



## 1. Application details

### 1.1. Permit application details

Permit application No.: 6457/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Silver Lake (Integra) Pty Ltd

### 1.3. Property details

Property: Mining Lease 25/71  
Colloquial name: Santa Deposit  
Local Government Authority: City of Kalgoorlie-Boulder

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
84		Mechanical Removal	Mineral production

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 26 March 2015

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

**Vegetation Description** Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. Two Beard vegetation associations have been mapped within the application area:

501: Medium woodland; goldfields blackbutt; and  
506: Succulent steppe with woodland; salmon gum & bluebush.

A flora and vegetation survey was conducted over the application area in January 2013 by Outback Ecology (Outback Ecology, 2013). Five vegetation associations were recorded within the application area, including:

**Eg(Ec)TM:** *Eucalyptus griffithsii* ( $\pm$  *E. celastroides*) Tree Mallee or Woodland over *Maireana sedifolia* Low Open Shrubland over *Austrostipa* and *Sida spodochroma* Scattered Grasses/Herbs on plains and low rise of orange and pale brown clays with up to 50% cover of greywacke and calcrete rocks up to 20cm in size;

**AbEaTSL:** *Acacia colei* var. *colei* high shrubland over *Triodia epactia* and *Triodia wiseana* hummock grassland and \**Cenchrus ciliaris* open tussock grassland in drainage lines on low broad ridges and minor drainage lines of orange brown clay with up to 75% cover of calcrete, ironstone, greywacke and quartz rocks up to 50 cm in size;

**EsEmW:** *E. salmonophloia*  $\pm$  *E. moderata* Woodland over *Maireana sedifolia*, *M. triptera*, *Atriplex nummularia* Low (Open) Shrubland over *Sclerolaena* spp., *Austrostipa* spp. and *Sida spodochroma* Scattered Grasses/Herbs on undulating plains of light brown clay loam with up to 20% cover of quartz and calcrete rocks up to 10cm in size;

**EaLOW:** *Eremophila alternifolia* Low Open Woodland over *Maireana sedifolia* Low Open Shrubland over *Austrostipa* sp. Scattered Grass on plains of light brown clay loam with up to 5% cover of calcrete, quartz and greywacke up to 7cm in size;

**EIW:** *Eucalyptus lesouefii* ( $\pm$  *E. salmonophloia*) Woodland over *Eremophila alternifolia* Scattered Low Trees over *Maireana sedifolia* Scattered Low Open Shrubland on broad hills and plains of light brown clay with scattered quartz.

**Clearing Description** Santa Deposit.  
Silver Lake (Integra) Pty Ltd (Silver Lake) proposes to clear up to 84 hectares within a total boundary of approximately 101 hectares for the purpose of mineral production. The project is located approximately 54 kilometres north-east of Kambalda (East), in the City of Kalgoorlie-Boulder.

**Vegetation Condition** Completely Degraded: No longer intact; completely/almost completely without native species (Keighery, 1994);  
To:  
Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).

**Comment**

A majority of the application area is in 'Good' condition. Vegetation condition was determined during the flora and vegetation survey conducted by Outback Ecology (2013).

Approximately one eighth of the application area includes pits, spoil heaps and access roads from previous mining activity.

### 3. Assessment of application against clearing principles

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

**Comments**

**Proposal is not likely to be at variance to this Principle**

The application is located within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) region and the Eastern Goldfields subregion (GIS Database). The Eastern Goldfields subregion is comprised of undulating plains interrupted by low hills and ridges, supporting Mallees, Acacia thickets and shrub-heaths on sandplains, and Eucalypt woodlands around salt lakes, on ranges, and in valleys (Cowan, 2001).

The vegetation within the application area is broadly mapped as Beard associations 501 and 506 (GIS Database). A flora, vegetation and fauna assessment was conducted by Outback Ecology in 2013 (Outback Ecology, 2013). A total of five vegetation associations were recorded within the application area, which ranged from Very Good to Completely Degraded condition (Keighery, 1994; Outback Ecology, 2013). None of the vegetation associations represented a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) (West Ecology), which is consistent with available databases (GIS Database). The Priority 3 PEC Mount Belches *Acacia quadrimarginea* / *Ptilotus obovatus* banded ironstone community occurs near to the application boundary, but does not lie within the proposed clearing (Outback Ecology, 2013; GIS Database).

A total of 110 flora taxa comprising 24 families and 48 genera were recorded by Outback Ecology within the study area, of which the application area comprises approximately 7% (Outback Ecology, 2013). This level of flora diversity is comparable to other surveys that have been conducted in the region (Outback Ecology, 2013). No Threatened or Priority flora species were recorded during the survey (Outback Ecology, 2013).

No fauna surveys have been conducted over the application area. A search on the Naturemap database using a 10 kilometre search radius returned records for 43 bird, 11 mammal and 27 reptile species (DPaW, 2015). Mammals included the introduced House Mouse (*Mus musculus*) and Rabbit (*Oryctolagus cuniculus*). None of the fauna species that have the potential to occur in the application area according to Naturemap were listed as Priority (DPaW) or Threatened (*Wildlife Conservation Act 1950*) (DPaW, 2015). Combined with data from the Naturemap database, the habitat degradation that has occurred in and surrounding the proposed clearing area decreases the likelihood that native vegetation within the application area supports a high level of fauna diversity.

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

**Methodology**

Cowan (2001)  
 DPaW (2015)  
 Keighery (1994)  
 Outback Ecology (2013)  
 GIS Database:  
 - IBRA WA (Regions - Sub Regions)  
 - Pre-European Vegetation  
 - Threatened and Priority Ecological Communities (TECPEC) - Buffers

#### (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**

**Proposal is not likely to be at variance to this Principle**

A fauna survey has not been conducted over the application area, however no conservation significant fauna species have been previously recorded in or around the application area (DPaW, 2015). Based on the flora and vegetation survey conducted by Outback Ecology (2013) and aerial imagery (GIS Database), the application area appears to include two fauna habitat types, including:

- Tall open Acacia shrubland; and
- Open Eucalypt woodland.

Based on aerial imagery, the habitat types within the application area are widespread in the surrounding region (GIS Database). Habitat within the application area is disturbed as a result of ongoing grazing pressure, weeds and dieback (Outback Ecology, 2013). The proposed clearing is therefore unlikely to represent significant fauna habitat on a local or regional scale.

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

**Methodology**

DPaW (2015)  
 Outback Ecology (2013)  
 GIS Database:

- Imagery

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

**Comments** **Proposal is not likely to be at variance to this Principle**  
 No Threatened flora species were recorded within the application area during the flora and vegetation survey conducted by Outback Ecology (2013). Similarly, available databases show no records for Threatened flora within or surrounding the application area (GIS Database).

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

**Methodology** Outback Ecology (2013)  
 GIS Database:  
 - Threatened and Priority Flora)

**(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** **Proposal is not likely to be at variance to this Principle**  
 According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). Similarly, the vegetation survey conducted by Outback Ecology (2013) did not identify any of the vegetation recorded as being a TEC.

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

**Methodology** Outback Ecology (2013)  
 GIS Database:  
 - Threatened and Priority Ecological Communities (TECPEC) - Buffers

**(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** **Proposal is not at variance to this Principle**  
 The application area falls within the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 97.96% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database).

The vegetation within the application area has been mapped as Beard vegetation associations 501 and 506 (GIS Database). Over 90% of these Beard vegetation associations remain at both a state and bioregional level (Government of Western Australia, 2013). Based on aerial imagery, the vegetation within the application area is neither a remnant itself nor does it form part of any remnants within the local area (GIS Database).

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands
IBRA Bioregion - Coolgardie	12,912,204	12,648,491	97.96	Least Concern	15.5
Beard veg assoc. - State					
501	48,022	47,889	99.72	Least Concern	14.1
506	98,187	98,050	99.86	Least Concern	12.8
Beard veg assoc. - Bioregion					
501	43,939	43,806	99.70	Least Concern	15.4
506	98,187	98,050	99.86	Least Concern	12.8

\* Government of Western Australia (2013)  
 \*\* Department of Natural Resources and Environment (2002)

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

**Methodology** Department of Natural Resources and Environment (2002)  
 Government of Western Australia (2013)  
 GIS Database:  
 - Imagery

- Pre-European Vegetation

**(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 Proposal may be at variance to this Principle**

According to available databases, the application area does not intersect any minor or major watercourses (GIS Database). The flora and vegetation survey conducted by Outback Ecology (2013) identified one vegetation community (AbEaTSL) to occur in association with 'low broad ridges and minor drainage lines', and therefore this community may be considered to be partially riparian in nature. However, the occurrence of this vegetation community within the application area does not correspond with a watercourse, and instead occurs over a low lying area that is likely to represent a 'low broad ridge' that may receive runoff on a local scale following periods of rainfall (GIS Database).

Based on the above, the proposed clearing may be at variance to this Principle.

**Methodology** Outback Ecology (2013)  
GIS Database:  
- Hydrography, linear  
- Topographic Contours, Statewide

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

**Comments Proposal is not likely to be at variance to this Principle**

The application area occurs over clay soils (Outback Ecology, 2013), and is not likely to be susceptible to significant levels of wind or water erosion following the removal of native vegetation.

A total of six introduced flora species were recorded during the flora and vegetation survey conducted by Outback Ecology (2013). Outback Ecology (2013) also observed vegetation affected by dieback within the application area. Potential land degradation as a result of the proposed clearing may be minimised by the implementation of a dieback and weed management condition.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

**Methodology** Outback Ecology (2013)

**(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 Proposal is not likely to be at variance to this Principle**

The application area occurs within the Randell Timber Reserve, which is managed by DPaW (GIS Database). Vegetation within the reserve, and within and surrounding the application area, has been degraded by previous mining activities, weed invasion, dieback and grazing pressure (Outback Ecology, 2013). No flora of conservation significance occurs within the application area, and the application area avoids the nearby Priority 3 Mount Belches *Acacia quadrimarginea* / *Ptilotus obovatus* banded ironstone Priority Ecological Community (Outback Ecology, 2013).

The clearing of 84 hectares of native vegetation will impact habitat availability on a local scale, and increases the potential for weed and dieback to be spread. However, given the prior disturbance within the Randell Timber Reserve and the avoidance of the Priority 3 PEC, it is unlikely that the proposed clearing will have a significant impact on the environmental values of the reserve.

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

**Methodology** Outback Ecology (2013)  
GIS Database:  
- DPaW 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 Proposal is not likely to be at variance to this Principle**

The application area does not occur within a Public Drinking Water Source Area (PDWSA), however it is located within the proclaimed Goldfields groundwater area under the *Rights in Water and Irrigation Act 1914* (GIS Database). Any groundwater extraction and/or taking or diversion of surface water for purposes other than domestic and/or stock watering is subject to licence by the Department of Water.

There are no watercourses within the application area (GIS Database). Groundwater salinity in the local area is

14,000 - 35,000 milligrams/Litre Total Dissolved Solids (TDS), which is classified as saline to hypersaline (GIS Database). The proposed clearing activity is not likely to cause deterioration of groundwater quality within the project area.

Based on the above, the proposed clearing is not likely to be at variance with this Principle.

- Methodology** GIS Database:
- Groundwater Salinity, Statewide
  - Hydrography, linear
  - Public Drinking Water Source Areas (PDWSAs)
  - RIWI Act, Groundwater Areas

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

**Comments Proposal is not likely to be at variance to this Principle**

Mean annual rainfall in Kalgoorlie-Boulder (approximately 2 kilometres from the application area) is approximately 267 millimetres (BoM, 2015). The Coolgardie bioregion experiences an arid to semi-arid climate, with rainfall usually in winter (Cowan, 2001). The application boundary occurs around a low lying area in the landscape (GIS Database) that may collect water during periods of heavy rainfall. Although a small amount of localised flooding may occur temporarily in this area, the proposed clearing is unlikely to significantly alter the frequency or intensity of flooding within the application area or the surrounding region.

The application area is located within the Lake Lefroy catchment area of the Salt Lake Basin (GIS Database). Given the size of the area to be cleared (84 hectares) in relation to the size of the catchment area (2,488,207 hectares), the proposed clearing is not likely to increase the potential for flooding in this region (GIS Database).

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

- Methodology** BoM (2015)  
Cowan (2001)  
GIS Database:
- Hydrographic Catchments - Catchments
  - Topographic Contours, Statewide

**Planning instruments and other relevant matters.**

**Comments** There are no native title claims over the application area (GIS Database). The mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Sites of Aboriginal Significance located in the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Parks and Wildlife and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 23 February 2015 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

- Methodology** DAA (2015)  
GIS Database:
- Aboriginal Sites of Significance

**4. References**

- BoM (2015) Climate Statistics for Australian Locations. Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder, Australian Government Bureau of Meteorology, [http://www.bom.gov.au/climate/averages/tables/cw\\_012038.shtml](http://www.bom.gov.au/climate/averages/tables/cw_012038.shtml), viewed March 2015.
- Cowan, M (2001) Coolgardie 3 (COO3 – Eastern Goldfields subregion). In A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions in 2002 (eds J. E. May & N. L. McKenzie). Department of Conservation and Land Management, WA.
- DAA (2015) Aboriginal Heritage Inquiry System. Department of Aboriginal Affairs. <http://maps.dia.wa.gov.au/AHIS2/> (Accessed March 2015).
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local, Department of Natural Resources and Environment, Victoria.
- DPaW (2015) NatureMap: Mapping Western Australia's Biodiversity. Department of Parks and Wildlife. <http://naturemap.dpaw.wa.gov.au/default.aspx> (Accessed March 2015).

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, 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.

Outback Ecology (2013) Randall's Gold Project - Santa Deposit: Level 2 Flora and Vegetation Survey. Unpublished report prepared by Outback Ecology Services for Integra Mining Limited.

BoM (2015) Climate Statistics for Australian Locations. Climate Statistics for Australian Locations. A Search for Climate Statistics for Kalgoorlie-Boulder, Australian Government Bureau of Meteorology, [http://www.bom.gov.au/climate/averages/tables/cw\\_012038.shtml](http://www.bom.gov.au/climate/averages/tables/cw_012038.shtml), viewed March 2015.

## 5. Glossary

### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>DAA</b>	Department of Aboriginal Affairs, Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia (now DPaW and DER)
<b>DER</b>	Department of Environment Regulation, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DRF</b>	Declared Rare Flora
<b>DotE</b>	Department of the Environment, Australian Government
<b>DoW</b>	Department of Water, Western Australia
<b>DPaW</b>	Department of Parks and Wildlife, Western Australia
<b>DSEWPaC</b>	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
<b>EPA</b>	Environmental Protection Authority, Western Australia
<b>EP Act</b>	<i>Environmental Protection Act 1986</i> , Western Australia
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>PEC</b>	Priority Ecological Community, Western Australia
<b>RIWI Act</b>	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
<b>s.17</b>	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
<b>TEC</b>	Threatened Ecological Community

### Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}:-

<b>T</b>	<p><b>Threatened species:</b></p> <p>Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).</p> <p>Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo <i>Calyptorhynchus latirostris</i> is specially protected under the <i>Wildlife Conservation Act 1950</i> as a threatened species with a ranking of Endangered.</p> <p><u>Rankings:</u></p> <p>CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.</p> <p>EN: Endangered - considered to be facing a very high risk of extinction in the wild.</p> <p>VU: Vulnerable - considered to be facing a high risk of extinction in the wild.</p>
<b>X</b>	<p><b>Presumed Extinct species:</b></p> <p>Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).</p>
<b>IA</b>	<p><b>Migratory birds protected under an international agreement:</b></p> <p>Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p> <p>Birds that are subject to an agreement between governments of Australia and Japan, China and The Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.</p>
<b>S</b>	<p><b>Other specially protected fauna:</b></p> <p>Specially protected under the <i>Wildlife Conservation Act 1950</i>, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.</p>

- P1 Priority One - Poorly-known species:**  
Species that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2 Priority Two - Poorly-known species:**  
Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3 Priority Three - Poorly-known species:**  
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**
- (a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.
  - (b) Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
  - (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
- P5 Priority Five - Conservation Dependent species:**  
Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.