the local area.

Groundwater salinity is mapped between 14000 – 35000 milligrams per litre of Total Dissolved Solids (TDS) which is considered to be highly saline. However, the local area (20 kilometre radius) retains approximately 90 per cent vegetation cover. Therefore the proposed clearing is not likely cause deterioration in the quality of underground water.

Given the above the proposed clearing is not likely to be at variance to this principle.

Methodology References:
GHD (2016a)
GHD (2016b)
GHD (2016c)

GIS Databases:
Groundwater Salinity, Statewide
Hydrography, hierarchy
Hydrography, linear
Wheatbelt Wetlands

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments **Proposed clearing is not likely to be at variance to this Principle**
The annual rainfall typically experienced by the region is approximately 300 to 400 millimetres. The topography ranges, based on the Australian Height Datum, from 400 to 450 metres above mean sea level. The landscape over the application area is relatively flat.

Given the relatively low annual rainfall and the flat landscape and that the local area (20 kilometre radius) retains approximately 90 per cent vegetation cover, the proposed clearing of 290 hectares of native vegetation over 21 different pits is not likely to cause or exacerbate the incidence or intensity of flooding.

Therefore the proposed clearing is not likely to be at variance to this principle.

Methodology GIS Databases:
Rainfall, Mean Annual
Topographic Contours

Planning instruments and other relevant matters.

Comments There have been no submissions received from the public in response to the proposed clearing.

The application area does not occur within any mapped Aboriginal Sites of Significance.

Methodology GIS Databases:
Aboriginal Sites of Significance

4. References

- Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
- DEC (2010) A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands. Department of Environment Conservation, Perth, Western Australia.
- DotE (2016) *Leipoa ocellata* in Species Profile and Threats Database, Department of the Environment, Canberra. Available from: <http://www.environment.gov.au/sprat>.
- GHD (2016a) Great Eastern Highway Material Pits, Southern Cross to Kalgoorlie SLK 387-393, Biological Assessment. Additional Information for Clearing Permit Application CPS 6952/1.
- GHD (2016b) Great Eastern Highway Material Pits, Southern Cross to Kalgoorlie SLK 432-484, Biological Assessment. Additional Information for Clearing Permit Application CPS 6952/1.
- GHD (2016c) Great Eastern Highway Material Pits, Southern Cross to Kalgoorlie SLK 501-507, Biological Assessment. Additional Information for Clearing Permit Application CPS 6952/1.
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