



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 7562/1
Permit Holder:	Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Duration of Permit:	17 March 2018 to 17 March 2028

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 gravel extraction.

2. Land on which clearing is to be done

Lot 18 on Deposited Plan 220344 (Pastoral lease L3114/406), South Murchison
Un-named road reserve (PIN: 11665424), South Murchison

3. Area of Clearing

The Permit Holder must not clear more than 53.556 hectares of native vegetation within the combined areas hatched yellow on attached Plan 7562/1a and Plan 7562/1b.

4. Period in which clearing is authorised

The Permit Holder shall not clear any native vegetation after 17 March 2023.

5. 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.

6. Type of clearing authorised

The Permit Holder shall not clear native vegetation unless actively extracting within one month of the authorised clearing being undertaken.

PART II – MANAGEMENT CONDITIONS

7. Avoid, minimise and reduce the impacts and extent of 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:

- avoid the clearing of native vegetation;
- minimise the amount of native vegetation to be cleared; and
- 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. 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 the extractive activity, *revegetate* and *rehabilitate* the area(s) that are no longer required for the purpose for which they were cleared under this Permit 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 ground on the contour to remove soil compaction; and
 - (iii) laying the vegetative material and topsoil retained under condition 9(a) on the cleared area(s).
- (c) within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 9(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 9(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 *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 are used.
- (d) Where *direct seeding* of native vegetation is undertaken in accordance with condition 9(c)(ii) of this permit, the Permit Holder shall repeat condition 9(c)(i) and 9(c)(ii) within 24 months of undertaking the *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 9(c)(i) and (ii) of this permit, that determination shall be submitted to the CEO's in a report.

PART III - RECORD KEEPING AND REPORTING

10. Records must 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;
 - (ii) the date that the area was cleared;
 - (iii) the size of the area cleared (in hectares); and
 - (iv) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 7 of this Permit.

- (b) In relation to the *revegetation and rehabilitation* of areas pursuant to condition 9 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 size of the area *revegetated and rehabilitated* (in hectares);
 - (iv) the species composition, structure and density of *revegetation and rehabilitation*, and
 - (v) a copy of the environmental specialist's report.

11. 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 10 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 17 December 2027, the Permit Holder must provide to the CEO a written report of records required under condition 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

DEFINITIONS

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

condition means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

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;

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

Keighery scale means the vegetation condition scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia;

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;

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 Biodiversity, Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



Mathew Gannaway
MANAGER
CLEARING REGULATION





*Officer delegated under Section 20
of the Environmental Protection Act 1986*

15 February 2018

Plan 7562/1a



Legend

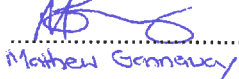
-  Imagery
-  Roads
-  Clearing Instruments Activities
-  Local Government Authority



(Approximate when reproduced at A4)

GDA 94 (Lat/Long)

Geocentric Datum of Australia 1994

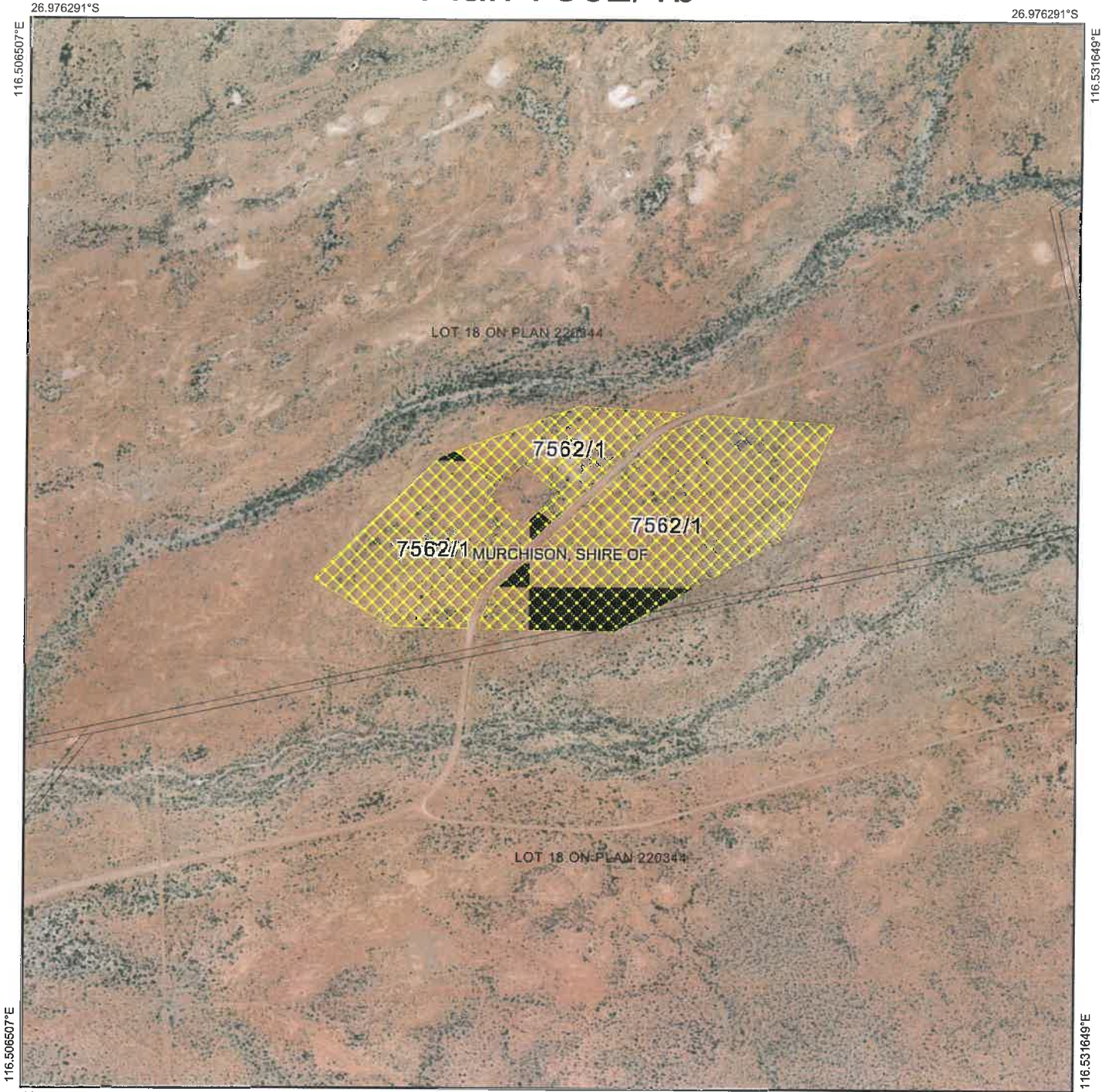
 Date 15/02/2018

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






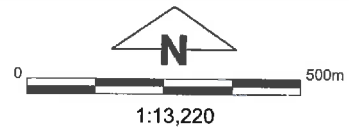
GOVERNMENT OF
WESTERN AUSTRALIA
WA Crown Copyright 2018

Plan 7562/1b




Legend

-  Imagery
-  Clearing Instruments Activities
-  Local Government Authority



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

 Date 13/02/2018

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



1. Application details

1.1. Permit application details

Permit application No.: 7562/1
Permit type: Purpose Permit
Application received date: 18 April 2017

1.2. Applicant details

Applicant's name: Commonwealth Scientific and Industrial Research Organisation (CSIRO)

1.3. Property details

Property: Lot 18 on Deposited Plan 220344 (Pastoral lease L3114/406), South Murchison
Un-named road reserve (PIN: 11665424), South Murchison
Local Government Authority: Shire of Murchison
Localities: South Murchison

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
53.556		Mechanical Removal	Gravel extraction

1.5. Decision on application

Decision on Permit Application: Grant

Decision Date: 15 February 2018

Reason for Decision: The clearing permit application received on 18 April 2017 has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*. It has been concluded that the proposed clearing is at variance to clearing principle (f), may be at variance to principles (g) and (i), is not at variance to principle (e) and is not likely to be at variance to the remaining clearing principles.

Through assessment it was determined that the proposed clearing of the southern application area has a high risk of causing water erosion following clearing. The Delegated Officer considers that the requirement to undertake clearing within one month prior to the commencement of gravel extraction will minimise the risk of water erosion.

The Delegated Officer determined that the proposed clearing may increase the spread of weeds into adjacent vegetation. To minimise this impact, a condition has been placed on the permit requiring the implementation of weed management measures.

The proposed clearing for the purpose of gravel extraction is a temporary land use and therefore the Delegated Officer considers it appropriate to add a revegetation condition to the permit.

In determining to grant a clearing permit subject to conditions, the Delegated Officer determined that the proposed clearing is not likely to lead to an unacceptable risk to the environment.

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description Two Beard vegetation associations have been mapped within the application area, namely:

- Beard vegetation association 29 is described as sparse low woodland; mulga, discontinuous in scattered groups; and
- Beard vegetation association 204 is described as succulent steppe with open scrub; scattered mulga and *Acacia sclerosperma* over saltbush and bluebush (Shepherd et al., 2001).

Clearing Description The applicant proposes to clear 53.556 hectares of native vegetation within Lot 18 on Deposited Plan 220344 and an un-named road reserve, South Murchison, for the purpose of gravel extraction.

Vegetation Condition	Very good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994); To: Degraded; Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994).
Comment	The application area comprises of two areas along Beringarra-Pindar Road, South Murchison. The northern area is 7.428 hectares in size, and the southern area is 46.129 hectares in size. The proposed gravel extraction is for the purpose of airstrip and road maintenance. Vegetation condition was determined based on an ecological assessment of the Square Kilometre Array within Boolardy Station, which is located near the application area (AECOM, 2014) and photographs provided by the applicant (CSIRO, 2017). The majority of the application area is considered to be in very good (Keighery, 1994) condition. Aerial imagery and photographs provided by the applicant (CSIRO, 2017) suggests that approximately one third of the northern application area is in degraded (Keighery, 1994) condition and has been disturbed from previous extraction activities.

3. Assessment of application against clearing principles

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

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

The application area comprises two areas along Beringarra - Pindar Road within Boolardy Station, South Murchison. The northern area (7.428 hectares) is mapped as 'succulent steppe with open scrub; scattered mulga and *Acacia sclerosperma* over saltbush and bluebush' (Shepherd et al., 2001). The southern area (46.129 hectares) is mapped as 'sparse low woodland; mulga; discontinuous in scattered groups' (Shepherd et al., 2001). An ecological assessment conducted within Boolardy Station for the Square Kilometre Array project indicates that the mapped Beard vegetation associations are likely to be broadly representative of the vegetation present within the application areas (AECOM, 2014).

According to available databases, 14 priority flora species have been recorded within the local area (40 kilometre radius). Given the availability of suitable habitat, 12 of these priority species may occur within the application area. The former Department of Parks and Wildlife (Parks and Wildlife) region advised that a level 1 survey has been previously conducted over the application area, in which no rare or priority flora were recorded (Parks and Wildlife, 2017a). Parks and Wildlife Species and Communities Branch advised that while there is a low likelihood of rare or priority flora occurring within the application area, targeted surveys would be required to confirm the presence or absence of rare or priority flora (Parks and Wildlife, 2017b).

Considering the availability of suitable habitat in the surrounding area, Parks and Wildlife advised that the proposed clearing is not likely to have a significant impact on priority flora recorded in the local area if they are present within the application area (Parks and Wildlife, 2017b).

Three priority ecological communities (PEC) have been recorded within 40 kilometres of the application area. Two of these are calcrete groundwater assemblages on nearby properties, and one is a vegetation complex associated with a banded ironstone formation. Of these, the nearest PEC is located 27 kilometres from the application area. From this distance, the proposed clearing is not likely to impact any recorded PECs. The ecological assessment within Boolardy station did not record any PECs or threatened ecological communities (TEC) (AECOM, 2014). The vegetation within the application area is not likely to represent a PEC or TEC.

A search of the Naturemap database returned records for ten fauna species specially protected under the *Wildlife Conservation Act 1950* (WC Act) ('specially protected fauna') (Department of Biodiversity, Conservation and Attractions, 2007-). Of these, six are categorised as migratory bird species protected under an international agreement, two are vulnerable, one is endangered, and one is categorised as 'other specially protected fauna'.

The applicant commissioned GHD to undertake a fauna survey of the application area targeting malleefowl (*Leipoa ocellata*; vulnerable), western spiny-tailed skink (*Egernia stokesii badia*; vulnerable), shield-backed trapdoor spider (*Idiosoma nigrum*; vulnerable) and migratory bird species. The application area was comprehensively searched and none of the targeted fauna species were identified (GHD, 2018).

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

(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.

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

The application area comprises two areas that intersect Beringarra - Pindar Road and are bordered by watercourses. The majority of the application area is in very good (Keighery, 1994) condition, with a portion of the northern area in degraded (Keighery, 1994) condition due to previous clearing (CSIRO, 2017).

Parks and Wildlife advised that a Level 1 fauna reconnaissance survey was conducted in the area of this clearing permit application in 2015 (Parks and Wildlife, 2017c). The survey recorded evidence of malleefowl, western spiny-tailed skink and shield-backed trapdoor spider in the vicinity of the application area. The survey also recorded the rainbow bee-eater (*Merops ornatus*; specially protected under the WC Act, migratory) (Parks and Wildlife, 2017c).

Parks and Wildlife advised that a targeted search for conservation significant fauna was conducted within a portion of the southern area, and that no specially protected fauna were recorded (Parks and Wildlife, 2017c).

Given that malleefowl, the western spiny-tailed skink and shield-backed trapdoor spider have been recorded in the surrounding area, these species may occur within the application area. Parks and Wildlife advised that the application area may also provide nesting habitat for the rainbow bee-eater, and that any river red gums (*Eucalyptus camaldulensis*) within the application area are likely to provide important roosting and breeding habitat for several locally significant bird species (Parks and Wildlife, 2017c).

Given the availability of suitable habitat in the surrounding area, Parks and Wildlife advised that the loss of habitat within the application area is not likely to have a significant impact on the local populations of malleefowl, western spiny-tailed skink, shield-backed trapdoor spider or rainbow bee-eater, but that the proposed clearing may impact these species if they are using the application area for nesting or shelter at the time of clearing (Parks and Wildlife, 2017c).

The applicant commissioned GHD to undertake a fauna survey of the application area targeting malleefowl (*Leipoa ocellata*; vulnerable), western spiny-tailed skink (*Egernia stokesii badia*; vulnerable), shield-backed trapdoor spider (*Idiosoma nigrum*; vulnerable) and migratory bird species. The application area was comprehensively searched and none of the targeted fauna species were identified (GHD, 2018).

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

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

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

According to available databases, no rare flora have been recorded in the local area (40 kilometre radius). The ecological assessment for the square kilometre array project within Boolardy Station included a single-phase Level 2 flora and vegetation assessment (AECOM, 2014). No rare flora were recorded (AECOM, 2014).

The Parks and Wildlife regional office advised that an additional Level 1 flora and vegetation survey had been conducted within Boolardy Station, including the application area, and that no flora of conservation significance were recorded (Parks and Wildlife, 2017a).

The former Parks and Wildlife Species and Communities Branch advised that the application area is not likely to contain rare flora (Parks and Wildlife, 2017b).

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

(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.

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

According to available databases, there are no TECs recorded within the local area (40 kilometre radius). The mapped vegetation type is not representative of a TEC, and the ecological assessment within Boolardy Station notes that no TECs were recorded during the field survey (AECOM, 2014).

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

(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.

Proposed clearing is not at variance to this Principle

The application area is located within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, which retains approximately 99 per cent of the pre-European extent of native vegetation cover (Government of Western Australia, 2017).

The mapped Beard vegetation associations within the application area retain approximately 99 per cent of their pre-European extent within the Murchison bioregion (Government of Western Australia, 2017).

Based on aerial imagery, the local area (defined as a 40 kilometre radius around the application area) is well vegetated and contains minimal clearing.

On the basis that the native vegetation extents present within the application area, the Shire, and the IBRA bioregion are more than approximately 99 per cent, it is considered that the application area is not significant as a remnant of native vegetation within an area that has been extensively cleared.

Given the above, the proposed clearing is not at variance to this Principle.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DBCA Managed Lands (%)
IBRA Bioregion* - Murchison	28,120,587	28,044,823	99.7	8
Shire* - Murchison	4,487,312	4,486,373	99.9	8
Beard Vegetation Association in Bioregion*				
29	2,956,382	2,955,695	99.9	3
204	185,602	184,861	99.6	7

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

Proposed clearing is at variance to this Principle

One minor, non-perennial watercourse occurs across the southern application area. Both the northern and southern application areas are located between two non-perennial watercourses. These watercourses appear to be tributaries of the Roderick River system. Aerial imagery indicates that riparian vegetation associated with these watercourses partially occurs within the application areas.

Given the above, the proposed clearing is at variance to this Principle. There are numerous watercourses within the local area, and the proposed clearing is not likely to impact the conservation of vegetation communities growing in association with a watercourse. Potential impacts to surface water quality as a result of the proposed clearing are discussed in Principle (i).

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

Proposed clearing may be at variance to this Principle

The application area occurs within the Beringarra land system, which is described as 'riverine plains with floodplains and channels, supporting halophytic shrublands, mixed acacia shrublands and low woodlands with minor perennial grasses' (Department of Primary Industries and Regional Development [DPIRD], 2017). Soils within the application area are mapped as 'Upper Murchison Zone' soils, which are described as 'hardpan wash plains (with stone plans, sandplains, hills and mesas) on granite and gneiss of the Yilgarn Craton with red-brown hardpan shallow loams, red shallow loams, red loamy earths and red sands (DPIRD, 2017).

Aerial imagery and the ecological assessment conducted for the Square Kilometre Array on Boolardy Station indicate that vegetation within the application area is sparse (AECOM, 2014). Given the mapped soil type and presence of sparse vegetation, some waterlogging may occur naturally following heavy rainfall. The proposed clearing is not likely to increase seasonal waterlogging.

The ecological assessment noted that soil erosion was prevalent on Boolardy Station, with large areas of exposed bare ground, minimal topsoil, and widespread perennial plant death (AECOM, 2014). The ecological assessment notes that erosion may have been caused by grazing by cattle and feral goats, and a decline in average rainfall (AECOM, 2014). Given the soil types likely to be present and existing disturbance, the proposed clearing is not likely to cause appreciable land degradation via wind erosion.

The proposed clearing is not likely to cause appreciable land degradation via salinity or eutrophication.

As discussed in Principle (f), the application area is associated with a watercourse. The proposed clearing may lead to water erosion following heavy rainfall. Given the size of the southern application area (46.129 hectares) and presence of an intersecting minor watercourse, this area has a higher risk of water erosion following clearing.

Given the risk of water erosion, the proposed clearing may be at variance to this Principle. The risk of appreciable land degradation via water erosion may be minimised by ensuring clearing occurs within one month prior to the commencement of gravel extraction.

- (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.**

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

There are no conservation areas within 40 kilometres of the application area. The proposed clearing is not likely to impact the environmental values of any nearby conservation area, and the proposed clearing is not likely to be at variance to this Principle.

- (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.**

Proposed clearing may be at variance to this Principle

As discussed in Principles (f) and (g), the application area intersects and is in close proximity to seasonal watercourses, and the proposed clearing has the potential to lead to water erosion. The application area (north and south portions) are upstream of tributaries to the Roderick River. The mobilisation of soils following heavy rainfall may lead to increased sedimentation within adjacent watercourses.

Seasonal watercourses in the region are likely to contain an existing level of sedimentation. It is unlikely that the increase in sedimentation as a result of the proposed clearing will have a significant impact on the quality of surface water within adjacent watercourses.

Groundwater salinity within the application area ranges from 1,000 to 7,000 milligrams per litre total dissolved solids. Very little clearing has occurred in the local area (40 kilometre radius). The proposed clearing of 53.556 hectares across two areas is not likely to impact the quality of groundwater.

Given the potential for increased sedimentation within watercourses, the proposed clearing may be at variance to this Principle. However, the potential increase in sedimentation is not likely to have a significant impact on water quality within the Roderick River system.

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

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

As discussed in Principle (g), the application area is likely to experience pre-existing seasonal waterlogging following heavy rainfall. The proposed clearing is not likely to cause or exacerbate the incidence or intensity of flooding on a local or regional scale.

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

Planning instruments and other relevant matters.

The clearing permit application was advertised on the former Department of Environment Regulation's website on 15 May 2017 and in *The West Australian* newspaper on 22 May 2017 for a public submission period ending 6 June 2017. No public submissions were received.

The applicant has obtained consent from the Shire of Murchison and Department of Planning, Lands and Heritage to undertake the clearing within Lot 18 and within an un-named road reserve.

It is noted that the proposed road and airstrip maintenance may be associated with the Square Kilometre Array project, which was referred to the Environmental Protection Authority (EPA). On 16 March 2017, the EPA made a decision not to assess the proposal under Part IV of the *Environment Protection Act 1986* (EP Act), noting that the environmental impacts can be dealt with under Part V Division 2 of the EP Act (Clearing). The decision document noted that the proposal may impact habitat for conservation significant fauna species.

According to available databases, there are no Aboriginal Sites of Significance within the application area.

4. References

- AECOM (2014) Square Kilometre Array Ecological Assessment. Unpublished report prepared by AECOM Australia Pty Ltd for the Department of Industry. URL: http://www.epa.wa.gov.au/sites/default/files/Referral_Documentation/CMS17015-SKAEPA%20Referral%20Supporting%20Doc%20Ecological%20Surveys%20Appendix%20A.pdf.
- Commonwealth Scientific and Industrial Research Organisation (CSIRO, 2017) Photographs of application area CPS 7562/1, DWER Ref A1476620.
- Department of Biodiversity, Conservation and Attractions (2007-) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. URL: <http://naturemap.dpaw.wa.gov.au/>. Accessed July 2017.
- Department of Parks and Wildlife (Parks and Wildlife) (2017a) Regional advice received on 12 June 2017. Department of Parks and Wildlife (DER REF: A1465156).
- Department of Parks and Wildlife (Parks and Wildlife) (2017b) Species and Communities flora advice received on 15 June 2017. Department of Parks and Wildlife (DER REF: A1465152).
- Department of Parks and Wildlife (Parks and Wildlife) (2017c) Species and Communities fauna advice received on 16 June 2017. Department of Parks and Wildlife (DER REF: A1465163).
- Department of Primary Industries and Regional Development (DPIRD) (2017) Natural Resource Shared Land Information Portal. Department of Primary Industries and Regional Development. <http://maps.agric.wa.gov.au/nrminfo/>. Accessed July 2017.
- GHD (2018) CSIRO Boolardy Material Pits, Targeted Fauna Assessment. January 2018 (DWER Ref: A1606708).
- Government of Western Australia (2017). 2016 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of December 2016. WA Department of Parks and Wildlife, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

GIS Database:

Aboriginal sites of significance
Groundwater salinity, statewide
Hydrography, linear
Imagery
Parks and Wildlife tenure
SAC bio datasets - accessed July 2017