

## **Appendix 4 Environmental Scoping Document – Bauxite mining on the Darling Range in the southwest of WA – 2023 to 2027**

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# Bauxite mining on the Darling Range in the southwest of WA – 2022 to 2026 and 2023 to 2027

## Environmental Scoping Document

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## Appendix 1 – Policy and Guidance

### 1. Introduction

The Environmental Protection Authority (EPA) has determined that the above Proposals are to be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

The purpose of the Environmental Scoping Document (ESD) is to define the form, content, indicative timing and procedure of the environmental review, required by s. 40(3) of the EP Act.

The EPA has prepared this ESD in accordance with the procedures in the EPA's [Procedures Manual](#), to define the environmental review requirements of both Proposals detailed below.

The EPA requires the proponent to undertake the environmental review according to the procedures in the EPA's [Administrative Procedures](#) and [Procedures Manual](#), and the [Instructions and Template: How to prepare an Environmental Review Document](#).

The ERD will include a scoping checklist that identifies the section(s) and page number of the ERD indicating where both the dot points in the scoping checklist on page 5 of the ERD Template (2023) and the requirements of this ESD can be found.

**Table 1:** General Proposal and proponent information

Proposal information	
<b>Proposal names</b>	Bauxite mining on the Darling Range in the southwest of WA for the years 2022 to 2026 Bauxite mining on the Darling Range in the southwest of WA for the years 2023 to 2027
<b>Proponent</b>	Alcoa of Australia Limited
<b>Assessment numbers</b>	2384 and 2385
<b>Region</b>	Peel and South West regions
<b>Public review period</b>	ERD – 10 weeks

The Proposals subject of this ESD are for Alcoa of Australia Limited's (Alcoa) mining operations within the Huntly and Willowdale areas, located approximately 100 kilometres (km) southeast of Perth. The Proposals include the production, processing (crushing) and transport of wet bauxite ore, the abstraction of water, exploration drilling, and rehabilitation works. The mining operations are for a limited period, some ending 2026 but most ending 2027, due to Alcoa's Mining and Management Programs (MMPs) ending those dates.

The Proposals share the same mining development envelope shown in Figures 1a and 1b but comprise different physical elements as delineated in Figures 2a – 3b (proposed disturbance/rehabilitation footprints). The exploration development envelopes for each proposal are shown in Figures 4a and 4b.

As detailed in the EPA's [Public Advice](#) at level of assessment, consistent with s.38B(2) of the EP Act, the Proposals subject of this ESD capture only those areas not previously referred to the EPA. This means the proposals exclude any overlaps with:

- mining operations (and associated activities) in accordance with existing approvals provided by Ministerial Statements (MS) 646 (for the Pinjarra refinery as supplied by Huntly)

- mining operations (and associated activities) in accordance with existing approvals provided by MS 728 (for the Wagerup refinery as supplied by Willowdale); and
- Alcoa's proposed Huntly mine expansion into the Myara North and Holyoake regions proposed from 2025 to 2037, which is currently under assessment by the EPA under Part IV of the EP Act being the [Pinjarra Alumina Refinery Revised Proposal](#) as a significant amendment to MS 646 (Assessment No. 2253).

The EPA considers that the Proposals constitute significant amendments to MS 646 and MS 728. The EPA's assessment of the Proposals will therefore proceed in accordance with the requirements of s.40AA of the EP Act.

In preparing this ESD, the EPA has considered the provisions of the [Environmental Protection \(Darling Range Bauxite Mining Proposals\) Exemption Order 2023](#) (exemption order) applicable to the Proposal areas. Issued under s.6 of the EP Act, the exemption order permits the proponent to continue a subset of operations within the Proposal areas (mostly the 2023-27 operations), subject to the stipulated provisions, and provides an exemption from the requirements of s.41 and s.41A of the EP Act.

As a result of the complex context of the Proposals and relationships with other past and current proposals (as outlined above), the EPA has adopted a bespoke approach in preparing the ESD. In particular, the following contextual factors have informed the EPA's consideration of the form, type, and extent of information required for the assessment of the Proposals and have shaped the content of the ESD work items set out in the sections below:

- the short-term duration of the Proposals, whereby authorisation to clear and implement the Proposals is sought for a time period not exceeding the years 2026 and 2027 (respectively) – this means the ESD is focused on key significant values and the key environmental protection measure of avoidance
- the allowances and established controls on Alcoa's current operations within the Proposal areas, consistent with the s.6 exemption order – this means the ESD is focused on what the proponent proposes in addition to the protections which the exemption order provides, as well as providing alternative pathways for assessment if the EPA's usual guidance cannot be followed in the timeframe identified in table 2
- the EPA's concurrent assessment of the [Pinjarra Alumina Refinery Revised Proposal](#) (Assessment No. 2253). The EPA considers that the impacts associated with and transition of the continuation of Alcoa's activities within the Proposal areas (post year 2027, such as ongoing mining and rehabilitation) are most appropriately considered as part of the EPA's assessment of the Pinjarra Alumina Refinery Revised Proposal. This means consideration of some proposal impacts are more effectively assessed under Assessment 2253, which will also facilitate the consolidation of the EPA's considerations and recommendations on Alcoa's operations in the Northern Jarrah Forest into a singular, consolidated, and modern report format which can adequately assess combined and cumulative impacts of all Proposals.

The EPA understands future mining proposals are likely to be developed by Alcoa, consistent with Alcoa's MMPs being rolling five-year plans submitted annually to the Minister for State Development

under a process established in 1978 associated with the commencement of Alcoa's third State Agreement Act. The MMPs are required to detail Alcoa's proposed mining locations, and its mining and rehabilitation methodology. The EPA is aware Alcoa has commenced preparation of a 2025 – 2029 MMP. The EPA considers the mining operations under this MMP and beyond should be considered as amendments to or arising from Assessment 2253, or if the mining is related only to Wagerup, to any future proposal for expansion of mining operations for MS 728. This will avoid the need for incremental and annual assessment of MMPs, which is not consistent with efficient, modern environmental assessment process which can consider combined and cumulative effects.

### 1.1 Indicative timing of the environmental review

Table 2 sets out the indicative outline of the timing of the environmental review (indicative timeline) agreed between the EPA and the proponent.

**Table 2:** Indicative outline of the timing of the environmental review (indicative timeline)

Key assessment milestones	
EPA approves Environmental Scoping Document	August 2024
Proponent submits first draft Environmental Review Document	October/November 2024
EPA provides comment on first draft Environmental Review Document <i>(6 weeks from receipt of ERD)</i>	November 2024
Proponent submits revised draft Environmental Review Document	December 2024
EPA authorises release of Environmental Review Document for public review <i>(2 weeks from EPA approval of ERD)</i>	January 2025
Proponent releases Environmental Review Document for public review for 10 weeks	January 2025
Close of public review period	April 2025
EPA provides Summary of Submissions <i>(3 weeks from close of public review period)</i>	April 2025
Proponent provides Response to Submissions	May 2025
EPA reviews the Response to Submissions <i>(4 weeks from receipt of Response to Submissions)</i>	June 2025
EPA prepares draft assessment report and completes assessment	July 2025
EPA finalises Assessment report (including two-week consultation on draft conditions) and gives report to Minister <i>(6 weeks from completion of assessment)</i>	August 2025

The EPA notes that as the exemption order permits the continuation of limited mining activities within the Proposal areas while its assessment is being undertaken, should the proponent not supply all relevant information within reasonable timeframes, the EPA may still decide to proceed with the assessment of the Proposals. In this case, and consistent with section 3.3 of the Procedures Manual, the EPA may take a cautious approach in completing its assessment based on the information available.

The EPA also notes its preference for the Environmental Review Document for the [Pinjarra Alumina Refinery Revised Proposal](#) Assessment 2253 be published for public review at the same time as the Environmental Review Document for the Proposals, if practicable. The EPA considers this would facilitate an efficient, modern environmental assessment process which can consider combined and cumulative effects, as well as enable submissions on one Environmental Review Document to be informed by the issues raised in the other.

**1.2 Commonwealth Government approvals**

The Proposals will not be assessed under a Bilateral Agreement between the Commonwealth and the State under section 45 of the EPBC Act or as part of an accredited process under section 87 of the EPBC Act.

**2. Form and content (required work)**

The EPA requires that the form of the report on the environmental review required under section 40 of the EP Act is in accordance with the [Instructions and Template: How to prepare an Environmental Review Document](#).

The EPA requires that the content of the ERD is in accordance with the [Instructions and Template: How to prepare an Environmental Review Document](#).

The EPA also requires that the environmental review includes the specific additional content for the Proposals as outlined in Section 2. The EPA notes that the requirements outlined in Section 2 apply to all elements of the Proposals, including both the proposed mining development envelopes and the proposed exploration development envelopes.

**2.1 Preliminary key environmental factors**

The preliminary key environmental factors to be addressed in the ERD for both Proposals are:

1. Flora and vegetation
2. Terrestrial fauna
3. Inland waters
4. Terrestrial environmental quality
5. Greenhouse gas emissions
6. Social surroundings

**2.2 Specific and/or additional work required for assessment of Proposals for key environmental factors**

Table 3 outlines the specific and/or additional work required as it relates to preliminary key environmental factors for the Proposals.

**Table 3:** Specific and/or additional required work for the Proposals

All Environmental Factors	
<b>Required work</b>	<ol style="list-style-type: none"> <li>1. Work to be consistent with the requirements in the <a href="#">Instructions and Template: How to prepare an Environmental Review Document</a> and provided for each factor:                             <ul style="list-style-type: none"> <li>• factor objective, including discussion on how the Proposals can be implemented consistent with the EPA factor objective</li> <li>• relevant policies and guidance, where practicable for this to have been met</li> </ul> </li> </ol>

	<p>in the timeframe in table 2</p> <ul style="list-style-type: none"> <li>• receiving environment</li> <li>• potential environmental impacts</li> <li>• mitigation, including offsets where relevant</li> <li>• assessment and significance of residual impact</li> <li>• environmental outcomes</li> </ul> <p>In the case that the relevant policies and guidance is impracticable to meet in the timeframe in table 2, provide justification that demonstrates that implementation of the proposals is likely to meet the EPA’s factor objectives, including but not limited to:</p> <ul style="list-style-type: none"> <li>• proposed avoidance areas for key significant environmental values including pre-clearance surveys which will ensure identification and protection of key significant environmental values</li> <li>• measurable environmental outcomes which will be met for key significant environmental values</li> <li>• identification of offsets to counter-balance significant residual impacts on key environmental values</li> <li>• offsets should be identified for all relevant impacts of the 2022- 2026 and 2023 – 2027 Proposals, regardless of whether the impact occurred while the section 6 exemption was operating and before the issue of any final approvals.</li> </ul> <p>2. Demonstrate application of the EPA’s mitigation hierarchy, prioritising the avoidance of impacts to environmental values and achievement of positive environmental outcomes in the first instance. Thereafter, where additional mitigation measures are required, any proposed environmental management plans (and outcomes and objectives therein) should be:</p> <ul style="list-style-type: none"> <li>• limited in scope to detailing proposed monitoring activities to meet clear and measurable environmental outcomes</li> <li>• prepared in accordance with the EPA’s Instructions</li> <li>• provided in complete form at ERD stage.</li> </ul> <p>If such a plan is provided, the ERD should explain why the plan is being included (and why an outcomes-based condition is not considered practical).</p> <p>3. Clearly set out the status of the Proposals as at the time of the EPA’s decision to assess the Proposals (i.e. what had yet to be implemented) and the effect of the s.6 exemption order as it applies to each proposal area by status (e.g. already disturbed vs yet to be disturbed).</p>
<p><b>Flora and vegetation; Terrestrial fauna</b></p>	
<p><b>Required work</b></p>	<p>4. Prepare the ERD with reference to relevant recovery plans, Statewide Vegetation Statistics, conservation advice and/or threat abatement plans and local and regional management plans for conservation significant species, ecological communities, and habitat (supporting, significant, and critical) that is known or is likely to occur, in the vicinity of the Proposal areas. Any instances where published guidance is not followed must be justified.</p> <p>5. Provide an analysis of the significance of identified key environmental values,</p>

and anticipated direct and indirect impact(s) of the Proposals to values, in a local and regional context. Key environmental values to be considered include:

- State-listed threatened, priority, and conservation significant flora (including locally endemic flora, flora associated with restricted habitats, range-end populations, and specific /subspecies with unique taxonomical features) including, but not limited to *Anthocercis gracilis* (Vulnerable), *Diuris drummondii* (Endangered), *Diuris micrantha* (Vulnerable), *Lasiopetalum pterocarpum* (Critically Endangered), *Verticordia fimbrialepis* subsp. *fimbrialepis* (Vulnerable), *Andersonia sp. Saxatilis* (Critically Endangered), *Hibbertia hortiorum* (P1), *Paracaleana granitica* (P1), *Paracaleana gracilicordata* (P1), *Bossiea modesta* (P2); *Grevillea crowleyae* (P2), *Grevillea ornithoopoda* (P2) and *Andersonia sp. Audax* (P3)
- State-listed threatened and priority ecological communities (TEC/PECs) including, but not limited to the granite communities of the Northern Jarrah Forest PEC (P3) and litter dependent invertebrate community of the Northern Jarrah Forest PEC (P2)
- State-listed threatened, priority, and conservation significant fauna (and key habitat) including, but not limited to Carnaby's Cockatoo (Endangered), Baudin's Cockatoo (Endangered), Forest Red-tailed Black Cockatoo (Vulnerable), Quokka (Vulnerable), Numbat (Endangered), Chuditch (Vulnerable), Malleefowl (Vulnerable), Woylie (Critically Endangered), Western Ringtail Possum (Critically Endangered), Rakali (P4), Quenda (*Isodon fusciventer*) (P4), Carter's Freshwater Mussel (Vulnerable), Pouched Lamprey (P3), Western Brush Wallaby (P4), Tammar Wallaby (P4), Woma (P1), Inornate trapdoor spider (P3), Masked owl (P3), Southern death adder (P3), Dell's skink (P4), Western false pipistrelle (P4), Southwestern Brush-tailed Phascogale (Conservation Dependent)
- Fauna species with restricted range or with degree of historical impact from threatening process.
- Short-range endemic invertebrates (SRE)
- regionally and locally significant vegetation, including but not limited to the Northern Jarrah Forest, granite outcrop vegetation and wetland vegetation
- groundwater dependent ecosystems
- old growth forests
- ecological linkages and wildlife corridors
- protected areas or conservation areas under the *Conservation and Land Management Act 1984* and the Forest Management Plan 2024-2033 (FMP).
- local and regional reserves identified in planning schemes and strategies
- retained or protected areas under existing Ministerial Statements
- areas previously cleared and rehabilitated by the proponent.

6. A consolidated report should be provided that includes the integrated results of all historic and recent surveys and identification of areas where surveys have not

	<p>been previously undertaken, or surveys that are not recent, representative and/or do not meet EPA guidance. The consolidated data from historical and recent surveys should be sufficient to place the impacts of the proposal into local and regional contexts.</p> <p>7. Demonstrate, with evidence, the success of current mitigation and management measures and describe how they have been adapted based on outcomes and results.</p> <p>8. Notwithstanding the provisions at clauses 2 - 4 of <i>Division 2 - Controls on activities</i> in schedule 1 of the exemption order, provide information to clarify:</p> <ul style="list-style-type: none"> <li>• the rate of clearing (ha/per annum) within the Proposal areas</li> <li>• the average and range of intervening time period from the clearing of vegetation to commencement of rehabilitation works</li> <li>• pre-clearing activities that will be undertaken to ensure maximum avoidance and/or management of impacts to key significant native vegetation, and priority and threatened flora and fauna species, including black cockatoos and associated habitat(s)</li> <li>• with reference to clause 4(1) of the exemption order, the methodology for identification of black cockatoo nesting trees and Huntly Mine black cockatoo significant trees</li> <li>• with reference to clause 4(2)(d) and 4(2)(e) of the exemption order, any additional measures to ensure avoidance of impacts to black cockatoos as part of implementing the Proposals, and contingency measures should accidental impacts occur.</li> </ul> <p>9. Additional to the requirements of Divisions 3 and 4 of the exemption order, identify and describe monitoring strategies and governance arrangements for the ongoing management of impacts within the Proposal areas, including draft monitoring plans if applicable.</p> <p>10. Provide information in the ERD or in the <a href="#">Pinjarra Alumina Refinery Revised Proposal</a> (Assessment No. 2253) ERD about proposed rehabilitation within the Proposal areas, including information on:</p> <ul style="list-style-type: none"> <li>• the prioritisation of areas for rehabilitation</li> <li>• the anticipated spatial extent (ha) of rehabilitated areas per annum</li> <li>• the rehabilitation plan, including (but not limited to) selected species, proposed density, estimation of time to returned benefit (including consideration for impacts associated with climate change and indirect impacts from ongoing mining operations in locality), estimated fatality risk, contingency measures, biodiversity outcomes and practices to achieve these outcomes (including measurement against biodiversity indicators, evaluation of current practices, adaptation and improvement actions).</li> <li>• any supplementary measures to enhance the value of rehabilitated areas for fauna species (e.g. installation of artificial habitats, management of feral and predator species).</li> </ul> <p>11. Provide in the ERD or in the <a href="#">Pinjarra Alumina Refinery Revised Proposal</a> (Assessment No. 2253) ERD, criteria for demonstrating whether rehabilitated areas are self-sustaining ecosystems. Include information about the success of current rehabilitation practices, how self-sustaining areas are being/will be monitored and detail the potential contingency actions that will apply when self-sustaining ecosystems are unable to be established, or begin to decline.</p>
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	<p>12. Where knowledge or survey gaps are to be addressed in the <a href="#">Pinjarra Alumina Refinery Revised Proposal</a> (Assessment No. 2253) this should clearly be stated in the ERD with justification.</p> <p>13. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model and <i>WA Environmental Offsets Guideline</i> (2014, or any subsequent revisions). Where significant residual impacts remain, propose an appropriate well defined offsets package with due consideration to the <i>WA Environmental Offsets Policy</i> (2011, or any subsequent revision) and guidelines. Consideration may be given to the EPA Public Advice on Offsets at a regional scale.</p>
<b>Inland waters</b>	
<p><b>Required work</b></p>	<p>14. Provide an analysis of the significance of key significant identified environmental values, and anticipated impact(s) of the Proposals to values, in a local and regional context. Key significant environmental values to be addressed include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• conservation category wetlands, resource enhancement wetlands, mapped valley floors and associated buffers</li> <li>• major waterways, rivers, creeks, and tributaries including, but not limited to the Murray River, Serpentine River, South Dandalup River, North Dandalup River, Upper Wungong Brook, Gooralong Brook, Big Brook, Drakes Brook, Harvey River, Harris River, and Canning River or tributaries of those.</li> <li>• lakes, riparian areas and associated buffers including, but not limited to Lake Brockman, Lake Navarino, Lake Moyanup, Lake Kabbamup, Yourdamung Lake, and Lake Banksiadale</li> <li>• groundwater and surface water resources, including proclaimed and unproclaimed areas under the <i>Rights in Water and Irrigation Act 1914</i></li> <li>• Public Drinking Water Source Areas (PDWSAs) and water catchment areas including, but not limited to the Serpentine Dam Catchment, Serpentine Pipehead Dam Catchment, Gooralong Brook Catchment, North Dandalup Catchment, North Dandalup Pipehead Dam Catchment, South Dandalup Dam Catchment, Pinjarra Water Supply Catchment, Murray River Water Reserve, Harvey Dam Catchment, and Stirling Dam Catchment, and the relevance of these water sources in context of the Integrated Water Supply Scheme.</li> <li>• waterbodies providing habitat for threatened, priority, or conservation significant aquatic fauna such as Carter’s Freshwater Mussel</li> <li>• dam reservoirs including, but not limited to Harvey Dam, Serpentine Dam, South Dandalup Dam, North Dandalup Dam, Stirling Dam and other dams/reservoirs sited along the major waterways (or tributaries of those).</li> </ul> <p>15. Undertake a public drinking water catchment assessment within the relevant development envelopes for the Proposals. The assessment should consider the key risks to significant values from the proposal and any associated mitigation measures.</p> <p>16. Notwithstanding the provisions at clauses 2 - 6 of <i>Division 2 - Controls on activities</i> in the exemption order, provide information to clarify:</p> <ul style="list-style-type: none"> <li>• the baseline hydrological regime, including existing surface and groundwater quality and quantity. This should be supported by an</li> </ul>

	<p>ecohydrological conceptual model which demonstrates the interactions between water streams and the environment and provides a qualitative assessment of the predicted impacts, inclusive of groundwater mounding and drawdown.</p> <ul style="list-style-type: none"> <li>• Beneficial use and assess the potential impacts to inland water values associated with surface water abstraction (licensed under RIWI Act) and any groundwater abstraction (potentially associated with dewatering activities), and measures to address impacts. Potential impacts, from construction and operation to water quality, storage and distribution system of the Integrated Water Supply Scheme (IWSS).</li> <li>• pre-disturbance activities that will be undertaken to ensure maximum avoidance and/or management of impacts to the above-listed key significant environmental values within the Proposal areas</li> <li>• with reference to clauses 4(2)(a) – 4(2)(c) of the exemption order, any additional measures to ensure avoidance and management of impacts to water reservoirs and the Serpentine Pipehead Dam Catchment Area as part of implementing the Proposals</li> <li>• with reference to clause 4(2)(a) of the exemption order, assessment of the environmental outcome of the provisioned 1km setback in preventing adverse impacts to inland water values</li> <li>• with reference to clause 5 of the exemption order, provide information detailing the rehabilitation of stabilised areas, and how it has been successful, to ensure impacts to inland water values are minimised and catchment function restored</li> <li>• if impacts to the inland water values are expected, provide information consistent with the EPA’s mitigation hierarchy, to demonstrate that the EPA factor objective can be met.</li> </ul> <p>17. Additional to the requirements of Divisions 3 <i>Compliance</i> and 4 <i>Miscellaneous</i> of the exemption order, identify and describe monitoring strategies and governance arrangements for the ongoing management of impacts within the Proposal areas, including draft monitoring and management plans if applicable. With reference to clause 6(2)(c) of the exemption order, provide detail about the likely measures that may be adopted to rectify a drainage incident, and measures that may be implemented to avoid or minimise the environmental impact of such an incident. Where measures are already being implemented, demonstrate how they are successful in minimising impacts to inland water values.</p>
<b>Terrestrial environmental quality</b>	
<p><b>Required work</b></p>	<p>18. With reference to the terms of the exemption order, clarify:</p> <ul style="list-style-type: none"> <li>• any additional measures to those in the exemption order to avoid or reduce the annual number of drill holes bored, or spatial footprint of drilling activities, within the Proposal areas</li> <li>• the proposed management of areas post-clearing and drilling, to ensure the retention of soil integrity, condition and quality within the Proposal areas</li> <li>• the proposed measures to ensure soil stabilisation during and after implementation of the Proposals</li> <li>• with reference to clause 5, in the event of a de-stabilisation or drainage incident, the proposed measures to return terrestrial environmental quality</li> </ul>

	to pre-disturbance baseline condition.
<b>Greenhouse gas emissions</b>	
<b>Required work</b>	<p>19. Provide all information required in accordance with the EPA guidance for this factor.</p> <p>20. Provide a Greenhouse Gas Environmental Management Plan (GHG EMP), prepared in accordance with the <a href="#">EPA's template</a>, that includes proposed emissions from the combined existing and ongoing proposals (MS 646, 728, the Pinjarra Revised proposal and any future mining proposals until 2045) and evaluates these emissions for consistency with the EPA's guidance, including consideration of best practise technology, a linear trajectory to net zero emissions by 2050, and impact of the application of Commonwealth or State GHG law and policy. (Note: Consideration of related proposal emissions such as emissions from refineries, or emissions for operations in the Proposal areas beyond 2027, may be more effectively assessed under Assessment 2253, in which case the Proponent will justify this).</p> <p>21. Provide the GHG EMP to an independent third-party expert for peer review to evaluate:</p> <ul style="list-style-type: none"> <li>• the calculations, assumptions, methodology and analysis of GHG emissions</li> <li>• whether best practice emissions reduction technologies have been adopted</li> <li>• whether offsets are likely to be credible and available.</li> </ul>
<b>Social surroundings</b>	
<b>Required work</b>	<p>22. Provide relevant information as outlined in the EPA's guidance for Aboriginal cultural heritage.</p> <p>23. Take reasonable consultation steps to identify any physical or biological impacts to significant Aboriginal cultural heritage values that cannot/ will not be regulated under the <i>Aboriginal Heritage Act 1972</i> to meet the EPA factor objective.</p> <p>24. Characterise and describe the key significant amenity values, including visual/aesthetic and social/intrinsic and natural or historical heritage values within and adjacent to the Proposal areas and any sensitive receptors that may be significantly impacted as a result of the Proposals. Key significant values may include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• the nearby townsites of Jarrahdale, Keysbrook, North Dandalup, Pinjarra, Dwellingup, Waroona, Hamel, Yarloop and Harvey</li> <li>• rural properties located within the Proposal areas or nearby</li> <li>• recreational trails and facilities such as government managed campgrounds and its amenities and the Munda Biddi and Bibbulmun Tracks</li> <li>• tourism attractions, including tourist drives and lookouts</li> <li>• State registered heritage places, including the Marrinup Prisoner of War Camp (ID: 3103), Asquith Bridge (ID: 15424), Mill Manager's Residence (ID: 4615), Spencer's Cottage (ID: 3302) and Barton's Mills Prison ruins (ID: 3580).</li> </ul> <p>25. Clarify the potential impacts (direct and indirect) as a result of construction and operational elements of the Proposal on important key significant amenity</p>

	<p>values</p> <p>26. Describe how significant impacts to the identified significant amenity key values from the modification of physical and biological surroundings will be avoided and/or mitigated consistent with recognised methodologies and guidance. Consideration should be given to the impacts on economic surroundings resulting from alteration to the physical or biological environment. Outline the reasonable steps of consultation undertaken to identify relevant actions and determine appropriate mitigation for those values, in the timeframe identified in table 2.</p> <p>27. Describe and justify measures to avoid, mitigate, and manage significant impacts to nearby sensitive receptors from potential noise, light, dust, and odour emissions and detail the likely environmental outcomes.</p>
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### **2.3 Cumulative impact assessment – scoping of activities, boundaries and environmental values for relevant environmental factors**

The cumulative impact assessment (CIA) will consider the environmental effects of the Proposals in the context of the environmental effects of past and existing projects in the area, including reasonably foreseeable projects which have not yet commenced. The CIA will consider environmental effects of projects operated by both Alcoa and others on the Northern Jarrah Forest region.

#### **Projects for consideration in CIA:**

- Proposal areas identified in Figures 1a – 4b.
- *Pinjarra Alumina Refinery Revised Proposal* (Assessment No. 2253).
- Approved Alcoa Proposals under MS 646 and 728.
- *South 32 Worsley Mine Expansion – Revised Proposal* (Assessment No. 2216) and MS 719.
- Newmont Boddington Gold – MS 971
- Bushfire and forest management activities outlined in the Forest Management Plan 2024-2033
- other development in the region including pastoral and agricultural operations.

Specifically, there is the potential for cumulative impacts on the environmental values for Flora and Vegetation, Terrestrial Fauna, Inland Waters, Terrestrial Environmental Quality, Greenhouse Gas Emissions and Social Surroundings from implementation of the Proposals and the activities of adjacent operations.

#### **Activities for consideration in CIA:**

- Clearing of native vegetation and threatened and priority flora and fauna habitat, including fragmentation of habitat, within the Proposal areas, including clearing for mining operations and exploration activities
- Spread of disease, weed invasion and changes in fire behavior as a result of increased mining and exploration activities.
- Alteration of the existing hydrological regime from ground disturbance, groundwater extraction, and potential disruption of waterways as a result of mining and associated activities.
- Run-off of pollutants or contaminants to catchments and drinking water reservoirs from mining and associated activities.
- Emission of greenhouse gases, compounded by the additional clearing of native vegetation.
- Exacerbation of noise, dust, odour and light emissions to nearby sensitive receptors, including people and wildlife, as a result of increased mining and exploration activities.
- Increased risk of unearthing or damaging an Aboriginal site, or impacting on Aboriginal cultural heritage as a result of increased mining and exploration activities.
- Reduced visual and social amenity from the clearing of natural areas to facilitate mining activities.

The ERD should include consideration for the above-listed cumulative impacts and provide discussion to the proposed measures for mitigation and management of impacts. Notwithstanding, the EPA considers that detailed CIA for the subject Proposals should be undertaken as part of the EPA's

concurrent assessment of the *Pinjarra Alumina Refinery Revised Proposal*. This approach would allow for the cumulative impacts of the subject Proposals to be considered comprehensively under a contemporary environmental impact assessment framework, and with a longer-term context, to provide for potentially more robust environmental outcomes.

#### **2.4 Holistic impact assessment**

Where the combination of the environmental effect of two or more environmental factors or values has the potential to result in a significant impact, provide a holistic impact assessment of the Proposals on the environment, applying the EPA's principles and the EPA's objectives for environmental factors:

- Outline the connections and interactions between environmental factors or values that in combination have the potential to have a significant effect on the environment.
- Summarise the potential combined environmental effects.
- Summarise any additional mitigation measures proposed to mitigate combined environmental effects.
- Summarise any significant residual combined environmental effects.
- Summarise proposed additional environmental outcomes for the Proposals on the environment as a whole, and (optional) any proposed conditions for consideration by the EPA.

Provide a summary of the environmental effect of the Proposals on the environment as a whole (as distinct from a summary of the effect for each individual environmental factor or environmental value).

#### **2.5 Offsets**

Provide details of any proposed offsets including but not limited to:

- objectives and outcomes
- description of actions to be undertaken
- specific and measurable success criteria
- timelines and milestones
- monitoring to assess offset implementation
- reporting details and timing
- financial arrangements
- risks and contingency measures
- governance arrangements including responsibilities and legal obligations
- provide evidence of consultation on offset with relevant stakeholders.

Identify and quantify the significant residual impacts and proposed offsets, including completing the offset template (an example is in Appendix 1 of the *WA Environmental Offsets Guidelines*) and the residual impact significance model table (an example is on Page 11 of the *WA Environmental Offsets Guidelines*).

Assess whether and how the proposed offset will counterbalance the significant residual impact.

Demonstrate consideration of the six Principles outlined in the *WA Environmental Offsets Policy* and *WA Environmental Offsets Guidelines*.

Outline how the offset aligns with relevant plans and policies, such as recovery plans.

Provide evidence that supports the success or viability of the offset (include as an appendix where required). Refer to the relevant guidance for further information on offsets:

- *Statement of environmental principles, factors, objectives and aims of EIA.*
- Environmental factors: WA Environmental offsets policy and WA environmental offset guidelines.
- *Public Advice: Considering environmental offsets at a regional scale (EPA, 2024).*

## **2.6 Stakeholder consultation**

List the key stakeholders for the Proposals.

Discuss the stakeholder identification process.

Discuss the process for stakeholder engagement for the Proposals, including ongoing consultation.

Include outcomes of consultation with stakeholders and a detailed response to issues raised by them (or reference the section in the ERD where they are addressed) (ERD Template Table 5). Identify who was consulted, summary of discussions, key issues / matters raised, outcomes and whether matters raised were resolved or outstanding.

Do not include generic outcomes of discussions with decision making authorities – do include specific outcomes.

Justify if consultation has not been undertaken.

## **2.7 Significant amendments – specific additional required work**

As the Proposals constitute significant amendments to MS 646 and MS 728, the ERD will also include the following required information:

- The approved proposals, such that the environmental impacts may be considered in the context with the significant amendments.
- The combined effects that implementation of the significant amendments with the approved proposals might have on the environment.
- Consideration of whether the existing implementation conditions are adequate to ensure the ongoing elements of the Proposals are consistent with the EPA's environmental objectives.
- Whether the Proponent considers existing conditions should be inquired into or proposes amendments.
- Consideration of whether outcome conditions and associated monitoring can replace existing management plan conditions.
- Where existing management plan conditions are proposed to continue, include updated plans to address combined impacts and to ensure the amended proposals meet current EPA objectives.
- Consideration of section 3.2.1 of the Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual.

### 3. Decision-making authorities

State decision-making authorities for the Proposals have been identified in Table 4. Additional decision-making authorities may be identified during the course of the assessment. Information about how DMA processes can meet expected outcomes and EPA objectives is preliminary or may be unknown at this ESD stage, however, this information should be provided as part of the ERD. Where the proponent determines that DMA processes cannot meet the EPA's expected outcomes and objectives, this should be clearly outlined and any unmitigated impacts to be considered by the EPA should be identified. The proponent is required to update and complete the information in Table 4 and Table 5, which is to be provided in the ERD on a per impact basis.

**Table 4:** Decision making authorities and processes.

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which Proposal elements the approval is related to)
Minister for Aboriginal Affairs	<i>Aboriginal Heritage Act 1972</i>	Section 18 consent to impact a registered Aboriginal heritage site.
Minister for Environment	<i>Biodiversity Conservation Act 2016</i>	<ul style="list-style-type: none"> <li>Section 40 authority to take or disturb threatened species.</li> <li>Section 45 authority to modify occurrence of a threatened ecological community.</li> </ul>
Minister for State and Industry Development	State Agreement Acts <ul style="list-style-type: none"> <li><i>Alumina Refinery Agreement Act 1961</i></li> <li><i>Alumina Refinery (Pinjarra) Agreement Act 1969</i></li> <li><i>Alumina Refinery (Wagerup) Agreement and Acts Amendment Act 1978</i></li> </ul>	State Agreement Act.
Minister for Water	<i>Rights in Water and Irrigation Act 1914</i>	<ul style="list-style-type: none"> <li>Section 17 permit to interfere with beds and banks</li> <li>Section 5C licence to take water</li> <li>Section 26D licence to construct or alter a well</li> </ul>
CEO, Department of Biodiversity, Conservation and Attractions	<i>Biodiversity Conservation Act 2016</i>	Section 5 authority to take flora and fauna (other than threatened species).
	<i>Biodiversity Conservation Regulations 2018</i> <i>Conservation and Land Management Act 1984</i>	Permit/lease/licence in respect of State forests, timber reserves, national parks, conservation parks, nature reserves, marine

		nature reserves, marine parks, marine management areas and land vested in Conservation and Parks Commission.
Chief Dangerous Goods Officer, Department of Energy, Mines, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i>	Storage and handling of dangerous goods.
Worksafe Commissioner	<i>Work Health and Safety Act 2020</i> <i>Work Health and Safety (Mines) Regulations 2022</i>	Mine safety.
CEO, Department of Water and Environmental Regulation	<i>Environmental Protection Act 1986</i>	Part V works approval and licence.
CEO, Department of Water and Environmental Regulation	<i>Metropolitan Water Supply Sewerage and Drainage Act 1909</i> and by-law 4.8 <i>Development, mining, offensive trades etc.</i>	Written approval from CEO required to commence, carry out, change or expand any agricultural, industrial, commercial, quarrying or mining development in a catchment area.
<i>Other DMAs as identified.</i>		

**Table 5:** Other statutory decision-making process which can mitigate potential impacts on the environment.

<b>Environmental impact</b>	<b>How is the impact regulated by other decision- making process(es)?</b>	<b>Limit(s) of the decision-making process(es) to regulate the impact eg time limits, excluded operations</b>	<b>Likely environmental outcome of decision-making process(es), and consistency with EPA objective</b>	<b>Conditions, enforcement, and review process required by decision-making process(es)</b>	<b>Stakeholder engagement in decision-making process(es)</b>
<i>Proponent to populate and provide in the environmental review document.</i>	<i>Include in here what the DMA process does to mitigate the impact and how..</i>	<i>Include in here what the DMA process doesn't do to mitigate the impact. Identify any gaps of the DMA process that the EPA needs to consider in its assessments and recommended conditions</i>			

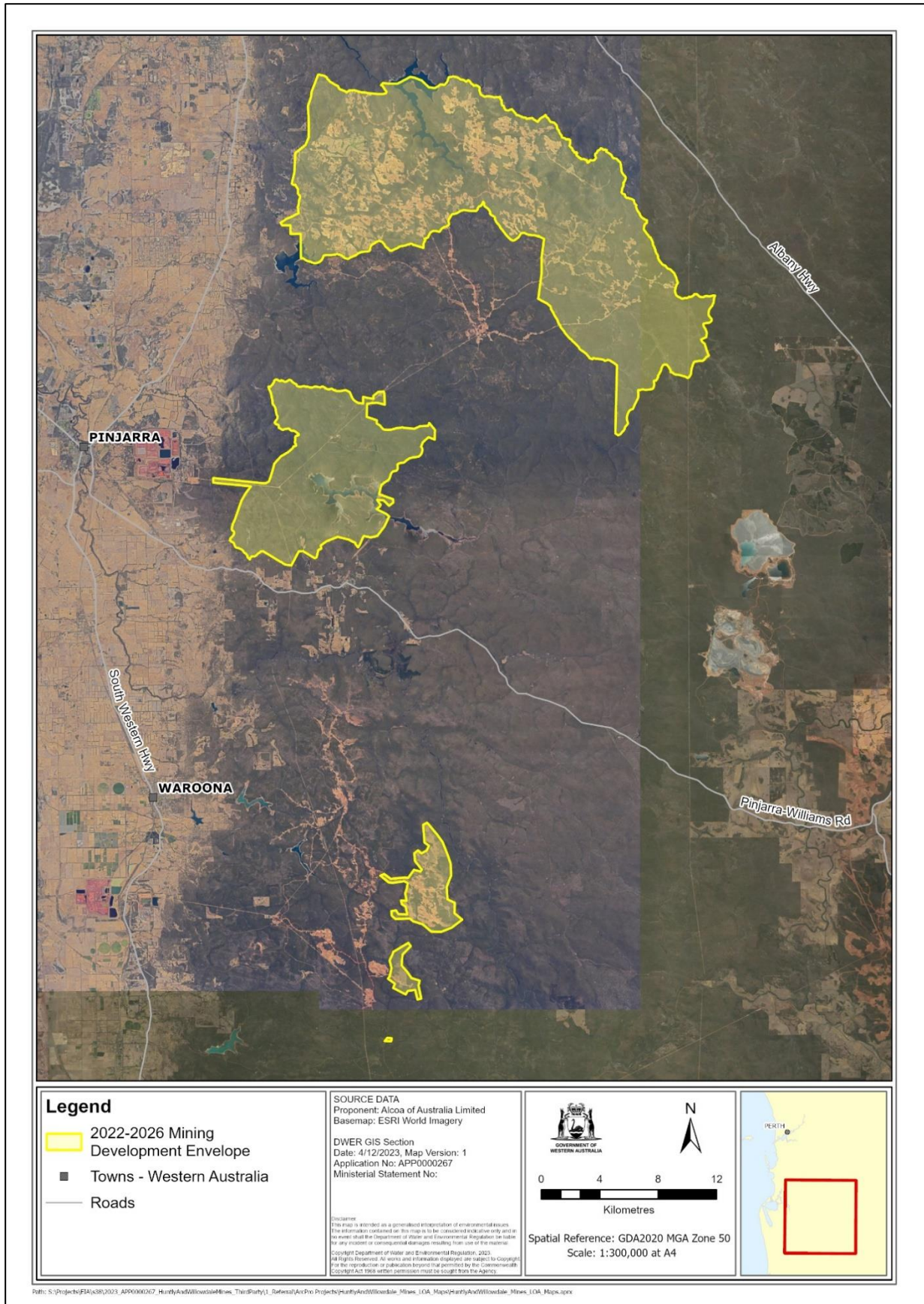


Figure 1a. Regional location of the 2022-2026 Proposal.

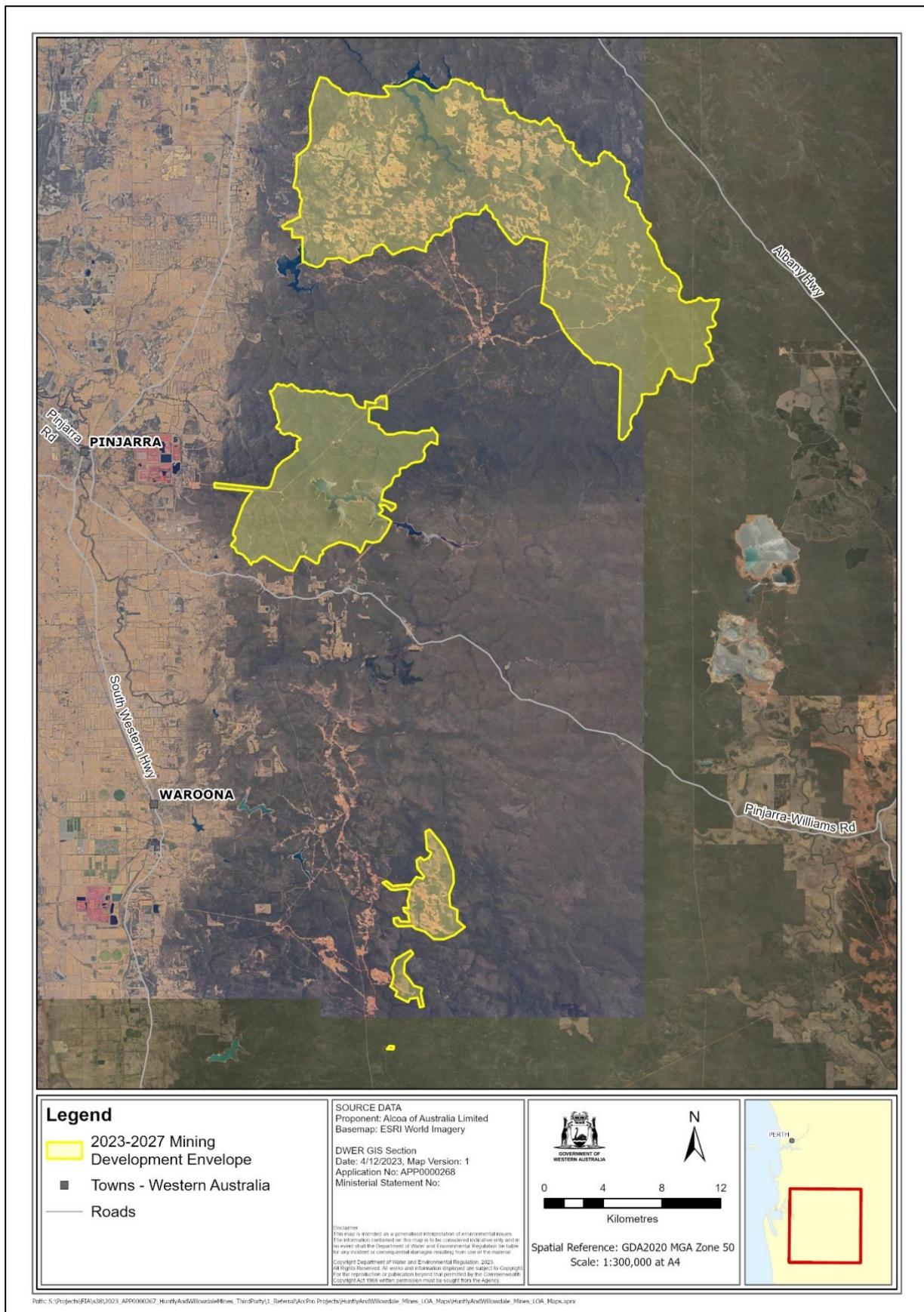


Figure 1b. Regional location of the 2023-2027 Proposal.

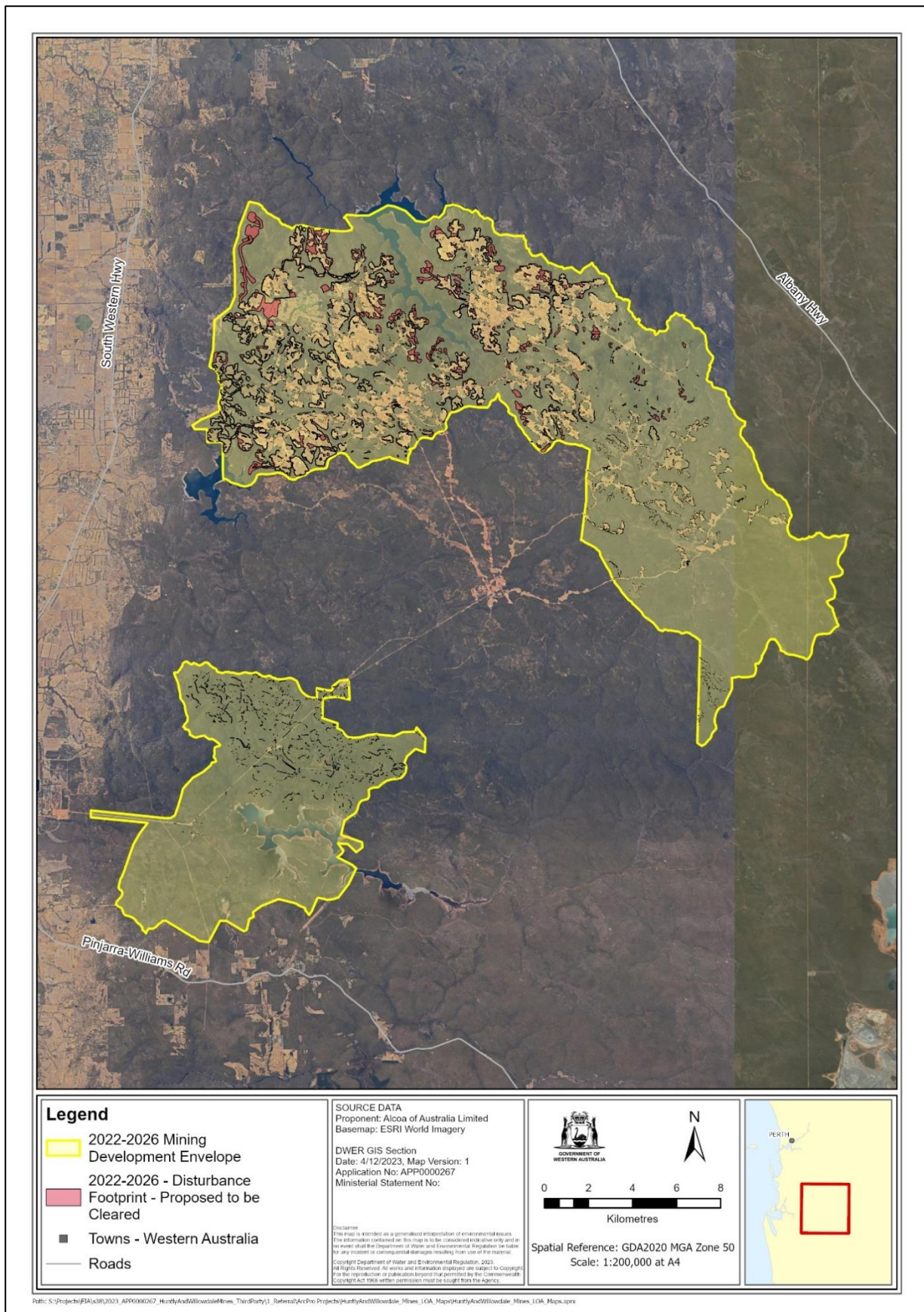


Figure 2a. Proposed disturbance/rehabilitation footprint 2022-2026 – Huntly Mine.

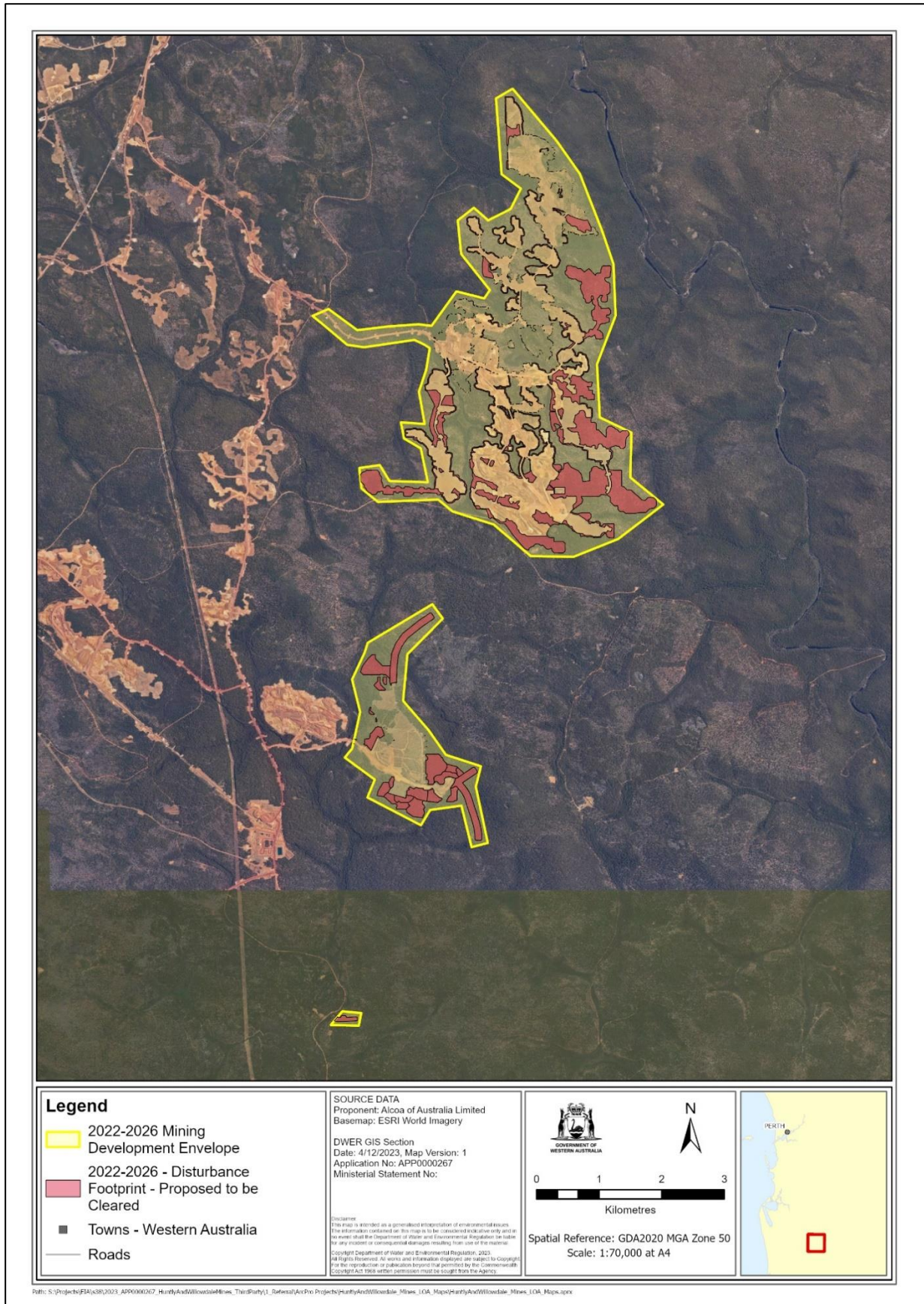


Figure 2b. Proposed disturbance/rehabilitation footprint 2022-2026 – Willowdale Mine.

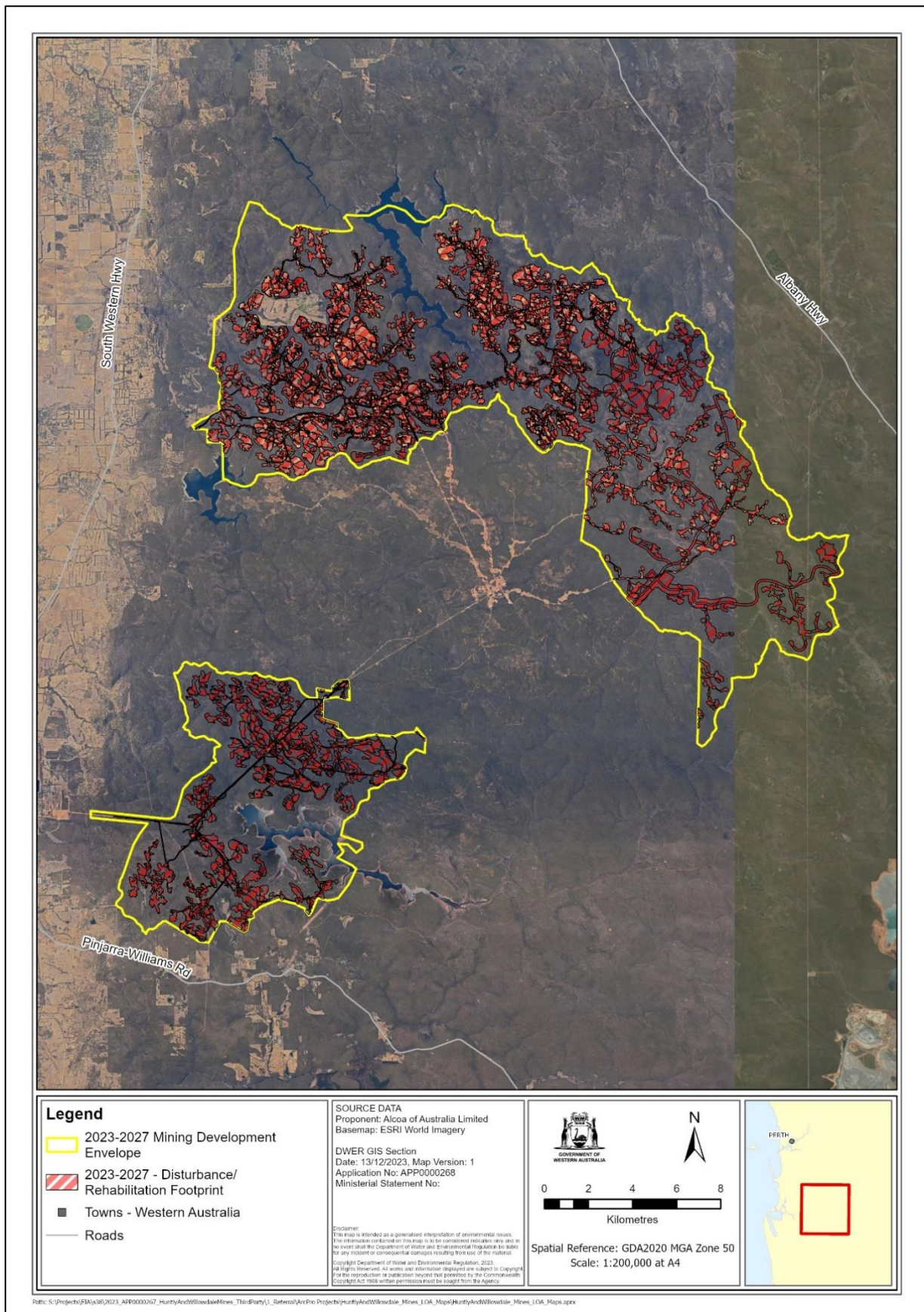


Figure 3a. Proposed disturbance/rehabilitation footprint 2023-2027 – Huntly Mine.

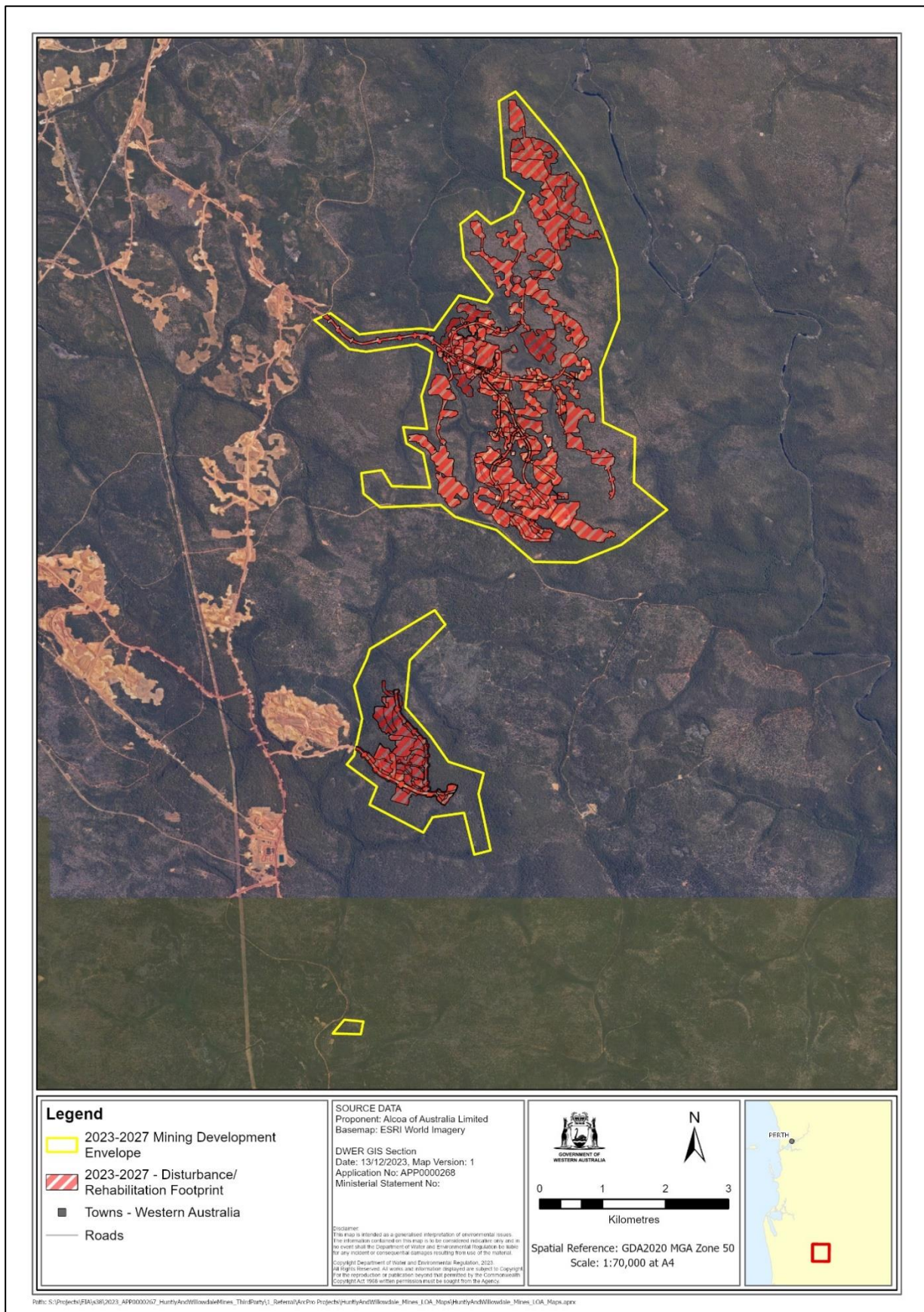


Figure 3b. Proposed disturbance/rehabilitation footprint 2023-2027 – Willowdale Mine.

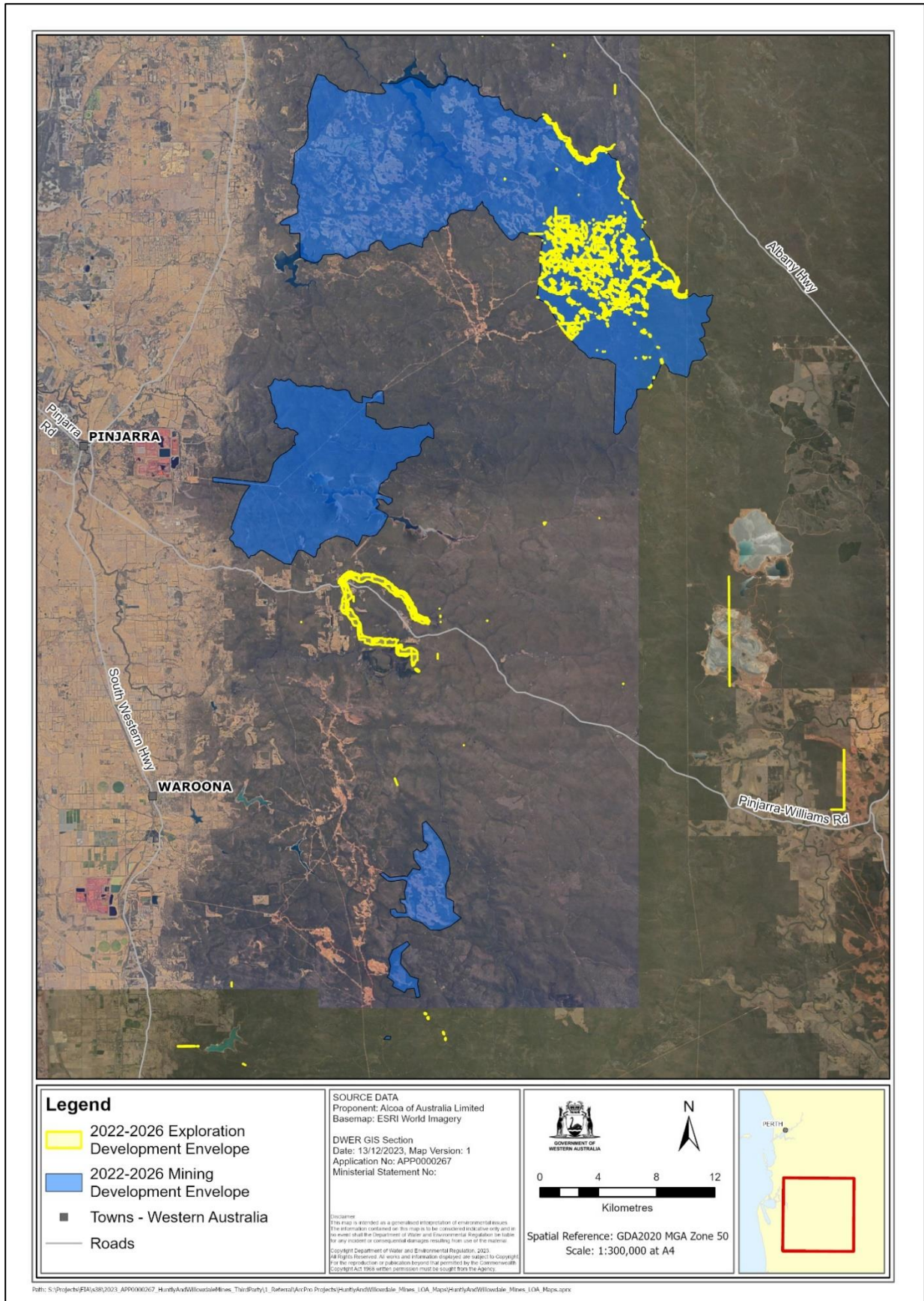


Figure 4a. 2022-2026 Proposal area – exploration development envelope.

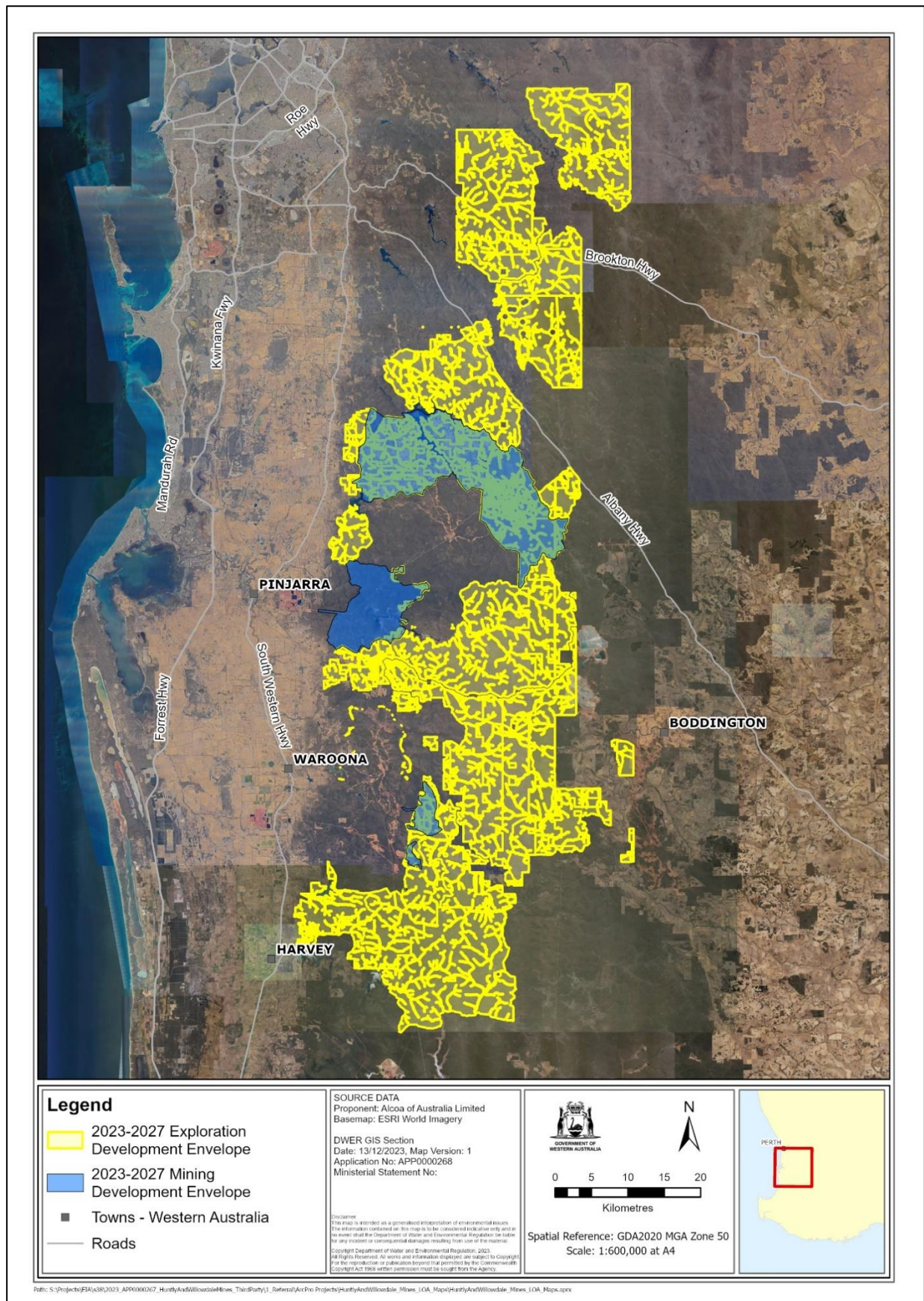


Figure 4b. 2023-2027 Proposal area – exploration development envelope.

## Appendix 1 – Policy and Guidance

### Flora and vegetation

#### EPA policy and guidance

- *Statement of environmental principles, factors, objectives and aims of EIA* (2023)
- *Instructions on how to prepare an environmental review document* (2024)
- *Environmental factor guideline – Flora and vegetation* (2016)
- *Technical guidance: Flora and vegetation surveys for environmental impact assessment* (2016)
- *Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA)* (2021)
- *Instructions on how to prepare Environmental Protection Act 1986 Part IV environmental management plans* (2024).
- *Public Advice: Considering environmental offsets at a regional scale* (2024).

#### Other policy and guidance

- *WA Environmental Offsets Policy*, Government of Western Australia (2011)
- *WA Environmental Offsets Guidelines*, Government of Western Australia (2014)
- *WA Environmental Offsets Template* (2014)
- *Forest Management Plan 2024 -2033*, Government of Western Australia (2023)
- Other relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the Proposal area.

### Terrestrial fauna

#### EPA policy and guidance

- *Statement of environmental principles, factors, objectives and aims of EIA* (2023)
- *Instructions on how to prepare an environmental review document* (2024)
- *Environmental factor guideline – Terrestrial fauna* (2016)
- *Technical guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment* (2020)
- *Technical guidance: Sampling of short range endemic invertebrate fauna* (2016)
- *Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA)* (2021)
- *Instructions on how to prepare Environmental Protection Act 1986 Part IV environmental management plans* (2024).
- *Public Advice: Considering environmental offsets at a regional scale* (2024).

#### Other policy and guidance

- *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, Department of Sustainability, Environment, Water, Population and Communities (2012)
- *EPA Advice: Carnaby's cockatoo in Environmental Impact Assessment in the Perth and Peel Region*. Environmental Protection Authority (2019).
- *WA Environmental Offsets Policy*, Government of Western Australia (2011)

- *WA Environmental Offsets Guidelines*, Government of Western Australia (2014)
- *WA Environmental Offsets Template (2014)*
- *Forest Management Plan 2024 -2033*, Government of Western Australia (2023)
- *Forest Black Cockatoo (Baudin's Cockatoo (Calyptorhynchus baudinii) and Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso)) Recovery Plan*. Department of Parks and Wildlife (2008).
- *Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan*, Department of Parks and Wildlife (2013).
- *Approved Conservation Advice for Calyptorhynchus banksii naso (Forest Red-tailed Black Cockatoo) (including listing advice)* Commonwealth Department of the Environment, Water, Heritage, and the Arts (2009).
- *Conservation Advice for Calyptorhynchus baudinii - Baudin's cockatoo*, Threatened Species Scientific Committee, Department of the Environment and Energy (2018).
- *Referral guidelines for three WA threatened black cockatoo species: Carnaby's cockatoo, Baudin's cockatoo and Forest red-tailed black cockatoo*, Commonwealth Department of Agriculture, Water and the Environment (2022).
- Other relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species that are known to occur, or are likely to occur in the vicinity of the Proposal area.

### **Inland waters**

#### **EPA policy and guidance**

- *Statement of environmental principles, factors, objectives and aims of EIA* (2023)
- *Instructions on how to prepare an environmental review document* (2024)
- *Environmental factor guideline – Inland waters* (2016)
- *Instructions on how to prepare Environmental Protection Act 1986 Part IV environmental management plans* (2024)
- *Guidance Statement No. 33 - Environmental Guidance for Planning and Development* (2008)

#### **Other policy and guidance**

- *Water Quality Protection Note 10 – Contaminant spills – emergency response plan* (2020)
- *Water Quality Protection Note 13 – Dewatering of soils at construction sites* (2013)
- *Water Quality Protection Note 15 – Basic raw materials extraction* (2019)
- *Water Quality Protection Note 36 – Protecting public drinking water source areas* (2009)
- *Water Quality Protection Note 52 – Stormwater management at industrial sites* (2010)
- *Water Quality Protection Note 65 – Toxic and hazardous substances* (2015)
- *Water Quality Protection Note 84 – Rehabilitation of disturbed land in public drinking water source areas* (2009)
- *Western Australian water in mining guideline* (2013)

### **Greenhouse gas emissions**

#### **EPA policy and guidance**

- *Statement of environmental principles, factors, objectives and aims of EIA* (2023)
- *Instructions on how to prepare an environmental review document* (2024)

- *Environmental factor guideline – Greenhouse Gas Emissions (2023)*
- *Greenhouse Gas Environmental Management Plan – Template (2023)*

*Other policy and guidance*

- *Western Australian Climate Policy 2020*
- *Greenhouse Gas Emissions Policy for Major Projects Government of Western Australia (2019)*

**Terrestrial environmental quality**

*EPA policy and guidance*

- *Statement of environmental principles, factors, objectives and aims of EIA (2023)*
- *Instructions on how to prepare an environmental review document (2024)*
- *Environmental factor guideline – Terrestrial Environmental Quality (2016)*
- *Guidelines for preparing Mine Closure Plans (2015)*

*Other policy and guidance*

- *Prepare a mine closure plan, Department of Mines, Industry Regulation and Safety (2020)*

**Social surroundings**

*EPA policy and guidance*

- *Statement of environmental principles, factors, objectives and aims of EIA (2023)*
- *Instructions on how to prepare an environmental review document (2024)*
- *Environmental factor guideline – Social surroundings (2023)*
- *Technical guidance: Environmental impact assessment of Social Surroundings – Aboriginal cultural heritage (2023)*

*Other policy and guidance*

- *Environmental Protection (Noise) Regulations 1997*
- *Visual Landscape Planning in Western Australia: A manual for evaluation, assessment, siting and design (2007)*
- *Forest Management Plan 2024 -2033, Government of Western Australia (2023)*