

**WESTERN AREAS LTD**



# **CPS 7914/2 AMENDMENT APPLICATION SUPPORTING DOCUMENT**

Document Date: 16/03/2022



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## 1. INTRODUCTION

The Cosmos Nickel Operation (Cosmos) is owned and operated by Australian Nickel Investments Pty Ltd (ANI), a fully owned subsidiary of Western Areas Limited. Cosmos (the Project) consists of the Cosmos open pit, underground mining operations and supporting facilities, and is located approximately 32 km north of the Leinster township (Figure 1). ANI is currently developing the Odysseus Mine at Cosmos.

Jubilee Mines NL operated Cosmos from October 1999 to 2007 developing the Cosmos open pit and UG operations. Xstrata (a subsidiary of Glencore) purchased the operations in 2007, continuing operations and then placed it on Care and Maintenance in February 2012 due to the exhaustion of the Prospero ore body. ANI purchased Cosmos in September 2015 with the aim to recommence mining operations. ANI is recommencing operations at Cosmos for nickel ore production from the Odysseus deposit following the Decision to Mine in April 2018 and the Definitive Feasibility Study confirming the 10-year operation in October 2018.

ANI were granted Clearing Permit 7914/2 (the permit) in March 2018. ANI is applying to have the permit amended to redescribe the boundary area, extend the duration of the clearing permit and increase the approved clearing limit. This document has been prepared for the Department of Mines, Industry Regulation and Safety (DMIRS) to support the amendment application.

**Figure 1: Location of Cosmos Nickel Operation**





## 2. PROPOSAL

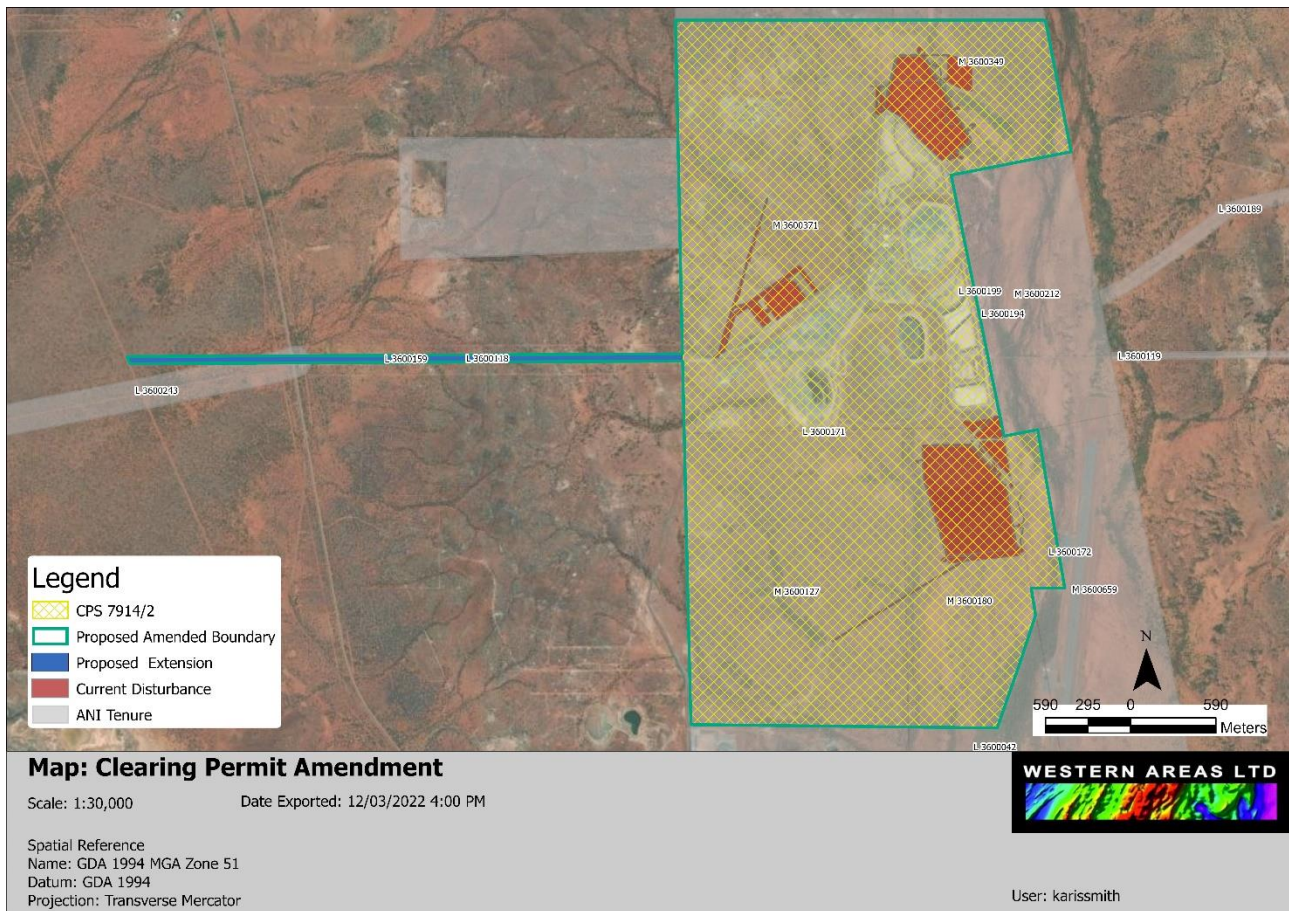
ANI is planning the installation of an overhead powerline to provide life of mine power to the Cosmos Nickel Operation. The overhead powerline will run alongside the existing Cosmos mine access road within tenement L36/159, and have a total length of approximately 4.3km. Tenement L36/159 is outside the existing permit boundary. ANI is proposing an amendment to the permit to redescribe the boundary to include a 19.22 ha section over L36/159 to allow for clearing of the powerline corridor.

The total area of the permit is 1,136 Ha and covers mining leases M36/127, M36/349, M36/371, M36/180 and M3/659. The permit allows for 157 Ha of native vegetation to be cleared; ANI is proposing to have the clearing allowance increased from 157 Ha to 180 Ha. The duration of the permit is from 3 March 2018 to 28 February 2023, ANI is proposing that the duration is extended to 28 February 2027.

ANI is the owner and holder of tenements M36/127, M36/349, M36/371, M36/180, M36/659 and L36/159. All tenements are owner-operated giving ANI a 100% holding, title deeds are presented in Appendix B.

The proposed amendment application is unlikely to have an impact on a matter of national environmental significance; hence this proposed clearing action is unlikely to require assessment in accordance with, or under, an EPBC Act Accredited Process such as the assessment bilateral agreement.

**Figure 2: CPS 7914/2 Boundary and Proposed Changes**





## 2.1 Clearing Principles

Schedule 5 of the Western Australian *Environmental Protection Act* (1986) provides a list of 10 clearing principles against which a proposal can be assessed to determine if clearing should proceed. A brief statement against these principles based on the outcomes of the proposed permit amendment is provide below.

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

The Project lies within the central area of the Eastern Murchison (MUR1) Interim Biogeographic Regionalisation for Australia (IBRA) Sub Region of the Murchison Biogeographic Region which totals over 7.8 million hectares (CALM, 2002). Based on Beard (1990), two vegetation associations occur in the proposed clearing area:

- 18: Low woodland; mulga (*Acacia aneura*)
- 39: Shrublands; mulga scrub

These vegetation associations are well represented, with more than 97% of pre-European levels of native vegetation remaining within the State and Bioregion (Beard, 1990). Fifteen vegetation groups have been mapped at the Project by Mattiske (2004, 2005, 2011) and eight by PEK (2017). The proposed extension to the clearing area, and additional clearing, comprises vegetation consistent with that previously identified at the Project. The field search of the survey area and previous investigations of the area has revealed there are no preferred or critical habitat types for any conservation significant fauna species. No DRF or Priority flora species have been recorded at the Project. The proposed clearing will not reduce the biodiversity of the vegetation at site, with large intact areas of similar vegetation located outside of the clearing footprint and in adjoining subregions. Given the above, the area proposed to be cleared does not comprise a high level of biodiversity and is not likely to be at variance to this clearing principle.

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

As the vegetation groups part of the extension area are consistent with those previously identified, no critical habitat types are expected to be impacted. A detailed list addressing the potential impact on potentially occurring listed conservation significant species (including EPBC listed species) is provided in Appendix E. Given the above, the proposed clearing will not be at variance to this principal.

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

No plant taxa listed as Threatened pursuant to Schedule 1 of the EPBC Act (1999) are located in the proposed clearing area. Vegetation of the proposed extension is consistent with that previously mapped by Mattiske (2005), PEK (2017) and Botanica (2018) which are not limited to the Project area, and in which no DRF/Priority flora were included. No Priority flora has been recorded at the Project. Given the above, the proposed clearing will not be at variance to this principle.

### **(d) Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of a Threatened Ecological Community (TEC)**



There are no Threatened Ecological Communities (TECs) mapped within the application area and no TECs were identified during the flora and vegetation surveys (Mattiske Consulting, 2011; PEK 2017). Given the above, the proposed clearing will not 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**

The proposed clearing area comprises two Beard Vegetation Associations all of which have approximately 97% of their pre-European extent remaining. The application area is broadly mapped as Beard vegetation associations 18: Low woodland; mulga (*Acacia aneura*); and 39: Shrublands; mulga scrub. Approximately 97% of the pre-European extent of these vegetation associations, respectively, remains uncleared at both the state and bioregional level. Given the above, the vegetation proposed to be cleared cannot be considered significant as a remnant in an area that has been extensively cleared. Therefore, the proposed clearing will not be at variance to this principle.

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

A series of small drainage lines trend east and south-east from rocky hills to the west, joining a main north-south drainage line known as Freshwater Creek. Freshwater Creek becomes less distinct toward the south where surface water flows are less confined within channels and flood across a wider plain. Surface drainage is largely via sheet flow with surface water flow only following periods of heavy rainfall events. Ephemeral drainage lines are present in the overall clearing area and surface runoff within these only flows following heavy rainfall associated with thunderstorms or cyclonic activity. The vegetation in these drainage lines is not considered to be riparian vegetation. There is, therefore, no vegetation growing in association with a water course or wetland. The proposed clearing is not at variance to this principle.

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

The clearing permit area is broadly mapped as the Violet and Jundee land systems according to Pringle et al., 1994. The proposed clearing of 19.22 ha of vegetation is not likely to lead to land degradation issues such as salinity, water logging or acidic soils and therefore is not at variance to this principle. The disturbed area (excluding the pits) will be rehabilitated at completion of mining.

**(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**

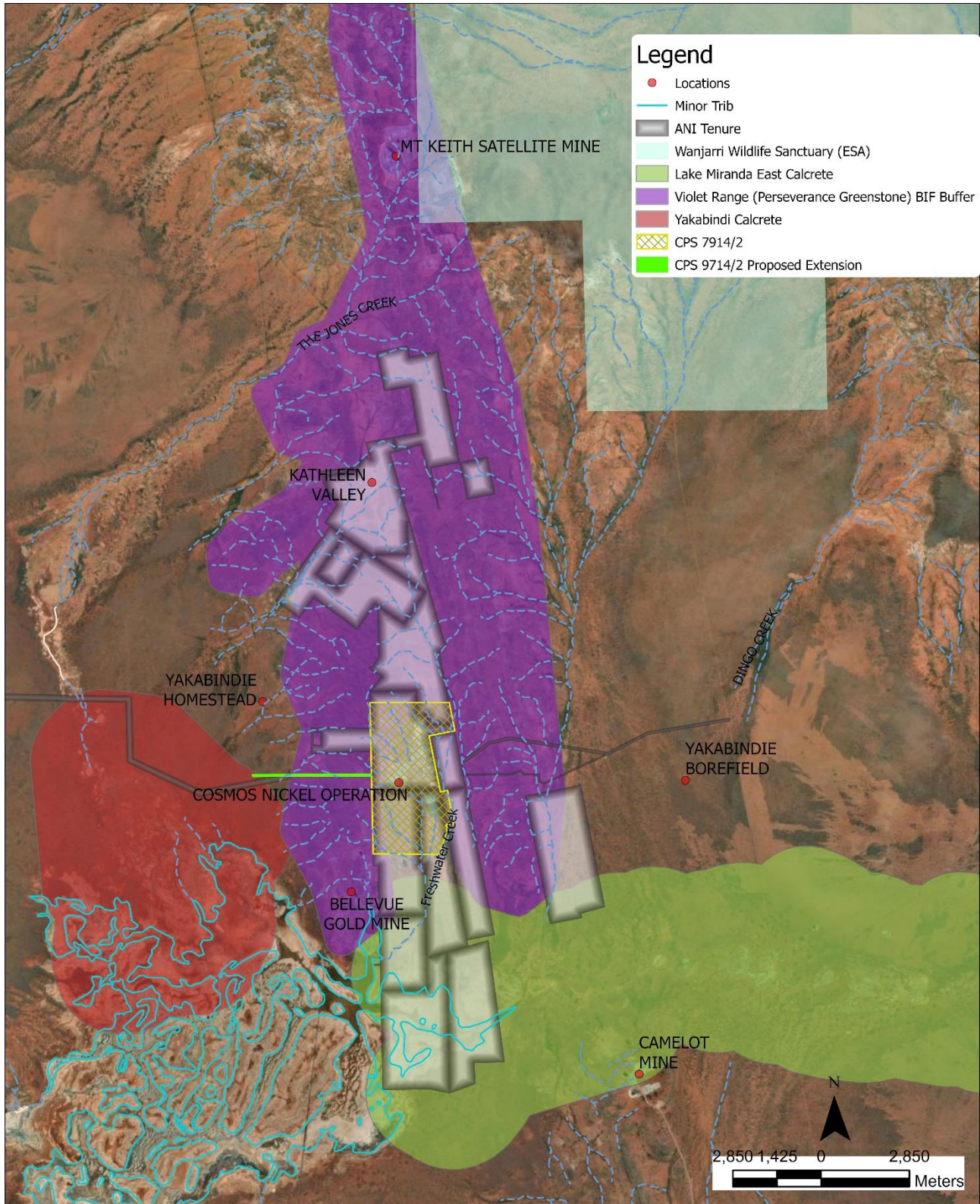
There are no conservation or nature reserves within the Project area. The Wanjarri Nature Reserve is approximately 12 km north east of the proposed clearing area. Given the distance to the nature reserve, the proposed clearing will not have any impact on the environmental values of the area. The proposed clearing, therefore, is not 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.**

Surface water in the Project area is sourced from direct precipitation and surface runoff following rainfall events. The Murchison area often receives considerable rainfall from degenerating cyclonic depressions from the northern parts of the State. However, overall, the mean annual rainfall is only 240 mm. Evaporation rates in the region vary from 3000-3200 mm annually. With such high mean annual evaporation rates, there is little



Figure 3: Siting and Location



**Map: Siting and Location**

Scale: 1:150,000

Date Exported: 15/03/2022 1:27 PM

Spatial Reference  
Name: GDA 1994 MGA Zone 51  
Datum: GDA 1994  
Projection: Transverse Mercator





surface flow during normal seasonal rains. Given the low annual rainfall and high evaporation rate there is expected to be minimal rainfall re-charge that would impact the groundwater levels or the quality of the groundwater in the local region. There is no surface water of significance, large drainage lines, lakes or swamps in or in close proximity to the proposed clearing area. The area proposed to be cleared does not fall within a Public Drinking Water Source Area (PDWSA) or PDWSA Protection Zone ([www.dow.wa.gov.au](http://www.dow.wa.gov.au)). The clearing of 19.22 ha of native vegetation is not likely to cause deterioration in the quality of surface or groundwater and, therefore, the proposed clearing is not at variance to this principle.

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

The area proposed to be cleared is surrounded by native vegetation. The climate of the Eastern Murchison subregion is arid, with a variable bimodal rainfall that usually falls in winter (CALM, 2002). Annual average rainfall is only 240 mm with little surface flow during normal seasonal rains. Given that there are no water bodies within the proposed clearing area and there is little surface flow during normal rains, the proposed clearing of 19.22 ha is not likely to cause or exacerbate the incidence or intensity of flooding. Therefore, the proposed clearing is not at variance to this principle.

### **3. SITING AND EXISTING ENVIRONMENT**

The siting and location of the permit area in relation to other sensitive land uses is provided as Figure 3. The closest human receptor is Yakabindie Pastoral Station (homestead), located approximately 2-5km northwest of Cosmos. The nearest regional town site is Leinster at 32 km south of the permit boundary.

#### **3.1 Climate**

Cosmos is located within the Murchison bioregion and experiences a semi-arid to arid climate, with hot, dry summers and cool, mild winters. The region is influenced by the winter rainfall patterns that affect the southwest of Western Australia as well as the variable summer rainfall typical of the northern regions. Summer rainfall activity is dependent upon thunderstorm activity and rain bearing depressions, often formed in the wake of tropical cyclones.

The long-term average annual rainfall for the Leinster Region is 240 mm (Figure 5). The nearest Bureau of Meteorology (BoM) weather station is located at Leinster (Leinster Aero Station Number 012314). The mean annual temperature is 28.2°C and the mean annual minimum temperature is 14.7°C. Daily maxima greater than 30°C are common between October and March (Figure 6). Dominant wind direction is easterly in the mornings increasing to northerlies in winter. The average wind speeds vary from 16.0 to 21.4 km/hr in the morning and 15.6 to 19.4 km/hr in the afternoon. Annual evaporation rates are between 3000 to 3200 mm, exceeding the annual rainfall (Bureau of Meteorology, 2019).

#### **3.2 Flora and Vegetation**

The permit area is situated within the Murchison (MUR) Bioregion within the Eastern Murchison (MUR1) subregion totalling +7.8 million hectares (CALM, 2002). This subregion is characterised by its internal drainage,





and extensive areas of elevated red desert sandplains with minimal dune development. Salt Lake systems associated with the occluded palaeodrainage system, broad plains of red-brown soils and breakaway complexes as well as red sandplains. Vegetation is dominated by Mulga Woodlands often rich in ephemerals; hummock grasslands, saltbush shrublands and Halosarcia shrublands (CALM, 2002). Several flora surveys have been undertaken in the Cosmos area recording 89 species from 40 genera and 19 families (PEK Enviro, 2017).

The proposed clearing is alongside an existing infrastructure corridor, with most of the area already disturbed due to prior maintenance of roads and the effects of grazing. The total area of the proposed extension is 19.22 ha. Given the small and already disturbed area, the proposed clearing is not expected to have an impact with regards to habitat fragmentation.

### 3.2.1 Conservation Significant Flora

There are seven conservation significant flora species that may potentially occur in the regional area (Table 1). There is one flora species (*Grevillea inconspicua*) of conservation significance that occurs and is recorded within the Violet Range Priority Ecological Community (PEC) (Figure 4). ANI will avoid clearing Priority Flora and maintain a buffer area of 10m around and plants/populations identified. Where impacts to individual plants or buffer areas cannot be avoided, ANI will seek advice from DBCA prior to undertaking any works.

**Table 1: Conservation Significant Flora**

Species	Conservation Status	Habitat	Likelihood of Occurrence
<b>Regional Conservation Significant Flora</b>			
<i>Anacampseros</i> sp. <i>Eremaean</i> (F. Hort, J. Hort & J. Shanks 3248)	P1	Sand patches inside rocks, brown sandy clay, and granite. Depressions in rock outcrops, breakaways, flats.*	Unlikely
<i>Austroparmelina macrospora</i>	P3	Lichen growing on a variety of substrates.**	Possible
<i>Gunniopsis propinqua</i>	P3	Stony sandy loam. Lateritic outcrops, winter wet sites. Breakaway country.**	Unlikely
<i>Hybanthus floribundus</i> subsp. <i>chloroxanthus</i>	P3	Dark red-brown soil, never sandy, rich in iron oxide, laterite. Rocky areas, creek banks, along drainage lines.	Unlikely
<i>Eremophila pungens</i>	P4	Restricted to stony slopes of hills and breakaways.***	Unlikely
<i>Hemigenia exilis</i>	P4	Laterite. Breakaways. Slopes.	Unlikely
<i>Grevillea inconspicua</i> (Cue <i>Grevillea</i> )	P4	Gravelly, red, clay-loam in drainage channels on hillsides.**** Along drainage lines on rocky outcrops, creeklines.* Breakaway.**	Unlikely

(Habitat type source: \*DPaW 2016c, \*\*AVH 2017, \*\*\*Chinnock 2007, Olde and Marriot 1995.\*\*\*\*) (PEK Enviro, 2017)

### 3.2.2 Conservation Significant Ecological Communities

No Threatened Ecological Community (TEC) pursuant to Commonwealth or State legislation are located within the proposed redescribed clearing permit boundary. Vegetation is consistent with that previously mapped by





Mattiske (2005), PEK (2017) and Botanica (2018) which are not limited to the Project area, and in which no DRF/Priority flora were included. Consistent with the original CPS 7914/1 application, the proposed extension area is situated within the buffer zone of a Priority 1 PEC; the 'Violet Range (Perseverance Greenstone) vegetation complexes (banded ironstone formation).' This buffer has a mapped extent of over 19,000 hectares and the PEC a known extent over 14,000 hectares. PEK (2017) identified the four vegetation communities comprising this PEC, are unlikely to be found at the Project given that the survey area is located almost 100% on colluvial sheet wash plains, sheet wash deposits and alluvial floodplains and is situated to the east of the Violet Range. In addition, no areas of BIF have been mapped at the Project. The vegetation located within the proposed clearing area is not representative of the vegetation within this PEC. Three Priority 1 Priority Ecological Communities (PEC's), associated with unique stygofauna communities in calcrete are located around Lake Miranda: Lake Miranda West, Lake Miranda East and Yakabindie. These will not be impacted by the proposed clearing.

### 3.2.3 Introduced Flora

Several weeds have been recorded at the Cosmos area:

- Paddy melon (*Citrullus lanatus*)
- Prickly paddy melon (*Cucumis myriocarpus*).
- Ruby dock (*Acetosa vesicaria*)
- Various thistles (*Sonchus sp*)
- Rosetted Tobacco (*Nicotiana rosulate*)
- Buffel Grass (*Cenchrus ciliaris*)

These species have mostly been recorded in disturbed or rehabilitated sites. *Citrullus lanatus* has been recorded within an undisturbed area along a drainage line. These species are not declared weeds under the *Biosecurity and Agriculture Management Act 2007*. Weed management is undertaken onsite, with a report proved in Appendix F.

## 3.3 Terrestrial Fauna

Several terrestrial fauna surveys have been completed over the Cosmos area. No conservation significant fauna or habitat types have been recorded during these surveys. A detailed list addressing the potential impact on potentially occurring listed conservation significant species (including EPBC listed species) is provided in Appendix E.

### 3.3.1 Feral Animals

Several feral animals that have been declared a pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) have been recorded within the Cosmos area and include:

- Red Fox (*Vulpes vulpes*)
- Rabbit (*Oryctolagus cuniculus*)



- Feral Cat (*Felis catus*)
- Feral Donkey (*Equus asinus*)
- Feral Dog/ Dingo (*Canis familiaris*)

### 3.4 Landform and Soils

Cosmos falls across two Land Systems being the Jundee Land System and the Violet Land System. Typical characteristics of the Jundee Land System include gently inclined to level plains with mantles of fine ironstone gravel, subject to sheet flow, also sparse tracts receiving more concentrated run-on, and occasional irregular low sandy tracts and banks. The characteristics of the Violet Land System include extensive gently undulating to level plains and low rises with mantles of ironstone pebbles and level to very gently inclined plains subject to sheet flow with mantles of fine ironstone gravel.

Landforms belonging to the Violet Land System in this area generally form a part of the Perseverance Greenstone Belt. The landform type is generally described as an Undulating Plains landform which has formed over greenstone bedrock. Compared to the generally acidic granitic rocks, these greenstones are basic owing to high calcium and magnesium content. The undulating landscape consists of minor ridges, with slopes less than 10°, and colluvial flats, 50-500 m wide and 5 m below the ridges. The ridges (generally of hard metabasalts) and colluvial flats (ultrabasics) bore alkaline soils separated by a lime layer from the under-lying rock. Shallow calcareous earths and deep calcareous earths (to 1m deep) mantle the ridges and dips (respectively) of Undulating Plains. This landform occurs as a few large belts or islands surrounded by Broad Valleys. Colluvial flats are often drained by faint creek lines, too small to be mapped as Drainage Lines.

### 3.5 Geology

The prescribed premises boundary lies within the Agnew-Wiluna portion of the Norseman-Wiluna Greenstone belt. The belt is attenuated and characterized by major wrench faults traceable over tens of kilometres with at least two phases of complex folding and generally steep dips. The greenstones are dominated by a sequence of NNW striking tholeiitic pillow basalts intercalated with a package of felsic to intermediate volcanoclastic-metasedimentary rocks and ultramafic spinifex textured and cumulate komatiite units.

The local area comprises a package of felsic to intermediate volcanoclastic rocks, with minor interflow sedimentary rocks and the polymictic Jones Creek Conglomerates. These units inter-connect with a sequence of tholeiitic basalts (Mt Goode Basalt) and two ultramafic komatiite flows, the Western and Central Ultramafic (Mt Goode Dunite) (EGI, 2018).

### 3.6 Hydrology and Hydrogeology

#### 3.6.1 Surface Water

Cosmos is located within the Lake Carey sub-catchment of the Western Plateau Salt Lake hydrographic basin. There are several local catchments across which Cosmos fall, with numerous minor watercourses flowing



towards Lake Miranda. These drainage features are ephemeral and only flow during large rainfall events associated with thunderstorms or cyclonic activity.

A main drainage feature situated to the east of Cosmos, Freshwater Creek, flows southward and feeds Lake Miranda during runoff events. Smaller tributaries to the north-west of Cosmos are directed around key landforms via large drains and out southwards joining the main drainage feature to Lake Miranda. The catchments at Kathleen Valley drain to the south west towards Goldfields Highway and Lake Miranda. Cosmos is not located within a Surface Water Proclamation Area.

### 3.6.2 Groundwater

The hydraulic gradient of the regional area is shallow and trends south towards Lake Miranda, the main groundwater sink. The region is characterised by areas of surficial sediments, rocks of low permeability and fractured and weathered rocks. Flow systems are described as local and intermediate within Precambrian rocks. Local systems have recharge and discharge areas within a few kilometres of one another and respond relatively rapidly (10 years) to increased groundwater recharge from large scale clearing and land activity changes. Groundwater levels are primarily sustained by rainfall recharge and groundwater salinity ranges from brackish to hypersaline (GRM, 2016). The pre-mining groundwater levels in the area of the Cosmos ranged between 15 to 20 metres below ground level (mbgl), equivalent to about 460 metres Reduced Level (mRL) Australian Height Datum (AHD).

## 4. ABORIGINAL HERITAGE

Cosmos is located within the Tjiwarl Native Title Determination Area. ANI works with the Tjiwarl to conduct archaeological and ethnographic heritage surveys to identify places of heritage significance under various Deeds of Agreement. ANI then works to avoid these areas in the design of the project with the aim to mitigate and minimise impacts to any places deemed significant and important to the Tjiwarl people.

ANI has commissioned and facilitated heritage surveys completed by the Tjiwarl people in order to identify any culturally significant sites. Effort to avoid these sites is made by placing and designing infrastructure around or away from these areas. This includes design amendments to avoid any areas of cultural and mythological significance. ANI will also engage a heritage monitoring team to relocate any known potential artefacts identified during the surveys prior to activity where required.

As part of the powerline corridor approvals scoping phase, ANI completed an Aboriginal Heritage Inquiry System (AHIS) database search which identified one lodged aboriginal heritage site in the area. Lodged site 452 Violet Range 1 was identified within the existing infrastructure corridor. ANI then commissioned a heritage survey over L36/159, including the proposed powerline corridor, with the area being surveyed and assessed for archaeological and ethnographic values, importance and significance to the Tjiwarl people. The Tjiwarl AC Internal Cultural Advisory Committee selected the Cultural Consultants as those with appropriate knowledge of country for the heritage survey. The Tjiwarl Cultural Consultants actively participated and led all aspects of the archaeological and ethnographic heritage survey, including survey methods, conduct, outcomes, and site interpretation with support from Trace Archaeology personnel.



The heritage survey cleared the proposed overhead powerline corridor and identified no additional aboriginal sites. The findings of the survey were that most of the area was significantly disturbed due to prior works and maintenance of roads and cabling. The powerline corridor area was determined to be cleared of both archaeological and ethnographic concern by the Tjiwarl Cultural Consultants and Trace Archaeology Pty Ltd (Trace Archaeology, 2021).

ANI has an executed Negotiation Protocol to negotiate a broad Mining Agreement/ Land Access Agreement with the Tjiwarl. This process is underway, continuing and not yet completed. ANI will continue to consult with the Tjiwarl on aspects of the project and its planning. Where heritage sites cannot be avoided, ANI will apply for a Section 18 consent under the Aboriginal Heritage Act 1972 in consultation with the Tjiwarl to destroy the site or relocate the artefacts. The Section 18 application is a transparent process with the Tjiwarl AC whom are provided a draft of the application and opportunity to comment on it prior to its submission.

## **5. ENVIRONMENTAL MANAGEMENT**

### **5.1 Disturbance Data**

Disturbance data is managed through the internal Land Use Permitting system. All clearing under CPS 7914/2 is recorded using GPS in accordance with condition 7 of CPS 7914/2. Information including date, total area cleared and purpose for the clearing is recorded and reported annually to DMIRS.

Disturbance data has been verified through orthophotography captured in 2017 (aerial flyover) and 2019 (drone flyovers), sentinel satellite imagery, as well as using survey pickups and visual checks on the ground. Disturbance is assessed continuously and amendments made where additions or corrections are required. The most recent annual report, required under condition 8 (a) of the permit is provided in Appendix G.

### **5.2 Weed Management**

In accordance with condition 5 of CPS 7914/2, a weed management program is implemented at Cosmos to prevent and control invasive weed species. Targeted weed spraying is undertaken by environmental contractors annually and add hock spraying is undertaken inhouse by site-based environmental personnel. Report on June 2021 weed management program is provided in (Appendix F).

### **5.3 Water Course Management**

In accordance with condition 6 of the permit, where a water course may be impacted by clearing, ANI installs surface water infrastructure where required to control and direct surface water flows to minimise flooding and maintain the existing surface flow. This may include bunding, culverts, drainage lines or collection sumps. ANI also grade areas as required to ensure any potentially contaminated stormwater or runoff from clearing is directed to a designated collection area and treated accordingly if reused or disposed.

Surface water management is incorporated into the design of the site infrastructure for a 1 in 100-year event. Various flood inundation scenarios have been modelled. Drainage infrastructure has been constructed around key mining activities and landforms, with drainage channels diverting regional rainfall through and around the mine site to prevent flooding and preserve water quality.



## 5.4 Environmental Commitments

ANI is committed to Environmental Sustainability through its Environmental Policy, which includes minimising impacts on the environment and local communities. As part of this application ANI is proposing the following:

- ANI environmental personnel will undertake an internal ground and desktop search as per the Cosmos Land Use Procedure CNO-ENV-PRO-3316 targeting the proposed area to be cleared plus 50 m buffer.
- Avoid clearing large trees and fauna breeding habitat identified for conservation significant species.
- Avoid disturbing any significant drainage line so as not to alter its flow.
- Where possible, utilise previously disturbed areas to minimise impacts on natural bushland.
- Rehabilitate all sites and tracks as per the Cosmos Mine Closure Plan.
- Undertake weed control as per the Cosmos Weeds Spraying and Chemical Handling Procedure
- Avoid clearing Priority Flora (PF) and maintain a buffer area of 10 around and plants/populations identified. Where impacts to individual plants or buffer areas cannot be avoided, seek advice from DBCA prior to undertaking any works.



## REFERENCES

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## APPENDIX A: CPS 7914/2



## CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

<b>Purpose Permit number:</b>	7914/2
<b>Duration of Permit:</b>	From 3 March 2018 to 28 February 2023
<b>Permit Holder:</b>	Australian Nickel Investments Pty Ltd

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

### PART I - CLEARING AUTHORISED

**1. Land on which clearing is to be done**

Mining Lease 36/127  
Mining Lease 36/180  
Mining Lease 36/349  
Mining Lease 36/371  
Mining Lease 36/659

**2. Purpose for which clearing may be done**

Clearing for the purpose of mineral production and associated activities.

**3. Area of Clearing**

The Permit Holder must not clear more than 157 hectares of native vegetation. All clearing must be within the area cross-hatched yellow on attached Plan 7914/2.

**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.

### PART II - MANAGEMENT CONDITIONS

**5. 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*:

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

**6. Watercourse Management**

- (a) Where practicable the Permit Holder shall avoid clearing *riparian vegetation*; and
- (b) Where a *watercourse* is to be impacted by clearing, the Permit Holder shall maintain the existing surface flow.

### **PART III - RECORD KEEPING AND REPORTING**

#### **7. Records to be kept**

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

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;
- (iii) the size of the area cleared (in hectares); and
- (iv) purpose for which clearing was undertaken.

#### **8. Reporting**

- (a) The Permit Holder shall provide a report to the General Manager Environmental Compliance, Resource and Environmental Compliance Directorate, Department of Mines, Industry Regulation and Safety by 31 July each year for the life of this permit, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 7 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year.
- (b) Prior to 28 February 2023, the Permit Holder must provide to the General Manager Environmental Compliance, Resource and Environmental Compliance Directorate, Department of Mines, Industry Regulation and Safety a written report of records required under Condition 7 of this Permit where these records have not already been provided under Condition 8(a) of this Permit.

#### **DEFINITIONS**

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

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

*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;

*riparian vegetation* has the meaning given to it in Regulation 3 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004;

*watercourse* has the meaning given to it in section 3 of the *Rights in Water and Irrigation Act 1914*;

*weed/s* means any plant -

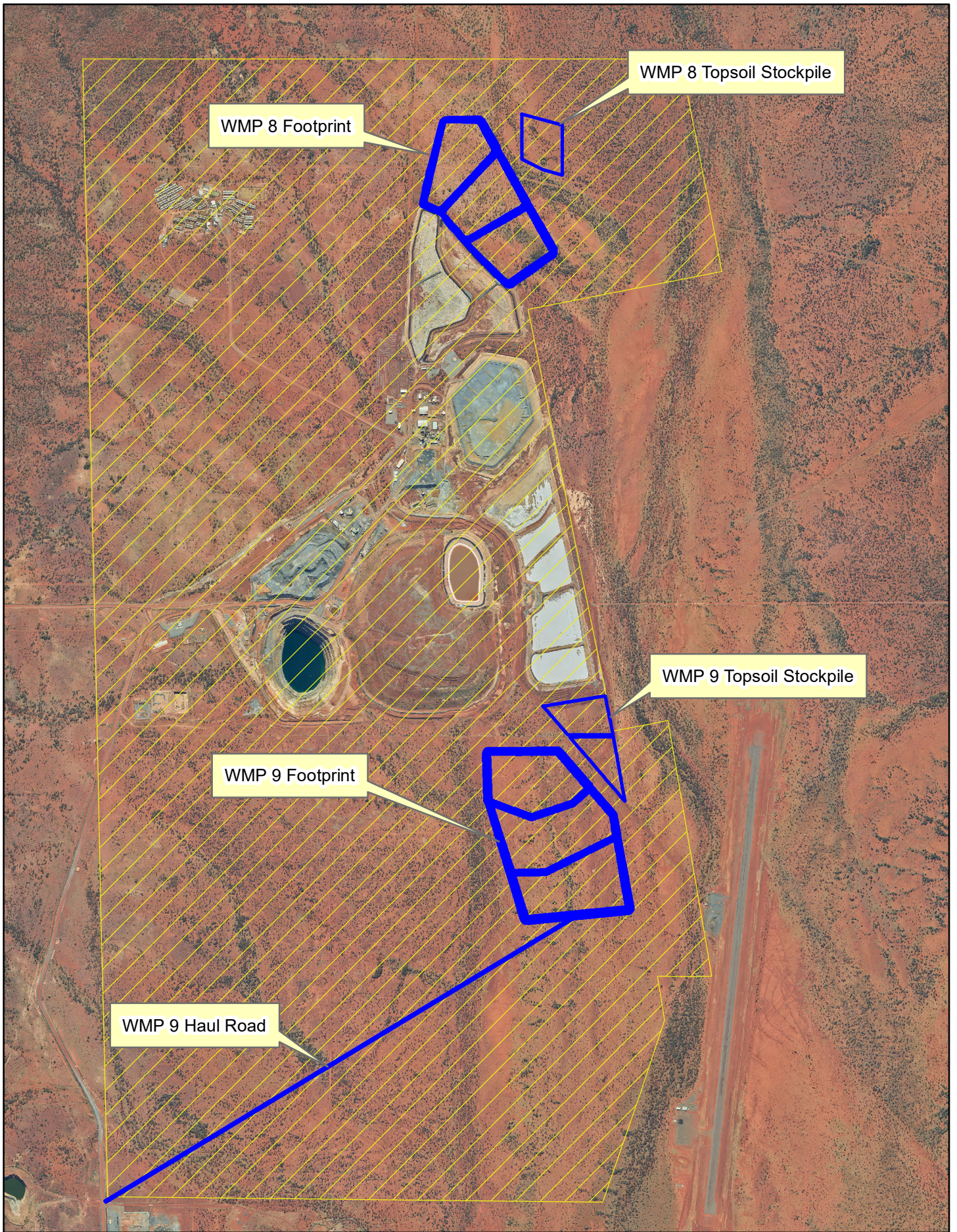
- (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
- (b) published in a Department of Biodiversity Conservation and Attractions Regional Weed Rankings Summary, regardless of ranking; or
- (c) not indigenous to the area concerned.



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Daniel Endacott  
General Manager Environmental Compliance  
Resource and Environmental Compliance Directorate  
02 August 2018

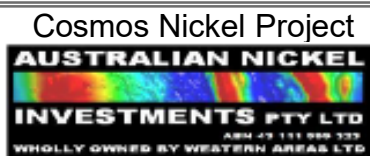
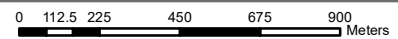
Officer with delegated authority under Section 20  
of the *Environmental Protection Act 1986*



CPS 7914/2 Clearing FY 18/19

Scale: 1:21,214

Date: 30/07/2019



Coordinate System: GDA 1994 MGA Zone 51  
 Projection: Transverse Mercator  
 Datum: GDA 1994  
 False Easting: 500,000.0000  
 False Northing: 10,000,000.0000  
 Central Meridian: 123.0000  
 Scale Factor: 0.9996  
 Latitude Of Origin: 0.0000  
 Units: Meter



**Legend**

- Clearing Area for FY 18/10
- CPS 7914/2 area



## APPENDIX B: TENEMENT TITLES



## MINING TENEMENT SUMMARY REPORT

**MISCELLANEOUS LICENCE 36/159**

Status: Live

### TENEMENT SUMMARY

**Area:** 19.22000 HA      **Death Reason :**  
**Mark Out :** 23/01/2001 08:30:00      **Death Date :**  
**Received :** 29/01/2001 11:54:00      **Commence :** 20/07/2001  
**Term Granted :** 21 Years

### CURRENT HOLDER DETAILS

**Name and Address**

AUSTRALIAN NICKEL INVESTMENTS PTY LTD  
MCMAHON MINING TITLE SERVICES PTY LTD, C/- MCMAHON MINING TITLE SERVICES PTY LTD, PO BOX 592, MAYLANDS, WA, 6931, xxxx@mmts.net.au, xxxxxxxxx997

### DESCRIPTION

**Locality:** SIR SAMUEL  
**Datum:** DATUM PEG SITUATED AT MGA ZONE 51  
6944978.187 NORTHING 259866.516 EASTING  
**Boundary:** THENCE TO 6944959.863 NORTHING 256032.737  
EASTING THENCE ALONG PORTION EASTERN  
BOUNDARY OF MISCELLANEOUS LICENCE NUMBER  
36/96 TO 6945009.758 NORTHING 256010.753  
EASTING THENCE TO 6945028.188 NORTHING  
259866.516 EASTING BACK TO DATUM

Area :	Type	Dealing No	Start Date	Area
	Granted		20/07/2001	19.22000 HA
	Applied For		23/01/2001	19.22000 HA

### SHIRE DETAILS

Shire	Shire No	Start	End	Area
LEONORA SHIRE	5040	23/01/2001		19.22000 HA

# MINING TENEMENT DETAILS REPORT

DISCLAIMER: This is not the official Register referred to in Reg. 84C of the Mining Regulations 1981.

## MINING LEASE 36/371

### Tenement Summary

<b>Identifier :</b> M 36/371	<b>District :</b> LAWLERS
<b>Current Area :</b> 771.50000 HA	<b>Status :</b> Live
<b>Mark Out :</b> 21/11/1995 18:40:00	<b>Received :</b> 22/11/1995 11:49:00
<b>Term Granted :</b> 21 Years (Renewed)	<b>Lodging Office :</b> LEONORA
<b>Commence :</b> 04/03/1999	<b>Expiry :</b> 03/03/2041
<b>Purpose :</b>	<b>Death :</b>

### OWNERSHIP DETAILS

#### Current Holders

Name and Address	Shares
AUSTRALIAN NICKEL INVESTMENTS PTY LTD (ACN:111599323) MCMAHON MINING TITLE SERVICES PTY LTD, C/- MCMAHON MINING TITLE SERVICES PTY LTD, PO BOX 592, MAYLANDS, WA, 6931, xxxx@mmts.net.au	100
<b>Total Shares:</b>	<b>100</b>

#### Holder Changes

Dealing	Status Date	From (Shares)	To (Shares)
A to A (Name) 298301	Recorded 25/08/2008 14:35:00	SIR SAMUEL MINES NL (100)	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)
Transfer 490664	Registered 14/07/2016 15:32:25	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)	AUSTRALIAN NICKEL INVESTMENTS PTY LTD (100)

#### Applicants on Receival

Name and Address	Shares
SIR SAMUEL MINES NL PO BOX 504, WEST PERTH, WA, 6872	100
<b>Total Shares:</b>	<b>100</b>

### NATIVE TITLE DETAILS

#### Native Title Referrals

DISCLAIMER: Complete Native Title Information is not available for this Tenement/Amalgamation

Date Referred	Referral Type	Procedure	Current Status
16/02/1996	Tenement Application		In Progress

End of Search

# MINING TENEMENT DETAILS REPORT

DISCLAIMER: This is not the official Register referred to in Reg. 84C of the Mining Regulations 1981.

## MINING LEASE 36/127

### Tenement Summary

<b>Identifier :</b> M 36/127	<b>District :</b> LAWLERS
<b>Current Area :</b> 606.30000 HA	<b>Status :</b> Live
<b>Mark Out :</b> 08/11/1988 11:50:00	<b>Received :</b> 08/12/1988 08:46:00
<b>Term Granted :</b> 21 Years (Renewed)	<b>Lodging Office :</b> LEONORA
<b>Commence :</b> 20/04/1989	<b>Expiry :</b> 19/04/2031
<b>Purpose :</b>	<b>Death :</b>

### OWNERSHIP DETAILS

#### Current Holders

Name and Address	Shares
AUSTRALIAN NICKEL INVESTMENTS PTY LTD (ACN:111599323) MCMAHON MINING TITLE SERVICES PTY LTD, C/- MCMAHON MINING TITLE SERVICES PTY LTD, PO BOX 592, MAYLANDS, WA, 6931, xxxx@mmts.net.au, xxxxxxxxxx997	100
<b>Total Shares:</b>	<b>100</b>

#### Holder Changes

Dealing	Status Date	From (Shares)	To (Shares)
Transfer 1588H/890	Registered 05/02/1990 00:00:00	SPARGOS MINING NL (50)	MUSWELLBROOK ENERGY AND MINERALS LTD (25)
Transfer 1576H/890	Registered 05/02/1990 00:00:00	QUEEN MARGARET GOLD MINES NL (50)	MUSWELLBROOK ENERGY AND MINERALS LTD (25)
Transfer 602H/934	Registered 02/12/1993 00:00:00	MUSWELLBROOK ENERGY AND MINERALS LTD (50)	FORSAYTH NL (50)
Transfer 2005H/967	Registered 05/05/1997 00:00:00	SPARGOS MINING NL (25)	FORSAYTH NL (25)
Transfer 2018H/967	Registered 05/05/1997 00:00:00	QUEEN MARGARET GOLD MINES NL (25)	FORSAYTH NL (25)
Transfer 2182H/990	Registered 20/06/2000 00:00:00	FORSAYTH NL (100)	LACHLAN RESOURCES NL (100)
Transfer 178H/023	Registered 10/09/2002 10:00:00	LACHLAN RESOURCES NL (100)	FORSAYTH NL (100)
Transfer 1210H/023	Registered 11/04/2003 09:40:00	FORSAYTH NL (100)	SIR SAMUEL MINES NL (100)
A to A (Name) 298301	Recorded 25/08/2008 14:35:00	SIR SAMUEL MINES NL (100)	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)



Transfer 488068	Registered 04/07/2016 12:00:00	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)	AUSTRALIAN NICKEL INVESTMENTS PTY LTD (100)
-----------------	--------------------------------------	--	--

## Applicants on Receival

Name and Address	Shares
SPARGOS MINING NL	50
C/- BEACH PETROLEUM NL, PO BOX 175, ADELAIDE, SA, 5001	
QUEEN MARGARET GOLD MINES NL	50
LEVEL 8, 563 ADELAIDE TERRACE, PERTH, WA, 6000	
<b>Total Shares:</b>	<b>100</b>

## NATIVE TITLE DETAILS

### Native Title Referrals

**DISCLAIMER: Complete Native Title Information is not available for this Tenement/Amalgamation**

Date Referred	Referral Type	Procedure	Current Status
	Tenement Application		

End of Search

# MINING TENEMENT DETAILS REPORT

DISCLAIMER: This is not the official Register referred to in Reg. 84C of the Mining Regulations 1981.

## MINING LEASE 36/180

### Tenement Summary

<b>Identifier :</b> M 36/180	<b>District :</b> LAWLERS
<b>Current Area :</b> 536.75000 HA	<b>Status :</b> Live
<b>Mark Out :</b> 08/02/1990 13:20:00	<b>Received :</b> 09/02/1990 10:02:00
<b>Term Granted :</b> 21 Years (Renewed)	<b>Lodging Office :</b> LEONORA
<b>Commence :</b> 04/07/1990	<b>Expiry :</b> 03/07/2032
<b>Purpose :</b>	<b>Death :</b>

### OWNERSHIP DETAILS

#### Current Holders

Name and Address	Shares
AUSTRALIAN NICKEL INVESTMENTS PTY LTD (ACN:111599323) MCMAHON MINING TITLE SERVICES PTY LTD, C/- MCMAHON MINING TITLE SERVICES PTY LTD, PO BOX 592, MAYLANDS, WA, 6931, xxxx@mmts.net.au, xxxxxxxxx997	100
<b>Total Shares:</b>	<b>100</b>

#### Holder Changes

Dealing	Status Date	From (Shares)	To (Shares)
Transfer 603H/934	Registered 02/12/1993 00:00:00	MUSWELLBROOK ENERGY AND MINERALS LTD (50)	FORSAYTH NL (50)
Transfer 2006H/967	Registered 05/05/1997 00:00:00	QUEEN MARGARET GOLD MINES NL (25)	FORSAYTH NL (25)
Transfer 2019H/967	Registered 05/05/1997 00:00:00	SPARGOS MINING NL (25)	FORSAYTH NL (25)
Transfer 2183H/990	Registered 20/06/2000 00:00:00	FORSAYTH NL (100)	LACHLAN RESOURCES NL (100)
Transfer 179H/023	Registered 10/09/2002 10:00:00	LACHLAN RESOURCES NL (100)	FORSAYTH NL (100)
Transfer 1211H/023	Registered 11/04/2003 09:40:00	FORSAYTH NL (100)	SIR SAMUEL MINES NL (100)
A to A (Name) 298301	Recorded 25/08/2008 14:35:00	SIR SAMUEL MINES NL (100)	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)
Transfer 488069	Registered 04/07/2016 12:00:00	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)	AUSTRALIAN NICKEL INVESTMENTS PTY LTD (100)

#### Applicants on Receival

Name and Address	Shares
------------------	--------

MUSWELLBROOK ENERGY AND MINERALS LTD 4TH FLOOR, 50 COLIN ST, WEST PERTH, WA, 6005	50
SPARGOS MINING NL 50 COLIN ST, WEST PERTH, WA, 6005	25
QUEEN MARGARET GOLD MINES NL 50 COLIN ST, WEST PERTH, WA, 6005	25
<b>Total Shares:</b>	100

## NATIVE TITLE DETAILS

### **Native Title Referrals**

**DISCLAIMER: Complete Native Title Information is not available for this Tenement/Amalgamation**

Date Referred	Referral Type	Procedure	Current Status
	Tenement Application		

End of Search

# MINING TENEMENT DETAILS REPORT

DISCLAIMER: This is not the official Register referred to in Reg. 84C of the Mining Regulations 1981.

## MINING LEASE 36/349

### Tenement Summary

<b>Identifier :</b> M 36/349	<b>District :</b> LAWLERS
<b>Current Area :</b> 796.00000 HA	<b>Status :</b> Live
<b>Mark Out :</b> 14/06/1995 17:20:00	<b>Received :</b> 15/06/1995 08:34:00
<b>Term Granted :</b> 21 Years (Renewed)	<b>Lodging Office :</b> LEONORA
<b>Commence :</b> 04/03/1999	<b>Expiry :</b> 03/03/2041
<b>Purpose :</b>	<b>Death :</b>

### OWNERSHIP DETAILS

#### Current Holders

Name and Address	Shares
AUSTRALIAN NICKEL INVESTMENTS PTY LTD (ACN:111599323) MCMAHON MINING TITLE SERVICES PTY LTD, C/- MCMAHON MINING TITLE SERVICES PTY LTD, PO BOX 592, MAYLANDS, WA, 6931, xxxx@mmts.net.au, xxxxxxxxxx997	100
<b>Total Shares:</b>	<b>100</b>

#### Holder Changes

Dealing	Status Date	From (Shares)	To (Shares)
A to A (Name) 298301	Recorded 25/08/2008 14:35:00	SIR SAMUEL MINES NL (100)	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)
Transfer 488076	Registered 08/06/2016 15:27:00	XSTRATA NICKEL AUSTRALASIA OPERATIONS PTY LTD (100)	AUSTRALIAN NICKEL INVESTMENTS PTY LTD (100)

#### Applicants on Receival

Name and Address	Shares
SIR SAMUEL MINES NL PO BOX 504, WEST PERTH, WA, 6872	100
<b>Total Shares:</b>	<b>100</b>

### DESCRIPTION DETAILS

#### Description

**Locality :** Kathleen Valley

**Datum :** Datum Peg situated at the north west corner of late surveyed MC 587

**Boundary :** THENCE:  
1000 metres bearing 90 degrees  
1000 metres bearing 360 degrees

100 metres bearing 70 degrees  
 4200 metres bearing 165 degrees  
 250 metres bearing 245 degrees  
 2425 metres bearing 170 degrees  
 800 metres bearing 270 degrees  
 280 metres bearing 360 degrees  
 375 metres bearing 270 degrees  
 800 metres bearing 360 degrees  
 1500 metres bearing 270 degrees  
 600 metres bearing 35 degrees  
 450 metres bearing 305 degrees  
 50 metres bearing 360 degrees  
 80 metres bearing 90 degrees  
 480 metres bearing 35 degrees  
 1800 metres bearing 360 degrees  
 1040 metres bearing 127 degrees  
 1200 metres bearing 35 degrees  
 1900 metres bearing 305 degrees  
 150 metres bearing 360 degrees

BACK TO DATUM

Area :	Type	Dealing No	Start Date	Area
	Surveyed		25/05/1999	796.00000 HA
	Granted		04/03/1999	811.00000 HA
	Applied For		14/06/1995	811.00000 HA

## RELATIONSHIPS

### Relationships

Relationship	Dealing No	Dealing Status	Tenement ID	Tenement Status
Section 49			P 36/1093	Dead
Section 49			P 36/1252	Dead
Section 49			P 36/1157	Dead
Section 49			P 36/1156	Dead
Section 49			P 36/1155	Dead
Section 49			P 36/1154	Dead

### State Agreement Conversions

Applicable Legislation	Effective Start	Effective End
------------------------	-----------------	---------------

## SURVEY DETAILS

### Survey

Surveyed Area	Surveyed Date	Surveyor`s Name	Field Book	Instruction Date	Project
796.00000 HA	25/05/1999	HAIGH, RE	59	15/03/1999	10818
<b>Standard Plan</b>		<b>Diagram</b>			
TENGRAPH		28704 (2572)			

## GENERAL DETAILS

### General

Objection Closing Date : 20/07/1995

Application Fee : \$165.40

File Reference : 9012/95

Survey Fee :

Receipt Number : 25330

### Special Indicator

Special Indicator	Start	End

## SHIRE DETAILS

### Shire

Shire	Shire No	Start	End	Area
LEONORA SHIRE	5040	14/06/1995		796.00000 HA

## NATIVE TITLE DETAILS

### Native Title Referrals

DISCLAIMER: Complete Native Title Information is not available for this Tenement/Amalgamation

Date Referred	Referral Type	Procedure	Current Status
20/10/1995	Tenement Application		In Progress

## GRANT DETAILS

### Recommendation

Recommended for : Grant 09/08/1995

### Grant

Granted : 03/03/1999      Holder Notified : 04/03/1999      Licence/Lease issued :

### Term

Term : 21 Years (Renewed)      From : 04/03/1999      To : 03/03/2041

## ENDORSEMENTS/CONDITIONS DETAILS

### Endorsements and Conditions

#	ENDORSEMENTS	Start Date	End Date
1	The lessee's attention is drawn to the provisions of the Aboriginal Heritage Act, 1972.	04/03/1999	



## APPENDIX C: LETTER OF AUTHORITY

**WESTERN AREAS LTD**



Level 2, 2 Kings Park Road / PO BOX 1891 West Perth WA 6872

West Perth, WESTERN AUSTRALIA, 6005

Ph: (08) 9334 7777

Fax: (08) 9486 7866

Website: [www.westernareas.com.au](http://www.westernareas.com.au)

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Department of Mines, Industry Regulation and Safety  
100 Plain St,  
East Perth WA 6004


23 September 2021

To whom it May Concern,

**Letter of Authority to sign environmental approval applications on behalf of WSA and ANI**

This letter authorises Bryan Williams, Group Manager Environment and Heritage, to sign environmental approval applications on behalf of Western Areas Ltd (WSA) and Australian Nickel Investments Pty Ltd (ANI), a wholly owned subsidiary.

Yours Sincerely



6/10/21

Dan Lougher  
CEO/Managing Director  
Western Areas Ltd



6/10/21

Joseph Belladonna  
Chief Financial Officer  
Western Areas Ltd





## APPENDIX D: CLIMATE DATA

Figure 5: Leinster Annual Rainfall 2001 - 2021

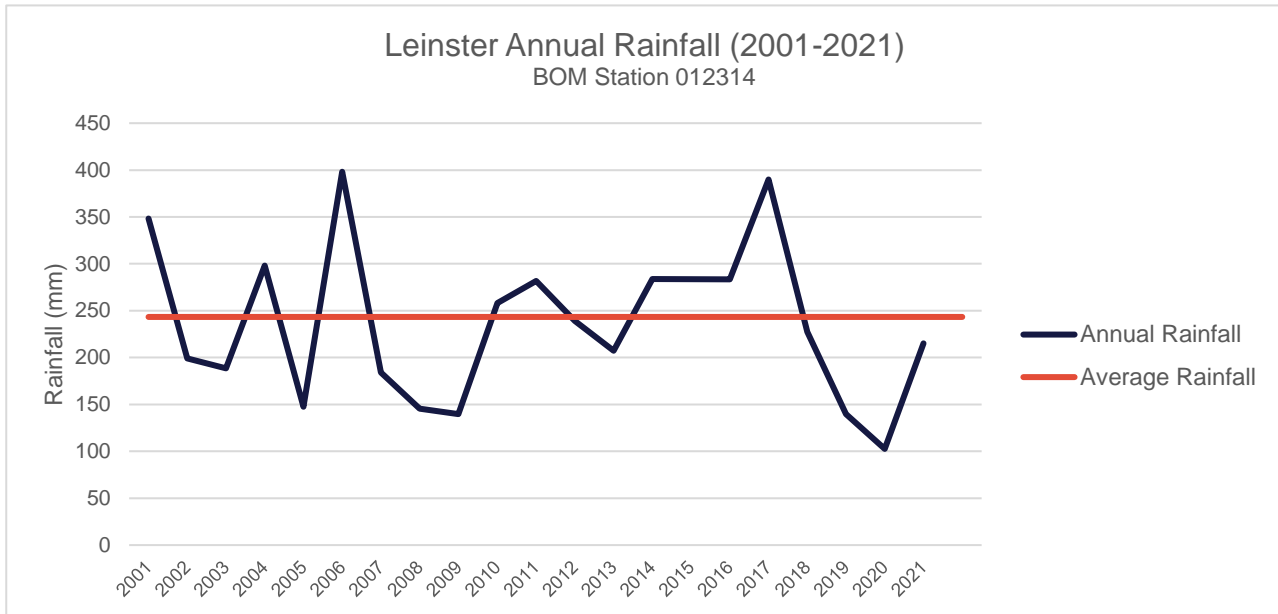
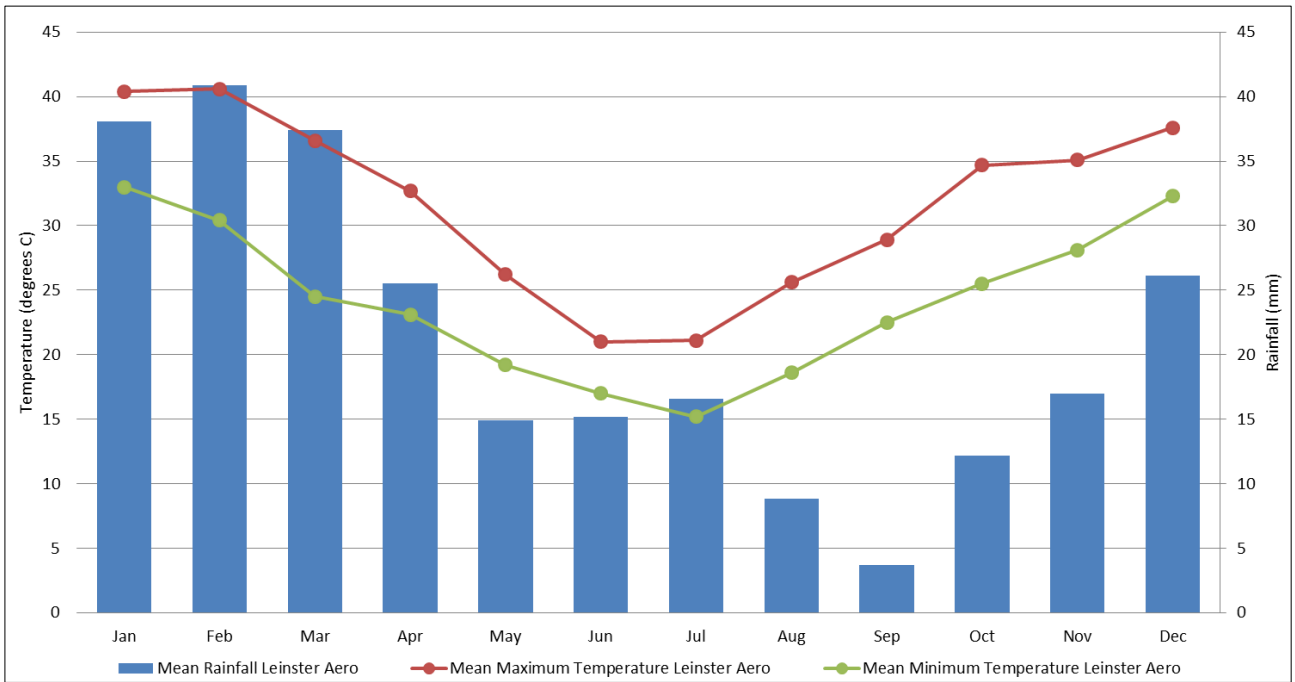


Table 2: Leinster Aerodrome Monthly Rainfall (2012 – 2021)

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jan	82	41	110	0	74	17	32	1	48	18
Feb	22	2	32	0	33	114	75	24	31	54
Mar	47	69	25	----	45	194	3	45	5	41
Apr	0	0	12	----	22	16	7	46	3	2
May	12	31	34	----	9	0	0	1	0	33
Jun	19	13	5	----	28	2	17	7	1	1
Jul	2	29	0	2	30	0	3	1	0	11
Aug	1	0	1	6	14	14	9	7	11	1
Sep	2	15	0	0	0	6	2	0	0	5
Oct	3	0	34	3	1	15	21	0	1	8
Nov	23	1	17	12	0	8	40	0	0	37
Dec	27	6	13	40	27	4	19	8	3	6
<b>Total</b>	<b>239</b>	<b>207</b>	<b>284</b>	<b>63</b>	<b>283</b>	<b>390</b>	<b>228</b>	<b>140</b>	<b>103</b>	<b>215</b>



Figure 6: Leinster Aerodrome Climate Monthly Averages





## APPENDIX E: CONSERVATION SIGNIFICANT FAUNA

Table 3: Conservation Significant Fauna

Species Name	Conservation Significance	Habitat Preference	Records within Premises Boundary	Impact assessment
Grey Falcon <i>Falco hypoleucos</i>	VU (EPBC) VU (BCA)	Lightly timbered and un-timbered lowland plains that are crossed by tree-lined watercourses. Frequents other habitats including grassland and sand dune habitats.	Not previously recorded within CPS 7914/2 boundary but could possibly occur on occasion.	Based on the mobility of this species and abundant suitable habitat located outside of the proposed clearing envelope, the proposed clearing is not expected to have a significant impact to this species.
Malleefowl <i>Leipoa ocellata</i>	VU (EPBC) VU (BCA)	Arid and semi-arid woodland dominated by mallee eucalypts on sandy soils, with less than 430 mm annual rainfall. May occur in Mulga, <i>Acacia aneura</i> and other sclerophyllous associations. In Western Australia, Malleefowl may also be found in coastal heath where shrubs produce sufficient leaf litter for use in nest mounds.	Not previously recorded within the CPS 7914/2 boundary but records known within the nearby local area.	Closest records are 20km north and 33 km west of the Project. This species has not been recorded at the Project in any previous survey work completed (since 2004), thus, the clearing is not impacted to have a significant impact on this species.
Night Parrot <i>Pezoporus occidentalis</i>	EN (EPBC) EN (BCA)	<i>Triodia</i> dominated breakaways and samphire covered margins of salt lakes.	Not previously recorded within the CPS 7914/2 boundary, nearest records 300 km from the project though habitat likely	Based on the mobility of this species and abundant suitable habitat located outside of the proposed clearing envelope, if it did occur, the proposed clearing is not expected to have a significant impact to this species.
Great Desert Skink <i>Liopholis kintorei</i>	VU (EPBC) VU (BCA)	Spinifex ( <i>Triodia</i> spp.) grasslands on sandplains and in areas between sand dunes.	Not previously recorded within the CPS 7914/2 boundary. Single historical record trapped at Kathleen Station.	Western edge of the additional clearing area (~200m) is moving into <i>Triodia</i> understorey (boundary) but is not considered suitable habitat for this species.
Princess Parrot <i>Polytelis alexandrae</i>	VU (EPBC) Priority 4	Shrublands and savannah woodlands amongst <i>Triodia</i> dominated sand dunes. Vegetated riverine and littoral areas.	Not previously recorded within CPS 7914/2 boundary and considered highly unlikely to occur.	Preferred habitat for this species is not located in the additional clearing area, thus, there is not expected to be any impact on this species.
Chuditch, Western Quoll <i>Dasyurus geoffroii</i>	VU (EPBC) VU (BCA)	Woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. Utilise hollow logs and burrows.	Not previously recorded within CPS 7914/2 boundary and considered highly unlikely to occur.	Preferred habitat for this species is not located in the additional clearing area, thus, there is not expected to be any impact on this species.
Grey Wagtail <i>Motacilla cinerea</i>	MIG TER (EPBC) MIG (BCA)	Likely to visit Australia only rarely as a wandering vagrant or off course migrant.	Not previously recorded within CPS 7914/2 boundary and considered highly unlikely to occur.	Preferred habitat for this species, comprising wetlands/watercourses, is not located in the additional clearing area, thus, there is not expected to be any impact to this species.



Species Name	Conservation Significance	Habitat Preference	Records within Premises Boundary	Impact assessment
Yellow Wagtail <i>Motacilla flava</i>	MIG TER (EPBC) MIG (BCA)	Likely to visit Australia only rarely as a wandering vagrant or off course migrant.	Not previously recorded within CPS 7914/2 boundary and considered highly unlikely to occur.	Preferred habitat for this species, comprising wetlands/watercourses, is not located in the additional clearing area, thus, there is not expected to be any impact to this species.
Common Sandpiper <i>Actitis hypoleucos</i>	MIG WET (EPBC) MIG (BCA)	Coastal or inland wetlands, both saline and fresh. Utilises muddy edges or rocky shores. Breeds in Europe and Asia.	Not previously recorded within CPS 7914/2 boundary but could possibly occur on occasion at Lake Miranda.	This species does not rely on habitat within the proposed clearing area for breeding and while it may fly over the area, will not be impacted by the proposed clearing.
Sharp-tailed Sandpiper <i>Calidris acuminata</i>	MIG WET (EPBC) MIG (BCA)	Grassy edges of shallow inland freshwater wetlands. Also found at flood fields, mudflats, mangroves, rocky shores and beaches. Breeds in Siberia.	Not previously recorded within CPS 7914/2 boundary but may occur on occasion at Lake Miranda.	This species does not rely on habitat within the proposed clearing area for breeding and while it may fly over the area, will not be impacted by the proposed clearing.
Pectoral Sandpiper <i>Calidris melanotos</i>	MIG WET (EPBC) MIG (BCA)	Coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. Breeds in Russia and North America.	Not previously recorded within CPS 7914/2 boundary but may occur on occasion at Lake Miranda.	Preferred habitat for this species is not located in the proposed additional area of clearing, thus no impact to this species is expected.
Oriental Plover <i>Charadrius veredus</i>	MIG WET (EPBC) MIG (BCA)	Sparsely vegetated plains, flat edges of lakes and lagoons as well as sea shores across much of northern Australia.	Not previously recorded within CPS 7914/2 boundary but may occur on occasion at Lake Miranda.	This species does not rely on habitat within the proposed clearing area for breeding and while it may fly over the area, will not be impacted by the proposed clearing.
Red-necked Stint <i>Calidris ruficollis</i>	MIG WET (EPBC) MIG (BCA)	Coast in sheltered inlets, bays, lagoons, estuaries, intertidal mudflats and protected sandy or coralline shores. They may also be seen in salt works, sewage farms, saltmarsh, shallow wetlands including lakes, swamps, riverbanks, waterholes, bore drains, dams, soaks and pools in salt flats, flooded paddocks or damp grasslands. Breed in the Arctic regions.	One opportunistic sighting recorded within CPS 7914/2 boundary.	This species does not rely on habitat within the proposed clearing area for breeding and while it may fly over the area, will not be impacted by the proposed clearing.
Black-tailed Godwit <i>Calidris ruficollis</i>	MIG WET (EPBC) MIG (BCA)	Estuarine mudflats, beaches and mangroves. Common in coastal areas around Australia. Breeding in Iceland, Europe and Central Asia.	One opportunistic sighting recorded within CPS 7914/2 boundary.	This species does not rely on habitat within the proposed clearing area for breeding and while it may fly over the area, will not be impacted by the proposed clearing.



Species Name	Conservation Significance	Habitat Preference	Records within Premises Boundary	Impact assessment
Trapdoor spider <i>Kwonkan moriartii</i>	Priority 2	Poorly known taxa.	Not previously recorded within the CPS 7914/2 boundary.	No nearby records of this species. The habitat in the proposed clearing area is typical of those occurring in the wider region and contiguous with very similar habitat extending beyond the Project, thus, if it were to occur, there are no significant impacts expected to this species.
Brush-tailed Mulgara <i>Dasyercus blythii</i>	Priority 4	<i>Triodia</i> dominated sandplain and dune field. Burrows constructed in dune swales and slopes.	Not previously recorded within CPS 7914/2 boundary.	Preferred habitat for this species is not recorded in the additional clearing area, thus, this species is not expected to be impacted by the proposed clearing.
Striated Grasswren (inland) <i>Amytornis striatus subsp. striatus</i>	Priority 4	Open mallee over a sparse layer of shrubs and a ground layer dominated by spinifex ( <i>Triodia</i> ), though they are sometimes found in other vegetation types.	Not previously recorded within CPS 7914/2 boundary, likely to occur within CPS 7914/2 boundary where <i>Triodia</i> -dominated habitat on sandy to loamy plains is present.	Preferred habitat for this species is not recorded in the additional clearing area. Given the linear nature of the proposed clearing and the mobility of this species, if it did occur, the clearing is not expected to have any impact on this species.
Peregrine Falcon <i>Falco peregrines</i>	OS (BCA)	Widespread; coastal cliffs, riverine gorges and wooded watercourses, abandoned open pits.	Several opportunistic sightings within CPS 7914/2 boundary.	Based on the mobility of this species and abundant suitable habitat located outside of the proposed clearing envelope, the proposed clearing is not expected to be a significant impact to this species.
Arid Bronze Azure Butterfly	CR EN (EPBC) CR EN (BCA)	Mature mixed gimlet <i>Eucalyptus salubris</i> / <i>E.salmonophloia</i> woodlands on red-brown loam soils, with an open understorey. In addition to gimlet and salmon gum, other smooth-barked eucalyptus at these sites which have basal ant colonies include <i>E. capilosa</i> subsp. wandoo, <i>E. loxophleba</i> subsp. <i>lissophloia</i> and <i>E. sheathiana</i> associated with the host ant colony.	Nil.	As suitable habitat for this species (smooth barked Eucalypts) is not located in the additional clearing area (or Project area), this species will not be impacted.

EN = Endangered; VU = Vulnerable; OS = Specially Protected; MIG WET = Migratory Wetland; MIG TER = Migratory Terrestrial; Priority = DBCA Priority Fauna List; EPBC = Environmental Protection and Biodiversity Conservation Act (1999) (Commonwealth); BCA = Biodiversity Conservation Act 2016 (State)



## APPENDIX F: WEED MANAGEMENT REPORT



**WESTERN AREAS LTD**

**ENVIRONMENT**

**COSMOS NICKEL OPERATION**

**REPORT ON WEED MANAGEMENT PROGRAM**

**JUNE 2021**

**WESTERN AREAS LTD**  
**ENVIRONMENT**  
**COSMOS NICKEL OPERATION**

**REPORT ON WEED MANAGEMENT PROGRAM**

**JUNE 2021**

***CONTENTS***

- Background & Summary
- Methodology
- Figure 1 – Map of weed control per day
- Table 1 – Weed control data for program
- Figure 2 – Map of photo-monitoring locations
- Table 2 – Photo-monitoring data
- Discussion
- Recommendations
- Appendix 1 - Photos





## Background & Summary

- Western Areas Ltd provided Western Red Environmental with the 'Scope of Works – Weed Control Program, Environment, Cosmos Nickel Operation' document on the 29<sup>th</sup> April 2021.
- Western Red Environmental provided a formal response to the scope of works on the 14<sup>th</sup> May 2021 and this formally accepted on the 14<sup>th</sup> June 2021.
- Western Red Environmental commenced travelled to site on the 16<sup>th</sup> June 2021.
- Works were undertaken as per the scope of works and general/specific methodology, as determined and agreed upon by both parties, between the 17<sup>th</sup> and 21<sup>st</sup> June 2021.
- Western Red Environmental commenced travelled from the site on 22<sup>th</sup> June 2021.

## Methodology

The general and specific methodology used on through the program was in keeping with the program proposal and scope.

Please see below for a brief outline of equipment and herbicide used and general daily breakdown.

### Equipment

- 2021 Triton
- TTI 1000L Super Trailer
  - remote control
  - twin reel with 100m hose per reel
  - Honda pump motor
  - Bertollini pump and regulator
- Electric backpacks

### Herbicide mix components and concentrations

- Glyphix (Glyphosate) – 1% or 1L/100L
- Surefire (Metsulfuron) – 3g/100L
- Grazon Extra (Picloram & Triclopyr) – 0.4% or 0.4L per 100L
- Pulse – (Penetrant/Surfactant) – 0.2% or 0.2L per 100L
- Endorse – (Oil Based Sticker) - 0.2% or 0.2L per 100L
- Envirodye Red (Rodamine free spray marker dye) - 0.2% or 0.2L per 100L

Each day was generally comprised of the following routine:

- 05.45-06.00- Daily pre-start meeting
- 06.00-06.45 – Filling up, mixing, planning, travel to work location
- 06.45-10.00 – Spray mapped work areas in keeping with scope and planning
- 10.00-10.30 – Break
- 10.30-14.00 - Spray mapped work areas in keeping with scope and planning
- 14.00-14.30 – Break/check of progress against daily & program target
- 14.30-17.30 - Spray mapped work areas in keeping with scope and planning
- 17.30-18.00 – Completion of daily administrative tasks e.g. herbicide application records and tracking of progress against targets

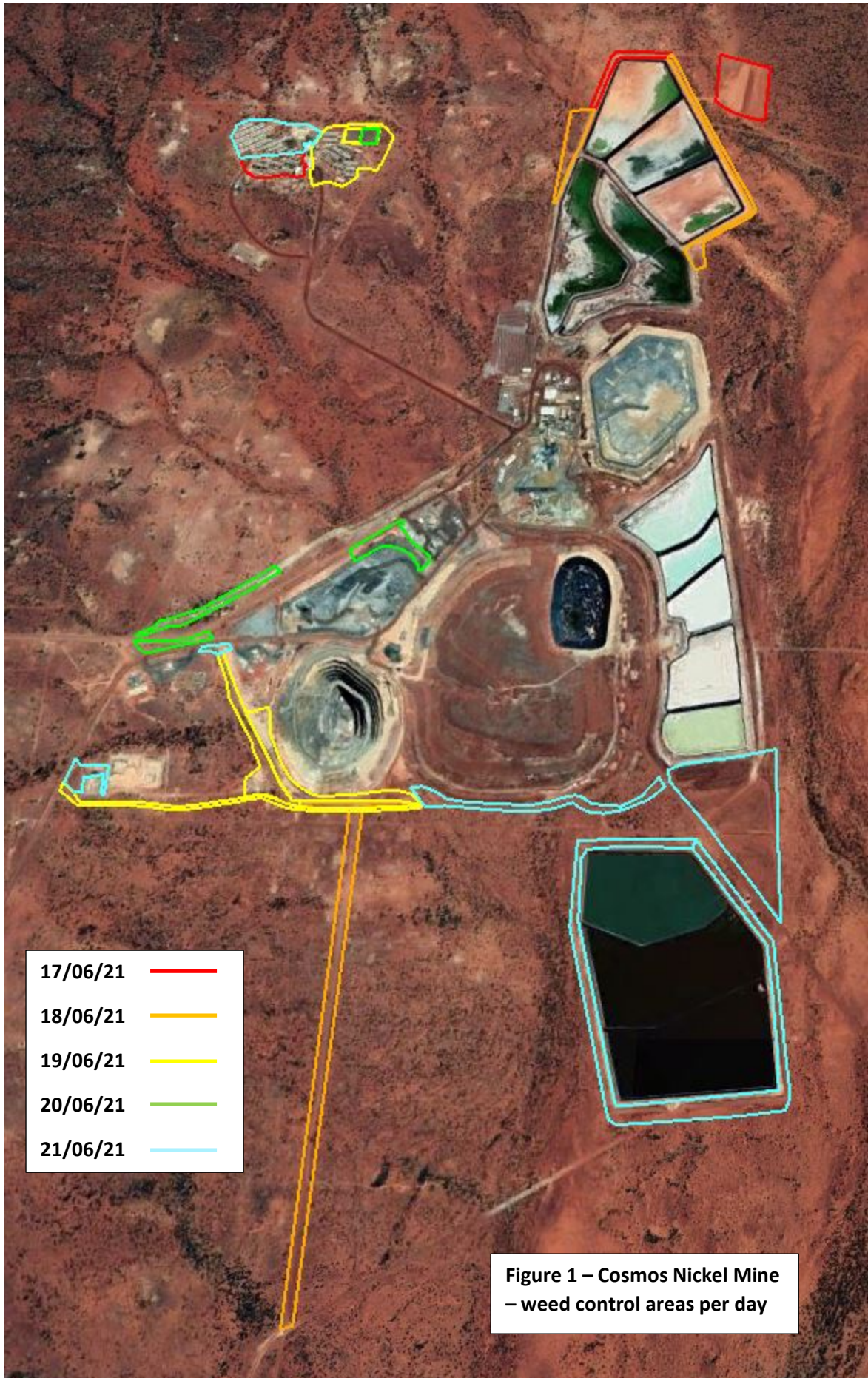


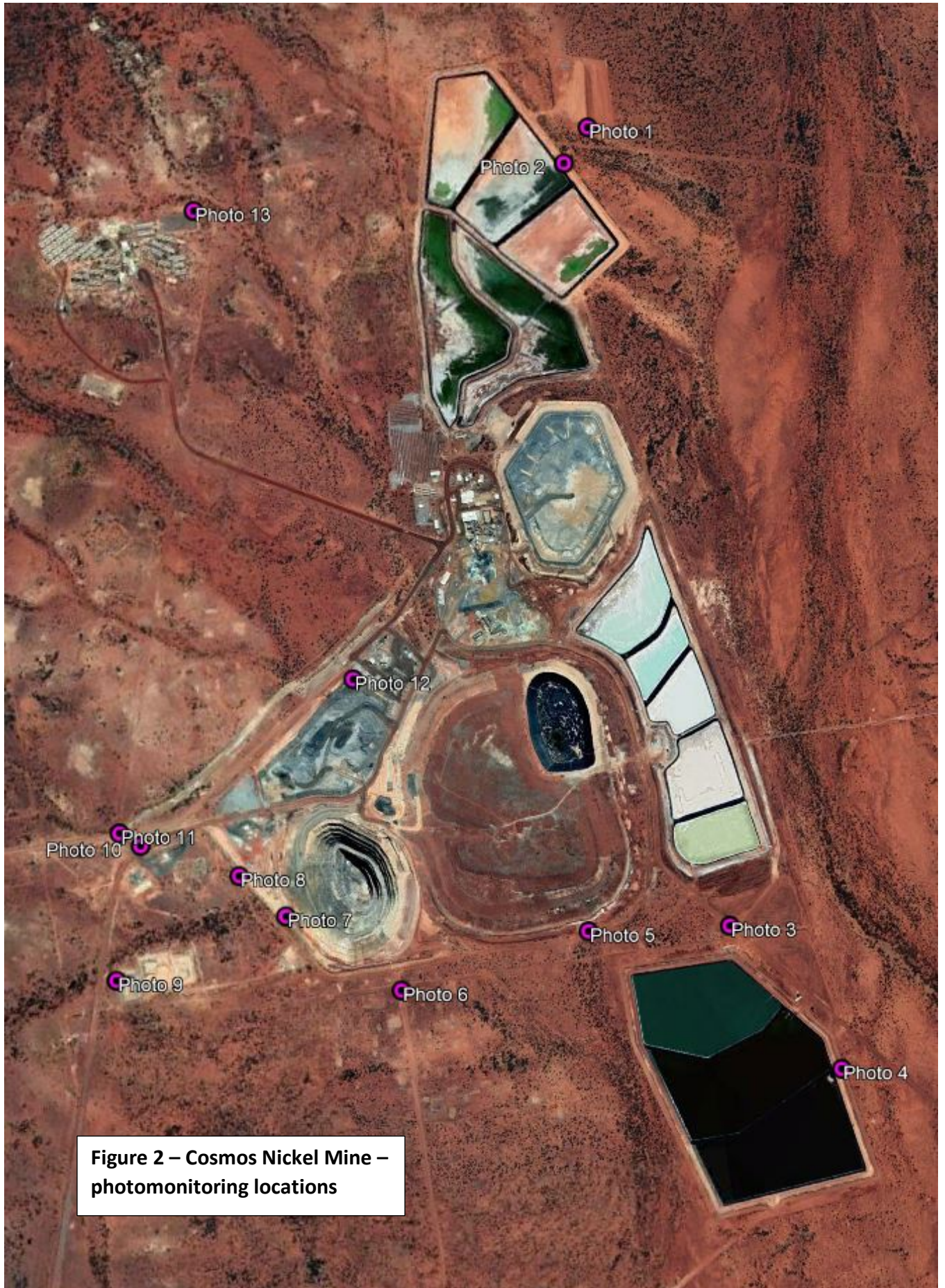
Figure 1 – Cosmos Nickel Mine  
– weed control areas per day

**Table 1. Weed Control Data for Program**

Date	Map Area or Description*	Hectares**	L/hA	Weed Cover	Main Weed Species
17/06/2021	2	0.77	77.92	Light	Roly Poly
17/06/2021	3	3.47	4.32	Very Light	Roly Poly
17/06/2021	14	1.54	16.23	Light	Mixed
18/06/2021	2	3.27	30.58	Light	Roly Poly
18/06/2021	South Rd	5	5.00	Very Light	Roly Poly/Ruby Dock
18/06/2021	Trench	0.57	307.02	Moderate	Ruby Dock/Roly Poly
19/06/2021	Trench & RUC Compound	1.87	173.80	Moderate	Ruby Dock/Roly Poly
19/06/2021	Road South of Pit	1.99	37.69	Light	Ruby Dock
19/06/2021	14	4.1	6.10	Light	Mixed
19/06/2021	14 - Sport Field	0.25	900.00	Dense	Roly Poly
20/06/2021	14 - Sports Field	0.25	900.00	Dense	Roly Poly
20/06/2021	Median north of Fuel Farm	0.55	145.45	Moderate	Ruby Dock
20/06/2021	Rock wall northwest of Main Rd	1.1	72.73	Light	Ruby Dock
20/06/2021	Construction Offices	1.37	102.19	Light/Moderate	Ruby Dock
21/06/2021	Area south of Main Rd	0.19	105.26	Light/Moderate	Ruby Dock
21/06/2021	10 - Landfill Facility	0.67	29.85	Light	Ruby Dock
21/06/2021	East/West Road to Topsoil/WMP9	1.82	10.99	Very Light	Roly Poly
21/06/2021	4	8.74	2.29	Very Light	Roly Poly/Ruby Dock
21/06/2021	1	7.37	1.36	Very Light	Roly Poly
21/06/2021	14	3.18	28.30	Light	Mixed
<b>Average</b>			<b>147.85</b>		
<b>Total</b>		<b>48.07</b>			

\*Doc. # CNO-MP-EN-0093\_Weed Control Programme

\*\* Based on tracking on site and GIS mapping post program



**Figure 2 – Cosmos Nickel Mine –  
photomonitoring locations**

**Table 2. Photo-monitoring Data**

<b>Photo #</b>	<b>Area</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Perspective / Direction</b>
1	Topsoil	27°34'52.19"S	120°35'13.02"E	N
2	WMP8	27°34'55.22"S	120°35'9.84"E	SE
3	Topsoil	27°36'10.19"S	120°35'14.00"E	NNW
4	WMP9	27°36'25.54"S	120°35'23.43"E	SSE
5	East/West Road to Topsoil/WMP9	27°36'8.48"S	120°34'58.78"E	W
6	South Rd	27°36'11.14"S	120°34'37.70"E	NNW
7	Road South of Pit	27°36'2.28"S	120°34'26.66"E	SE
8	Area south of Main Rd	27°35'57.72"S	120°34'22.37"E	SE
9	10 - Landfill Facility	27°36'5.71"S	120°34'7.37"E	S
10	Median north of Fuel Farm	27°35'53.30"S	120°34'12.35"E	E
11	Rock wall northwest of Main Rd	27°35'51.77"S	120°34'10.32"E	NE
12	Construction Offices	27°35'40.85"S	120°34'38.09"E	SW
13	Village	27°34'53.88"	120°34'29.36"E	W

Note: All photos were taken on 21/06/21 (2.19PM-3.33PM)

## Discussion

Some key points of discussion regarding implementation of the program are as follows:

### Job Planning, Management and Execution

- According to the data presented in Figure 1 and Table 1 of this report Western Red Environmental met the mapping and area criteria of the scope of works.
- All priority areas marked (34.87 Ha) were covered in accordance with – 'Figure 2: Cosmos Site Plan and Areas of Priority' of the scope of works document.
- Actual area covered, based on site tracking and desktop GIS mapping was 48.07 Ha (Table 1).
- This equates to 138% of target.

### Plant and Equipment

- The Supertrailer was useful for roadside weed and heavy infestations such as rockwalls, medians and the old sports field at the village.
- Electric backpacks were useful for getting into awkward, hard to reach areas and light infestations such as steep slopes, around village buildings and topsoil areas.

### Efficacy

- The mix that we selected for application appeared to spread well on the plant leaf surface.
- The Ruby Dock appeared to be metabolise the herbicide mixture quickly and was wilting for the most part by the time we left site.
- Western Red Environmental would appreciate feedback on when the Roly Poly started to wilt.

### Support & Supervision

- Had an optimal level of supervision, direction & guidance to enable safe and effective program delivery.
- Western Red was had an appropriate level of autonomy to undertake task safely and efficiently.

## Recommendations

- Commencement of next program in April or May 2022
  - Daylight hours are reduced in June
  - This will allow for more field work to be done each day including spray application, mixing, filling etc
- Increase on-site weed control program works days for the 2022 to seven days
  - This would allow other areas to be treated such as the road in from the Goldfields Hwy to the entry gate
  - Around other existing infrastructure on site





Photo 1. Topsoil (Area 3) – Looking North



Photo 2. WMP8 (Area 2) – Looking South-East



Photo 3. Topsoil (Area 4) – Looking North-North-West



Photo 4. WMP9 (Area 1) – Looking South-South-East



Photo 5. East/West Road to Topsoil/WMP9 – Looking West



Photo 6. South Road – Looking North-North-West



Photo 7. Road South of Pit – Looking South-East



Photo 8. Area South of Main Rd – Looking South-East



Photo 9. Landfill Facility – Looking South



Photo 10. Median North of Fuel Farm – Looking East



Photo 11. Rock Wall Northwest of Main Road – Looking North-East

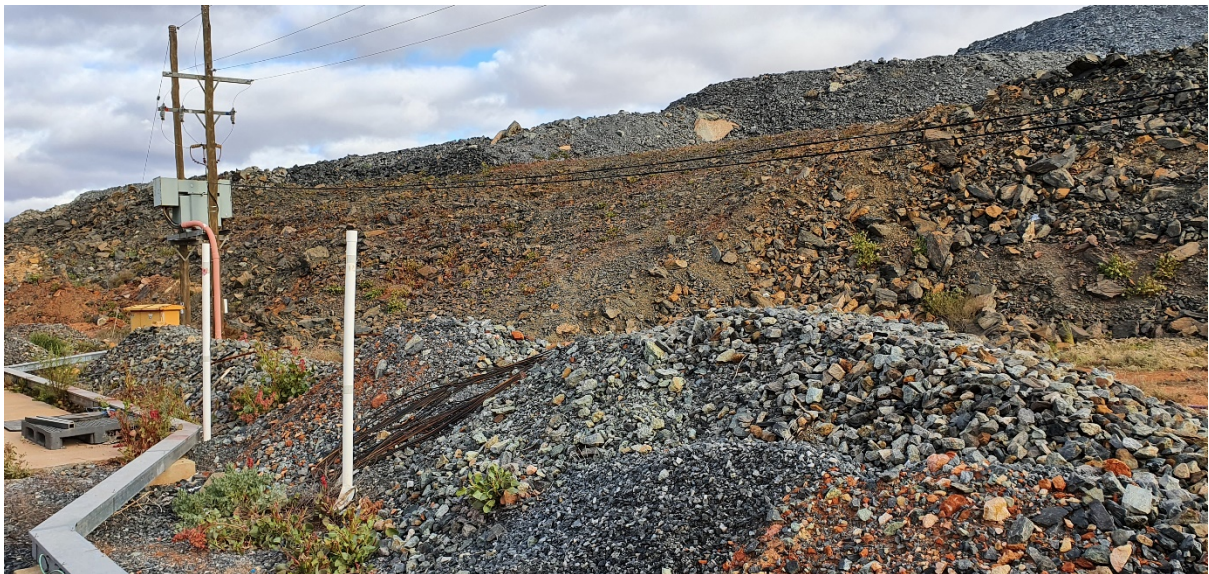


Photo 12. Construction Offices – Looking South-West



Photo 13. Village (Old Sports Field) – Looking West



**APPENDIX G: CPS 7914/2 ANNUAL REPORT - 2021**





# **Annual Clearing Permit Report for CPS 7914/2**

**ENVIRONMENT**

**COSMOS NICKEL OPERATION**

30 JUNE 2021



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## 1.0 INTRODUCTION

Clearing activities for the purpose under CPS 7914/2 (the permit) and undertaken at the Cosmos Nickel Operation (Cosmos) by Australian Nickel Investments Pty Ltd (ANI) are compliant with associated conditions of the permit. An internal annual compliance audit demonstrates adherence to all permit conditions (Table 1). ANI has therefore met compliance with the permit for the annual reporting period (1 July 2020 to 30 June 2021).

### 1.1 Adherence to all conditions has been achieved

ANI authorises clearing at Cosmos in accordance with permit conditions where required. Internal authorisation is permitted through the Land Use Permit (LUP) system. The permit system checks all relevant approvals prior to clearing and places associated approval conditions on the LUP which the applicant is required to meet. Applicants have a responsibility to undertake clearing in accordance with the LUP and supervise all associated activities. The Environmental Department reviews each LUP post completion to check compliance. To date there have been no recorded deviations to LUPs associated with the permit making ANI compliant.

A compliance statement for each condition of the permit has been included as Table 1 as part of the internal compliance audit undertaken on 30 June 2021 for CPS 7914/2. Clearing activities undertaken in accordance with the permit are depicted as Figure 1. Clearing undertaken during the reporting period is set out in Table 2.

**Table 1: Compliance Statement for Clearing Permit 7914/2**

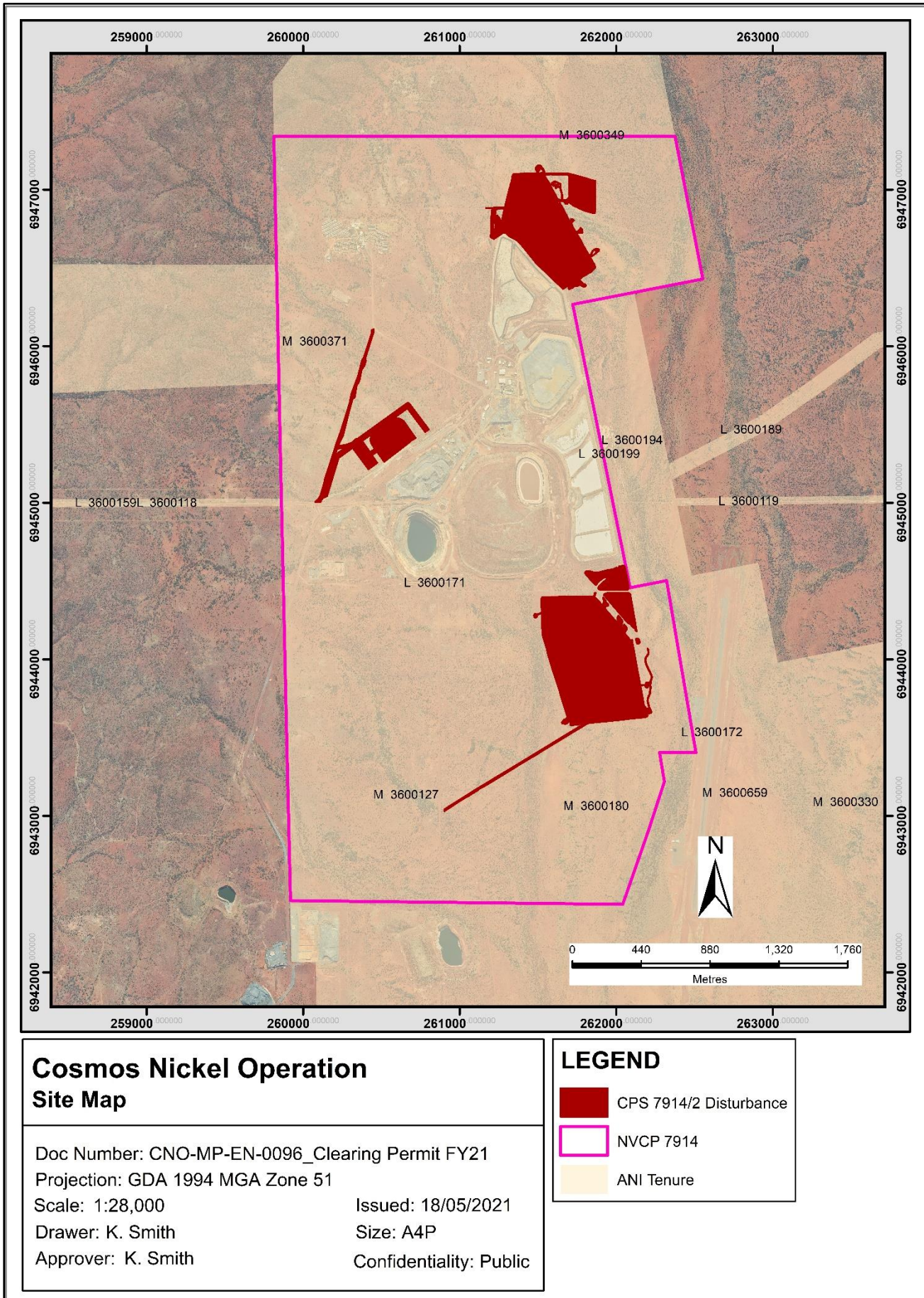
Number	Condition	Compliance Statement
1	Land on which clearing is to be done: Mining Lease 36/127 Mining Lease 36/180 Mining Lease 36/349 Mining Lease 36/371 Mining Lease 36/659	Clearing under this permit has been undertaken on tenements M36/127, M36/180, M36/371 and M36/349.
2	Purpose for which clearing may be done: Clearing for the purpose of mineral production and associated activities	Clearing has been undertaken for mineral production and associated activities.
3	Area of Clearing The Permit Holder must not clear more than 157 hectares of native vegetation. All clearing must be within the area cross-hatched yellow on attached Plan 7914/2.	Clearing undertaken to date is 88.23Ha which is within the 157Ha limit. Clearing was undertaken within the cross-hatched yellow of the Plan 7914/2 of the Permit.
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.	ANI authorises persons to clear under the LUP system. The applicant is required to adhere to conditions under the LUP.
5	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:	Earth moving machinery is required to be clean prior to starting earthmoving works and is then restricted to that area until works are completed.



	<p>(i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;</p> <p>(ii) ensure that no weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and</p> <p>(iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.</p>	<p>ANI undertakes weed spraying at Cosmos and maintains a site weed register for better management and control of weed affected areas.</p>
6	<p>Watercourse Management</p> <p>(a) Where practicable the Permit Holder shall avoid clearing riparian vegetation; and</p> <p>(b) Where a watercourse is to be impacted by clearing, the Permit Holder shall maintain the existing surface flow.</p>	<p>No riparian vegetation has been recorded within the clearing permit envelope.</p> <p>Surface water flow modelling was undertaken to determine associated impacts from activities. Drainage design to maintain existing surface flows was undertaken and implemented as required.</p>
7	<p>Records to be kept - The Permit Holder must maintain the following records for activities done pursuant to this Permit:</p> <p>In relation to the clearing of native vegetation authorised under this Permit:</p> <p>(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;</p> <p>(ii) the date that the area was cleared;</p> <p>(iii) the size of the area cleared (in hectares); and</p> <p>(iv) purpose for which clearing was undertaken.</p>	<p>Records are kept by ANI within the records management system. This includes location, date, size and purpose for which the clearing was undertaken. Clearing undertaken during the reporting period is presented in Table 2.</p>
8a	<p>Reporting - The Permit Holder shall provide a report to the General Manager Environmental Compliance, Resource and Environmental Compliance Directorate, Department of Mines, Industry Regulation and Safety by 31 July each year for the life of this permit, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 7 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year.</p>	<p>Three reports have been submitted for this permit covering financial year periods:</p> <ul style="list-style-type: none"> <li>- 2018/19</li> <li>- 2019/20</li> <li>- 2020/21</li> </ul>
8b	<p>Prior to 28 February 2023, the Permit Holder must provide to the General Manager Environmental Compliance, Resource and Environmental Compliance Directorate, Department of Mines, Industry Regulation and Safety a written report of records required under Condition 7 of this Permit where these records have not already been provided under Condition 8(a) of this Permit.</p>	<p>Not applicable.</p>



Figure 1: Clearing Activities for Clearing Permit 7914/2





## 1.2 Records have been set out as required

Table 2: Clearing Undertaken During Reporting Period

Date	Location	Area Cleared (Ha)	Purpose
22/09/2020	E:260267 N:6945516	2.11	Transport Corridor
05/10/2020	E:260567 N:6945405	4.56	Waste Rock Dump
25/11/2020	E:260235 N:6945357	0.15	Transport Corridor
25/11/2020	E:260447 N:6945325	0.09	Transport Corridor
25/11/2020	E:260394 N:6945303	1.25	Topsoil Stockpile
12/02/2021	E:260409 N:6945436	2.89	Powerline Corridor