



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 6110/7
Permit Holder:	Pilbara Iron Company (Services) Pty Ltd
Duration of Permit:	4 October 2014 to 31 December 2029

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

PART I – CLEARING AUTHORISED

1. Purpose for which clearing may be done

- Clearing* within the areas cross-hatched yellow in Figures 1-15 of Schedule 1, for the purpose of constructing town, camp infrastructure, power infrastructure and associated works; and
- Clearing* within the areas cross-hatched red in Figure 14, 16-17 of Schedule 1 for the purposes of maintaining roads and access tracks, undertaking works associated with the monitoring bore network, and maintaining power infrastructure.

2. Land on which clearing is to be done

Clearing authorised under this Permit is to be undertaken within land tenure or rights administered under the *Mining Act 1904 (WA)*, *Mining Act 1978 (WA)*, *Land Act 1933 (WA)*, *Land Administration Act 1997 (WA)*, *Property Law Act 1969 (WA)*, *Transfer of Land Act 1893 (WA)*, *Strata Titles Act 1985 (WA)*, the *Rights in Water and Irrigation Act 1914 (WA)*, the *Water Corporation Act 1995 (WA)*, the *Water Agencies (Powers) Act 1984 (WA)* and the following State Agreement Acts –

- *Iron Ore (Hamersley Range) Agreement Act 1963*
 - *Iron Ore (Robe River) Agreement Act 1964*
 - *Iron Ore (Hamersley Range) Agreement Act 1968 (Paraburdoo)*
 - *Iron Ore (Mount Bruce) Agreement Act 1972*
 - *Iron Ore (Channar Joint Venture) Agreement Act 1987*
 - *Iron Ore (Hope Downs) Agreement Act 1992*
 - *Iron Ore (Yandicoogina) Agreement Act 1996*
- Karijini Drive Road reserve (Lot 106 on Plan 218877)

3. Area of Clearing

The Permit Holder must not clear more than 81 hectares of *native vegetation* within the areas cross-hatched yellow in Figures 1-17 of Schedule 1.

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. Avoid, minimise and reduce the impacts and extent of clearing

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

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

6. Weed control

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

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

7. Directional clearing

The Permit Holder must conduct *clearing* activities in a slow, progressive manner in one direction, to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

8. Flora management

- (a) Prior to undertaking any *clearing* authorised under this Permit, the Permit Holder must engage a *botanist* to undertake a *targeted flora survey* of the area(s) to be cleared in accordance with *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* to identify possible occurrences of, and habitat suitable for, *threatened flora* listed under the *Biodiversity Conservation Act 2016* and *priority flora*.
- (b) Prior to undertaking any *clearing* authorised under this Permit, where an area has been identified in accordance with condition 8(a) as containing possible occurrences of, and habitat suitable for, *threatened flora* or *priority flora*, the Permit Holder shall engage a *botanist* to inspect that area for the presence of *threatened flora* and *priority flora*.
- (c) Where *threatened flora* or *priority flora* are identified in relation to condition 8(b) of this Permit, the Permit Holder must ensure that:
 - (i) no *clearing* occurs within 50 metres of identified *threatened flora* or priority 1 flora, unless approved by the *CEO* in writing;
 - (ii) no clearing of identified *threatened flora* occurs unless approved under section 40 of the *Biodiversity Conservation Act 2016*;
 - (iii) no *clearing* occurs within 20 metres of identified priority 2, 3 and 4 flora, unless approved by the *CEO* in writing; and
 - (iv) no *clearing* of identified *priority flora* occurs unless approved by the *CEO* in writing.
- (d) Prior to undertaking any *clearing* authorised under this Permit, the Permit Holder must provide the results of the *targeted flora survey* in a report to the *CEO*.
- (e) If any *threatened flora* or *priority flora* are identified in relation to condition 8(b), the *targeted flora survey* report must include the following:
 - (i) the location of each *threatened flora* and *priority flora*, identified under conditions 8(a) or 8(b), either as the location of individual plants, or where this is not practical, the areal extent of the population and an estimate of the number of plants, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the species name of each *threatened flora* and *priority flora* species identified under conditions 8(a) or 8(b); and
 - (iii) the methodology used to survey the permit area.

9. Fauna management

- (a) Prior to undertaking any *clearing* authorised under this Permit, the Permit Holder shall engage a *fauna specialist* to undertake a *desktop study* of the area(s) to be cleared, to identify areas of habitat on which fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* have a specific dependence.
- (b) Prior to undertaking any *clearing* authorised under this Permit, where habitat areas are identified in accordance with condition 9(a), the Permit Holder shall engage a *fauna specialist* to undertake a *fauna survey* of the area(s) to be cleared, in accordance with *Technical Guidance – Terrestrial Fauna Surveys*.
- (c) Prior to undertaking any *clearing*, the Permit Holder shall provide the results of the *fauna survey* in a report to the *CEO*.
- (d) The *fauna survey* report must include the following:
 - (i) the findings of the *desktop study* undertaken in accordance with condition 9(a);
 - (ii) the location of the areas of habitat on which fauna have a specific dependence recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iii) the location of any fauna species, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iv) the name of each fauna species identified;
 - (v) the methodology, used to survey the Permit Area and to establish the areas of habitat on which fauna have a specific dependence;
 - (vi) the extent of the areas of habitat on which fauna have a specific dependence of the identified fauna shown on a map; and
 - (vii) a description of the areas of habitat on which fauna have a specific dependence of fauna found.
- (e) Prior to undertaking *clearing* authorised under this Permit, where areas are identified in accordance with condition 9(a), the Permit Holder must:
 - (i) avoid areas identified in accordance with condition 9(a); or
 - (ii) where the areas identified in accordance with condition 9(a) cannot be avoided, prepare, implement and adhere to a *Fauna Management Plan*, designed by a *fauna specialist*.
- (f) Prior to undertaking any clearing authorised under this Permit, where fauna is identified in accordance with condition 9(b), the Permit Holder must prepare, implement and adhere to a *Fauna Management Plan*, designed by a *fauna specialist*.
- (g) The *Fauna Management Plan* must include the following:
 - (i) a plan for managing the *impacts*;
 - (ii) a plan for managing any fauna identified in accordance with *condition 9(b)*;
 - (iii) a table setting out the Permit Holder's commitments to the *Fauna Management Plan* requirements; and
 - (iv) a program for monitoring compliance with the Permit Holder's commitments.
- (h) Once the Permit Holder has developed a *Fauna Management Plan*, the Permit Holder must provide that *Fauna Management Plan* to the *CEO* for the *CEO's* approval. The clearing to which the *Fauna Management Plan* relates, and the implementation of the *Fauna Management Plan* shall not take place until the Permit Holder receives approval from the *CEO*.
 - (i) If it is necessary to modify the *Fauna Management Plan* approved by the *CEO*, then the Permit Holder must provide that modified *Fauna Management Plan* to the *CEO* for the *CEO's* approval. The Permit Holder shall not implement the modified *Fauna Management Plan* until approval is received from the *CEO*.

10. Vegetation management

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

PART III – MONITORING, RECORD KEEPING AND REPORTING

11. Records to be kept

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

- (a) In relation to the *clearing* of *native vegetation* authorised under this Permit:
 - (i) the location where the *clearing* occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), 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);
 - (iv) the actions taken to avoid, minimise, and reduce the impacts and extent of *clearing* in accordance with condition 5;
 - (v) the actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 6; and
 - (vi) the actions taken in accordance with condition 7.
- (b) In relation to flora management pursuant to condition 8 of this Permit:
 - (i) the name and location of each *threatened flora* and/or *priority flora* species recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) actions taken to demarcate each *threatened flora* and/or *priority flora* species recorded and their relevant *buffers*; and
 - (iii) actions taken to avoid the clearing of *threatened flora* and/or *priority flora* species and their relevant *buffers*.
- (c) In relation to fauna management pursuant to condition 9 of this Permit:
 - (i) the location of areas of habitat on which fauna have a specific dependence recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (ii) the name and location of any fauna species recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (iii) actions taken to demarcate and avoid each area of habitat on which fauna have a specific dependence recorded; and
 - (iv) a description and results of the fauna management activities undertaken in accordance with the *Fauna Management Plan* approved by the *CEO*.
- (d) In relation to vegetation management pursuant to condition 10 of this Permit:
 - (i) actions taken to avoid riparian vegetation; and
 - (ii) evidence of the installation of culverts to maintain existing flow.

11. Reporting

- (a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
 - (i) of records required under condition 10 of this Permit; and
 - (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.
- (b) If no *clearing* authorised under this Permit was undertaken between 1 January to 31 December of the preceding calendar year, a written report confirming that no clearing under this permit has been carried out, must be provided to the *CEO* on or before 31 December of each year.
- (c) Prior to 30 June 2024, the Permit Holder must provide to the *CEO* a written report of records required under condition 10 of this Permit where these records have not already been provided under condition 11(a) of this Permit.

DEFINITIONS

In this permit, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
botanist	Means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of two (2) years' work experience in Western Australian flora identification and undertaking surveys of flora native to the bioregion being inspected or surveyed, or who is approved by the <i>CEO</i> as a suitable botanist for the bioregion, and who holds a valid flora licence issued under the <i>Biodiversity Conservation Act 2016</i> ;
buffer/s	Means 50 metres for <i>threatened flora</i> , and 20 metres for <i>priority flora</i> ;
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
critical habitat	Means any part of the Permit Area comprising of the habitat of flora or fauna species and its population;
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
desktop study	means a process of gathering contextual information on the area(s) to be cleared from existing surveys, literature, database searches and spatial information undertaken by <i>fauna specialist</i> in accordance with <i>Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment</i> , Environmental Protection Authority, July 2020;
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (2) years' work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist;
EP Act	<i>Environmental Protection Act 1986</i> (WA)
fauna management plan	means a plan developed by the Permit Holder for the management of fauna at the site in accordance with condition 7 of this Permit;
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the <i>CEO</i> as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
fauna survey	means a field-based investigation, including a review of established literature, of the biodiversity of fauna and/or fauna habitat of the permit area and where conservation significant fauna are identified in the permit area, also includes a fauna survey of surrounding areas to place the permit into local context;
fill	means material used to increase the ground level, or fill a hollow;

Term	Definition
impacts	means any impact of clearing on environmental values
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.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
priority flora	means those plant taxa described as priority flora classes 1, 2, 3, or 4 in the <i>Department of Biodiversity, Conservation and Attractions Threatened and Priority Flora List for Western Australia</i> (as amended);
targeted flora survey	means a field-based investigation, including a review of established literature, of the biodiversity of flora and vegetation of the permit area, focusing on habitat suitable for flora species that are being targeted and carried out during the optimal time to identify those species. Where target flora are identified in the permit area, the survey must also include a minimum of a 10 metre radius of the surrounding areas to place the permit area into local context;
Technical Guidance – Flora and vegetation Surveys for Environmental Impact Assessment	means <i>Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment</i> , Environmental Protection Authority, December 2016 (or as revised);
Technical Guidance – Terrestrial Fauna Surveys	means <i>Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment</i> , Environmental Protection Authority, July 2020 (or as revised);
threatened flora	means those plant taxa listed as threatened flora under the <i>Biodiversity Conservation Act 2016</i> ;
weeds	means any plant – (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i> ; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.
<i>Wildlife Conservation (Specially Protected Fauna) Notice 2018</i>	means those fauna taxa gazetted as threatened fauna pursuant to section 19(1) of the <i>Biodiversity Conservation Act 2016</i> ;

END OF CONDITIONS



Meenu Vitarana
Manager

NATIVE VEGETATION REGULATION

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

17 November 2023

Schedule 1

The boundary of the areas authorised to be cleared is shown in Figures 1-17 below.

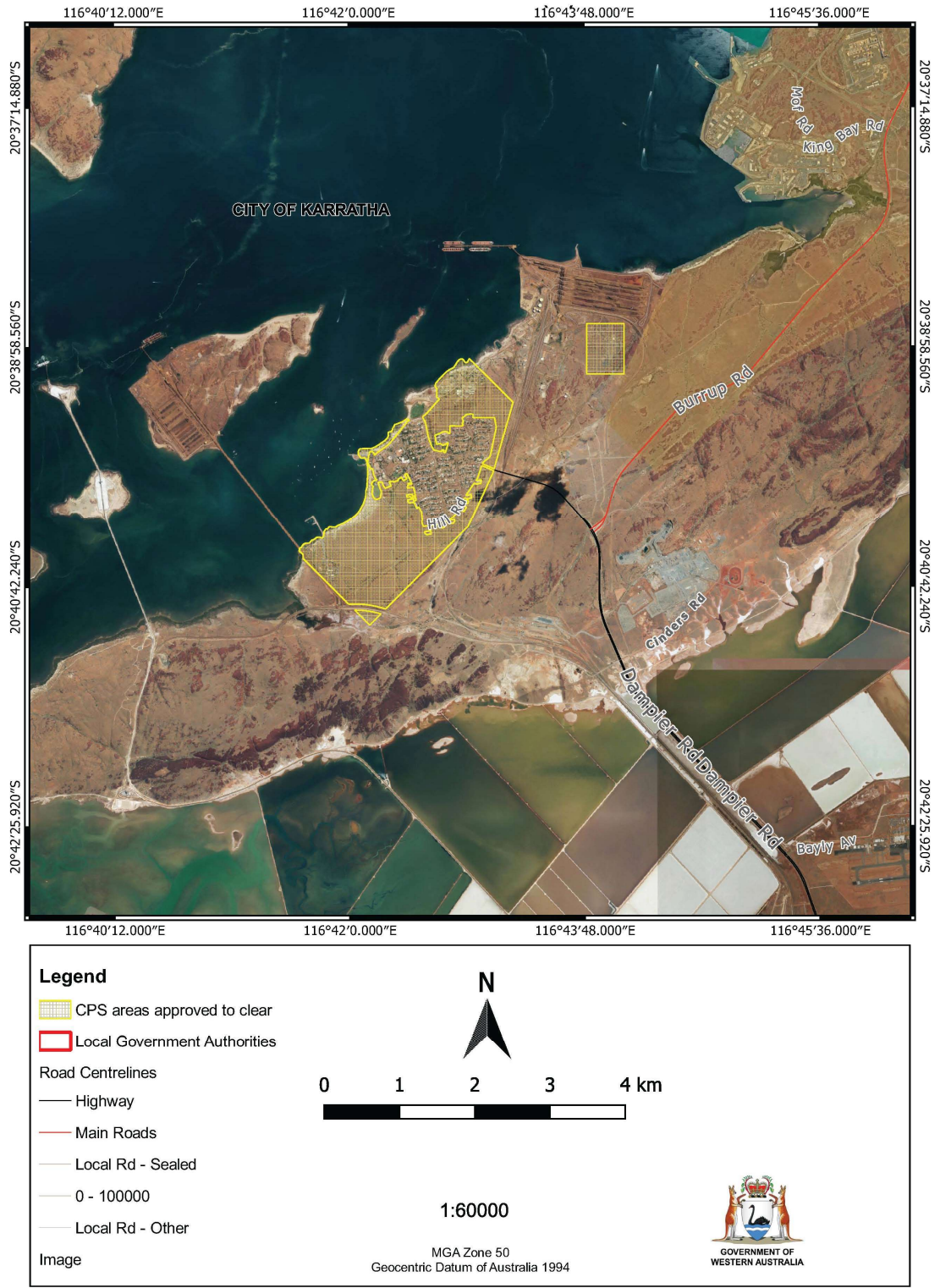


Figure 1: Map of the boundary of the areas within which clearing may occur under condition 1(a)

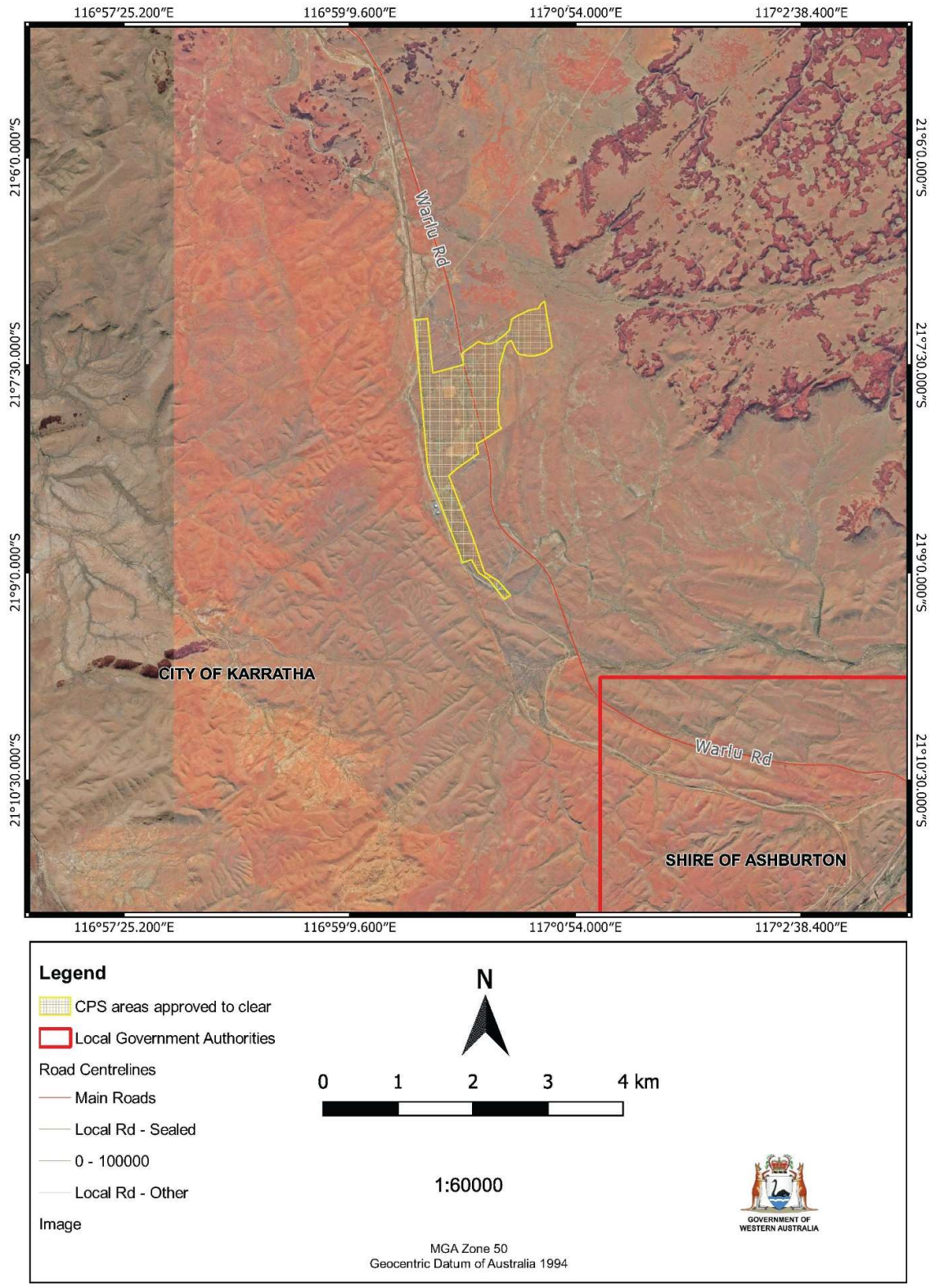


Figure 2: Map of the boundary of the areas within which clearing may occur under condition 1(a)

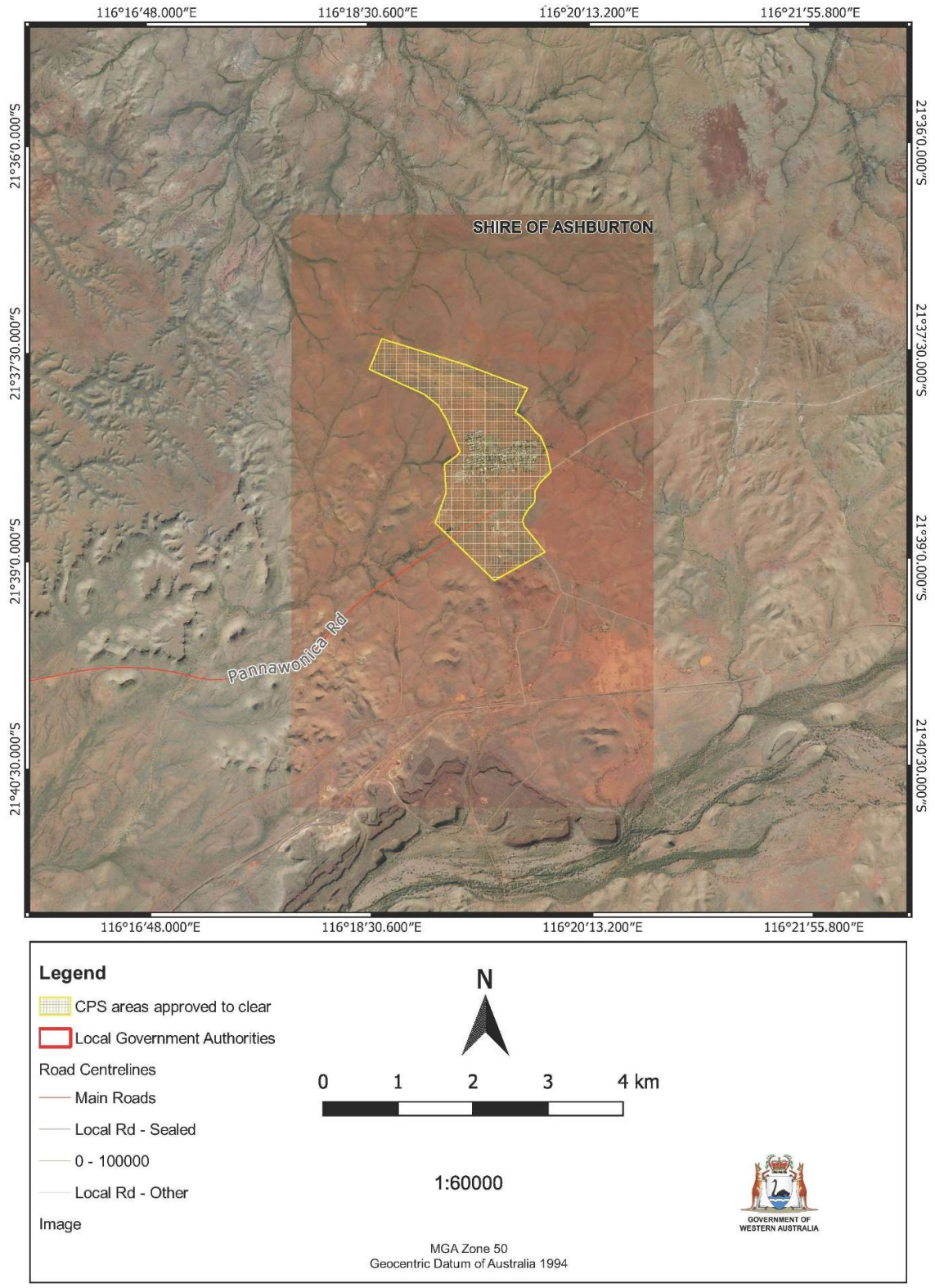


Figure 3: Map of the boundary of the areas within which clearing may occur under condition 1(a)

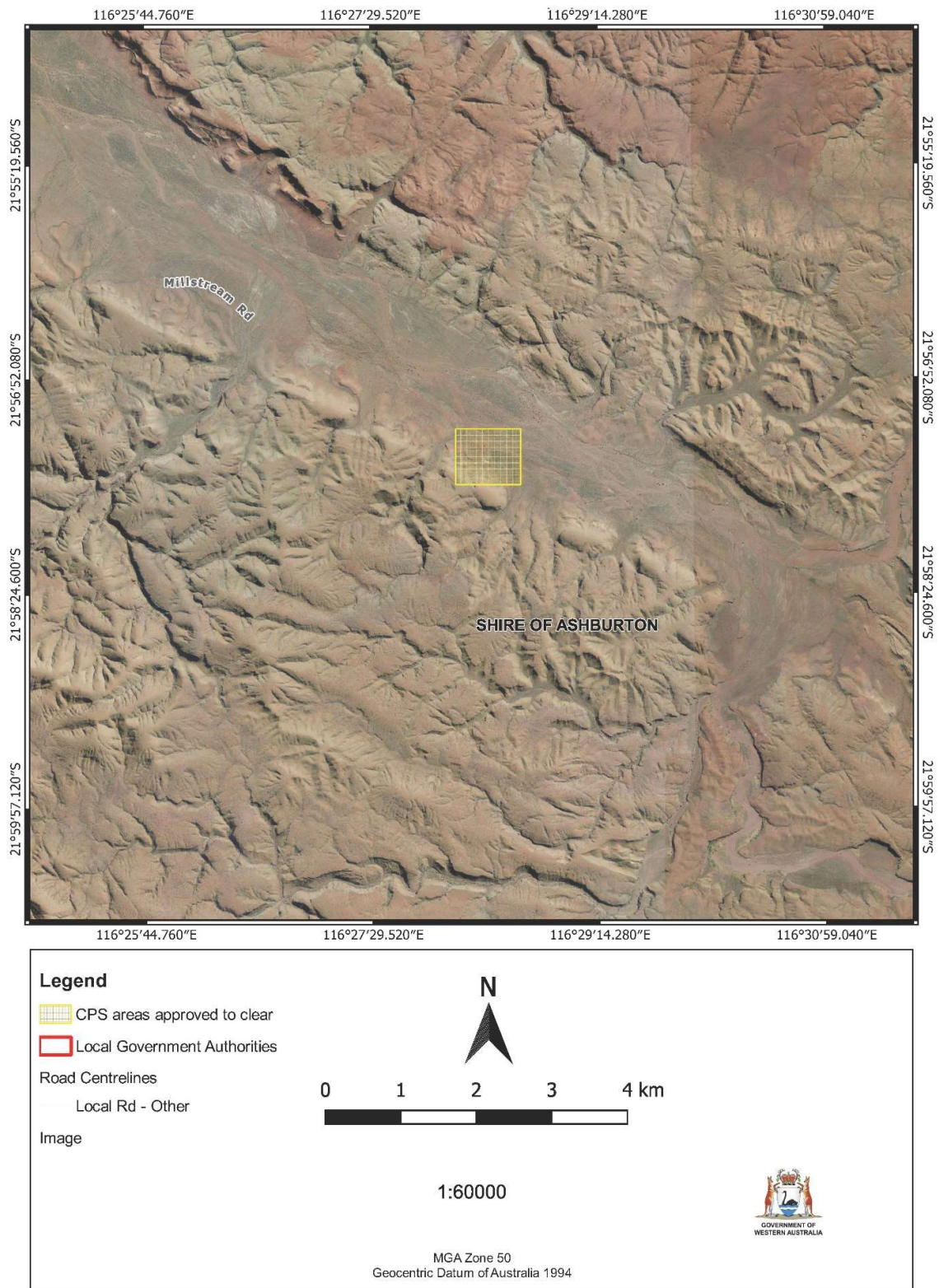


Figure 4: Map of the boundary of the areas within which clearing may occur under condition 1(a)

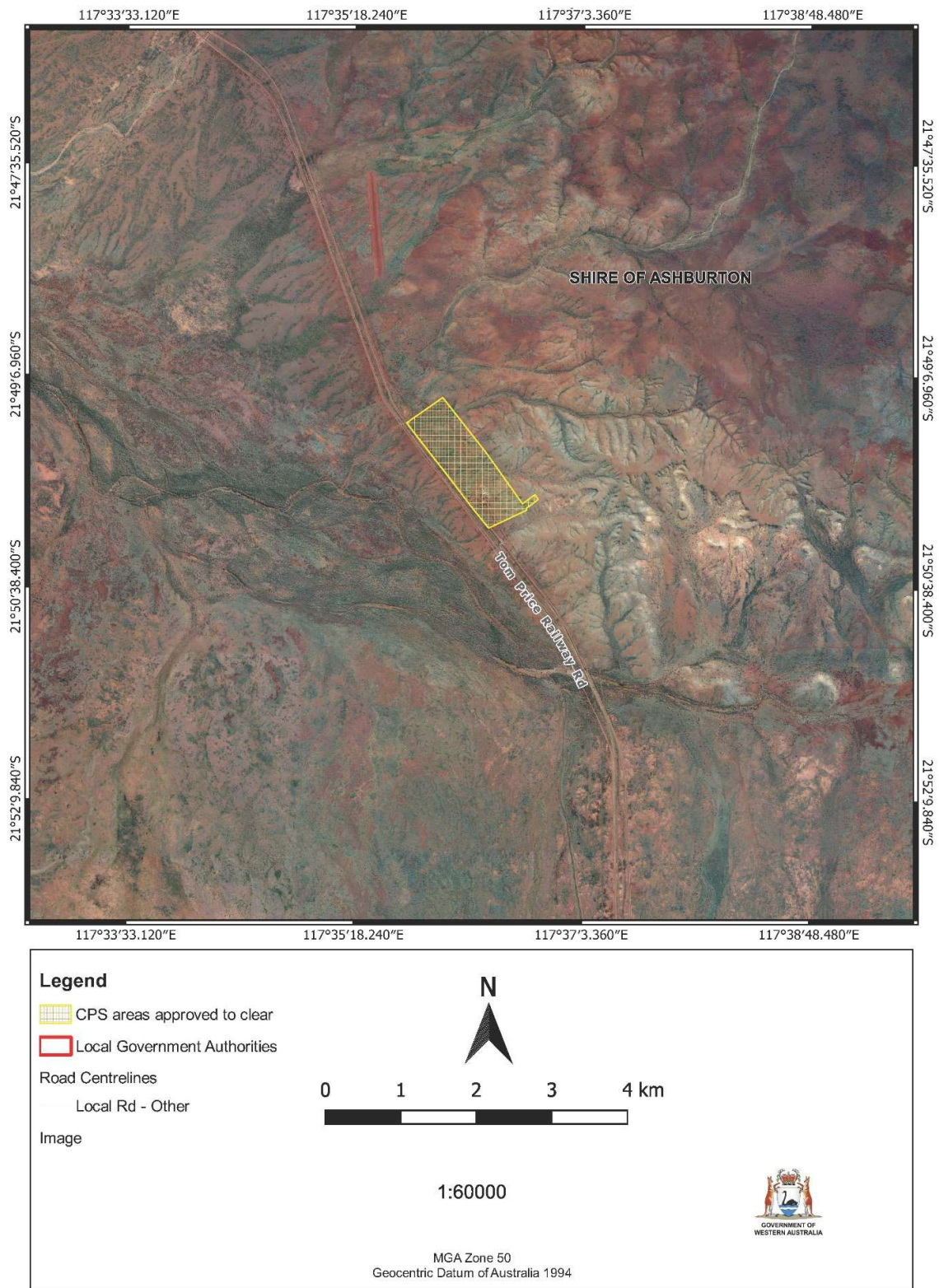


Figure 5: Map of the boundary of the areas within which clearing may occur under condition 1(a)

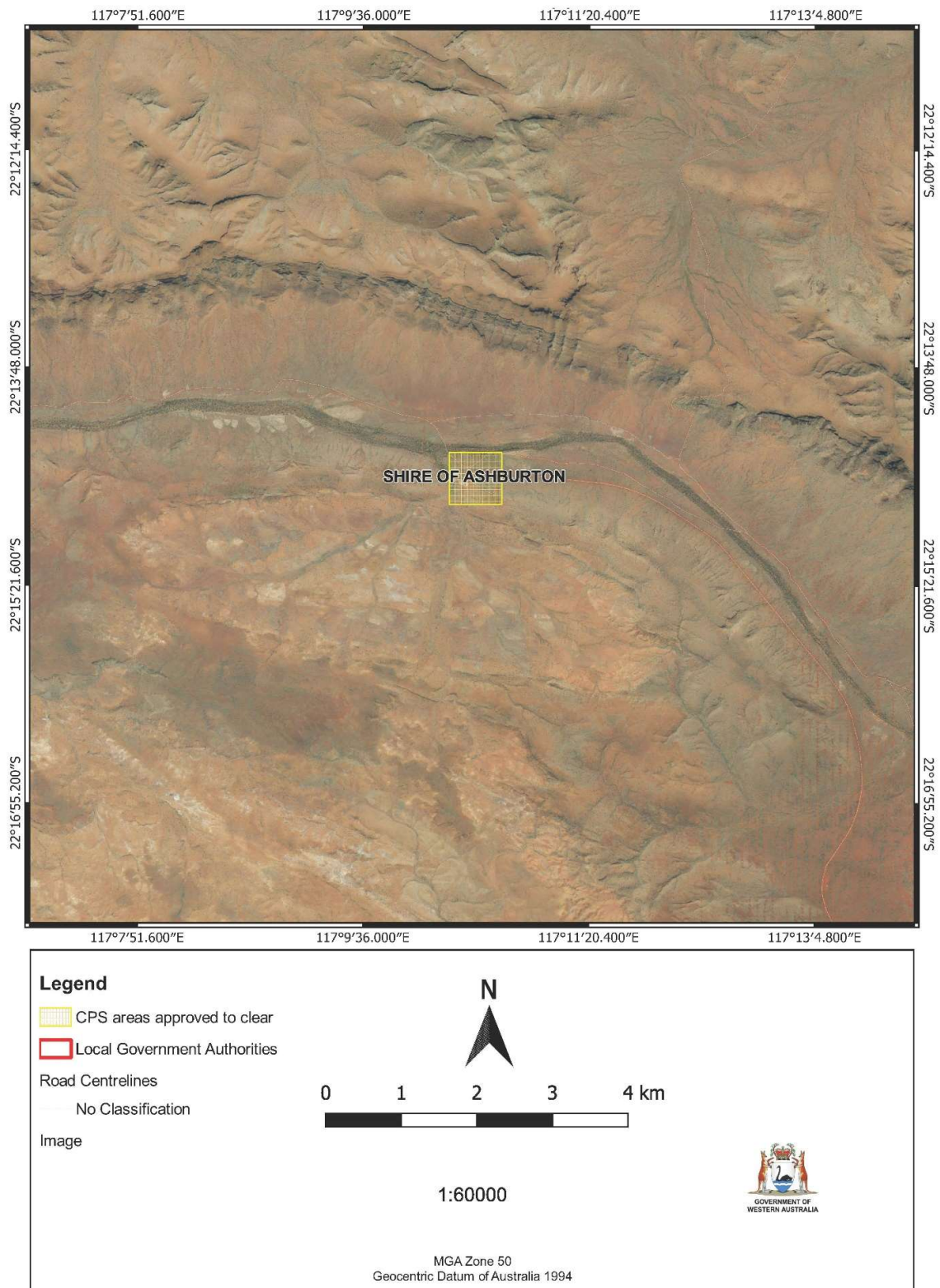


Figure 6: Map of the boundary of the areas within which clearing may occur under condition 1(a)

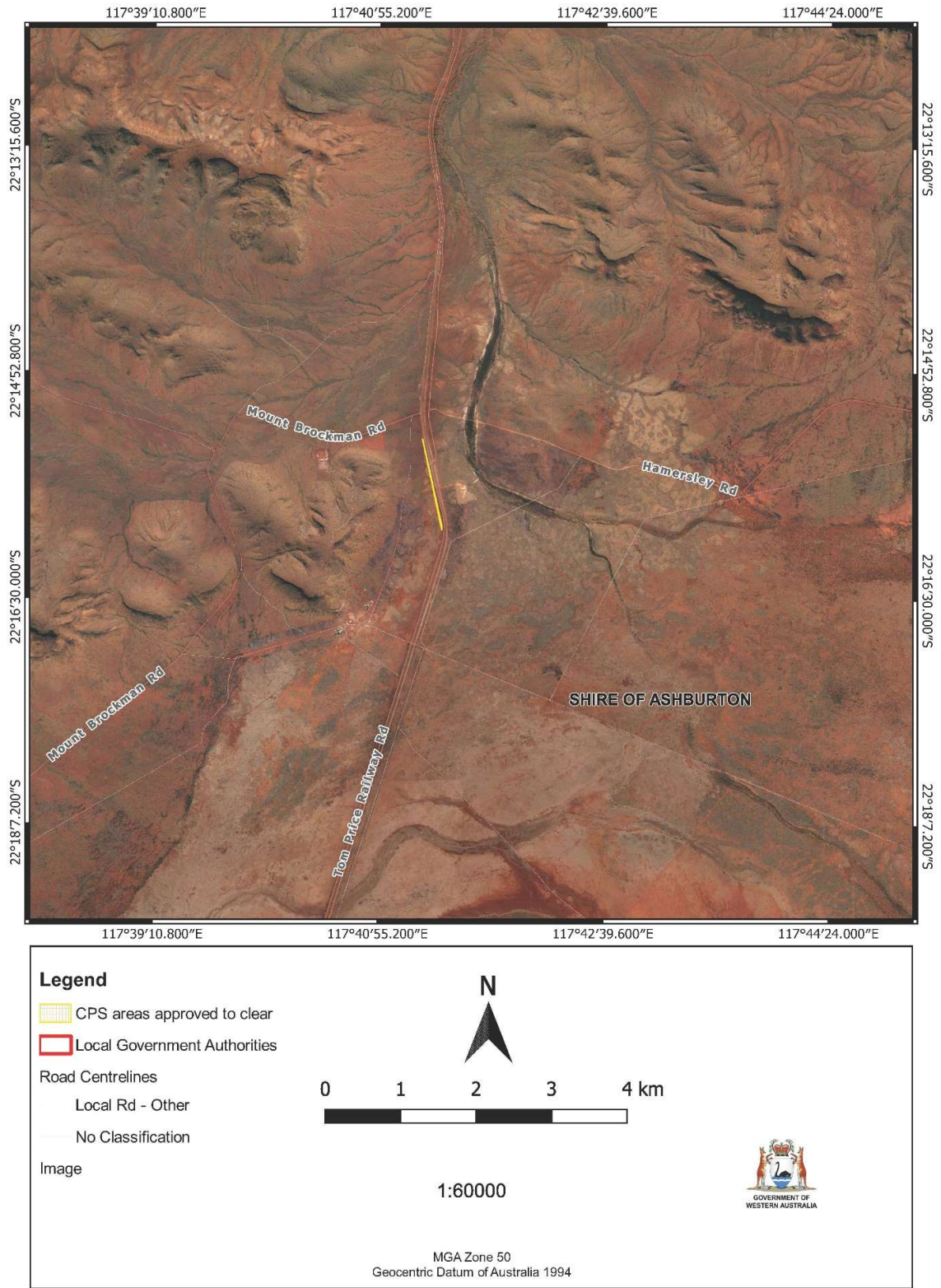


Figure 7: Map of the boundary of the areas within which clearing may occur under condition 1(a)

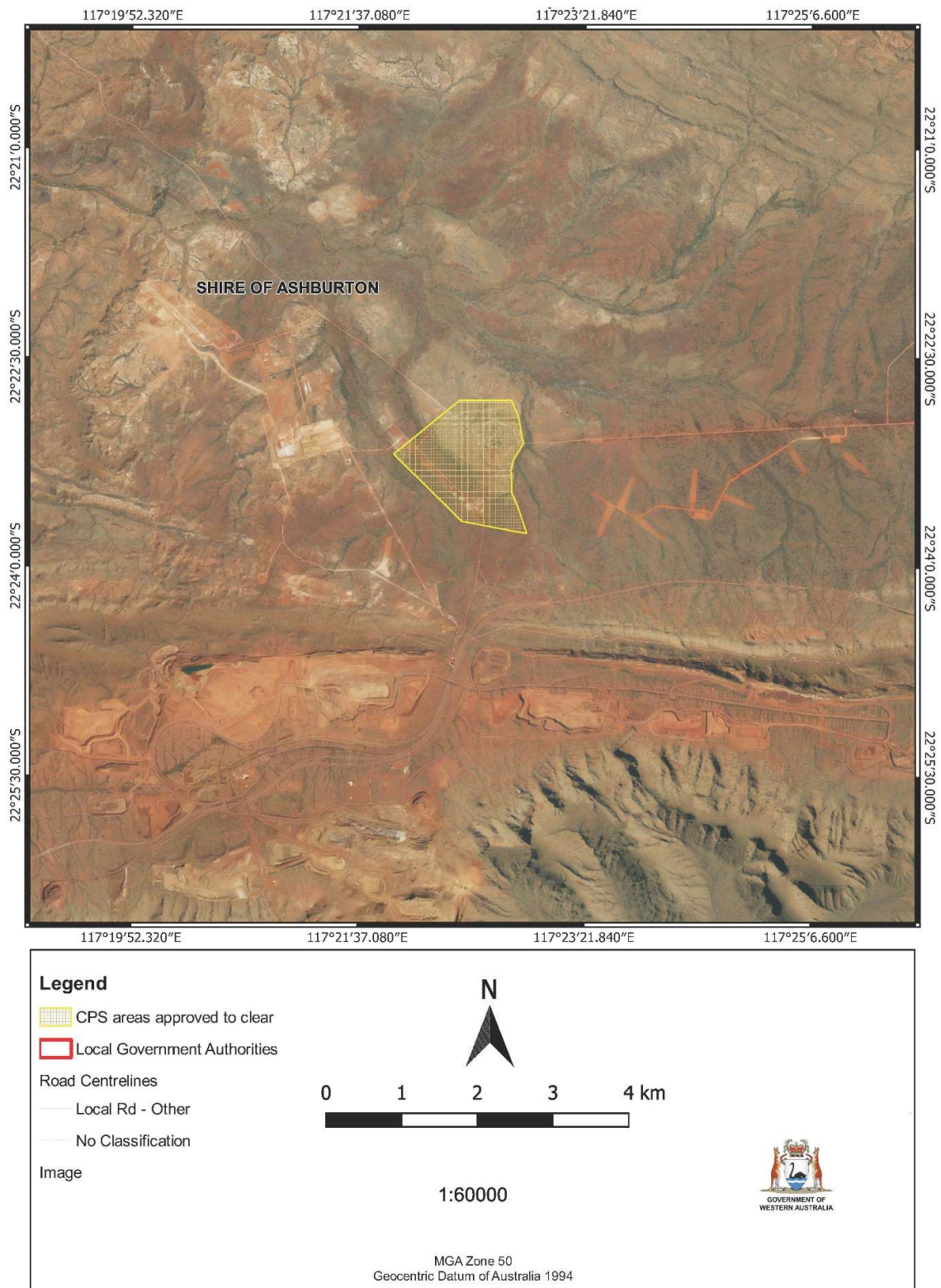


Figure 8: Map of the boundary of the areas within which clearing may occur under condition 1(a)

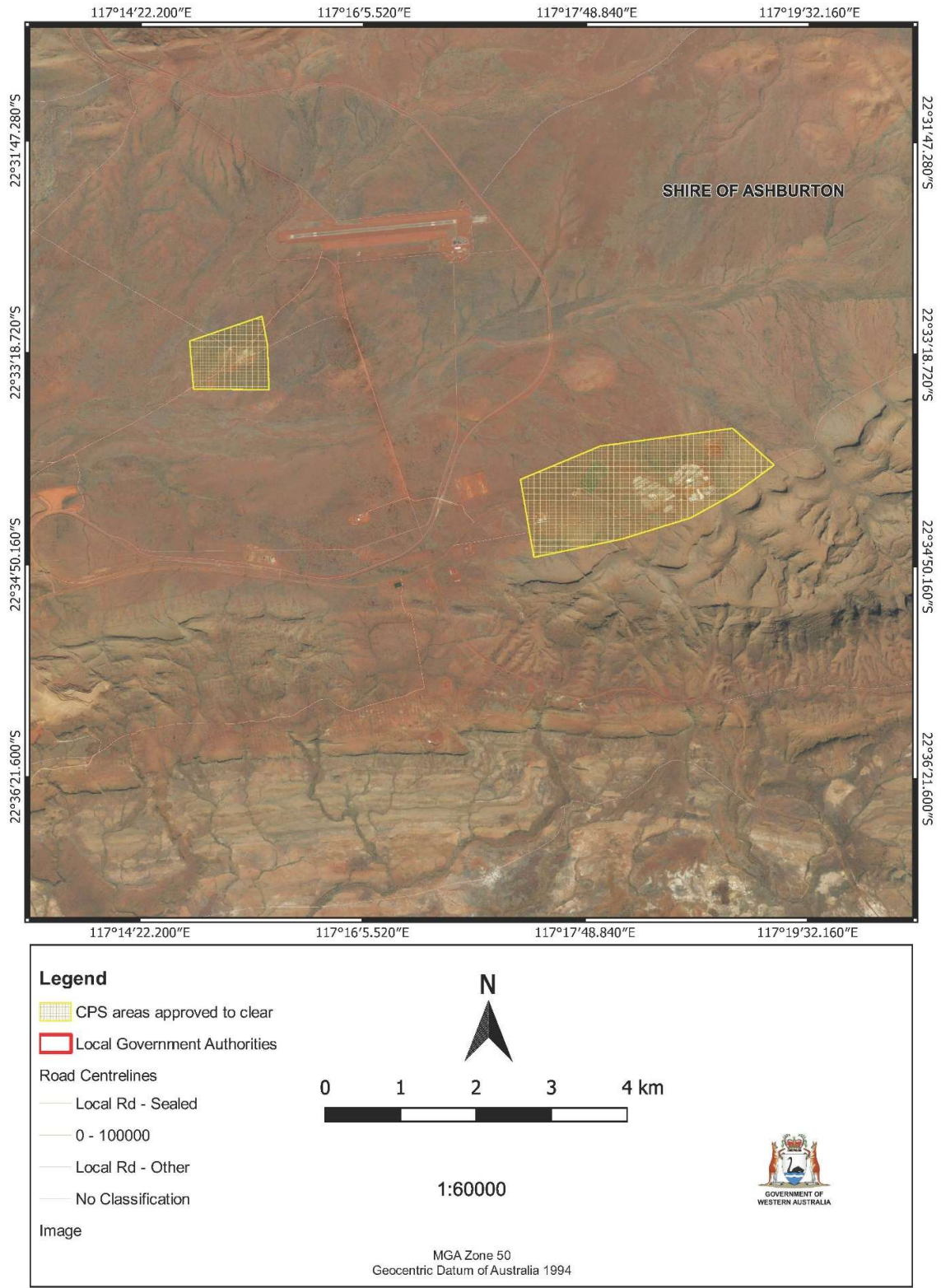


Figure 9: Map of the boundary of the areas within which clearing may occur under condition 1(a)

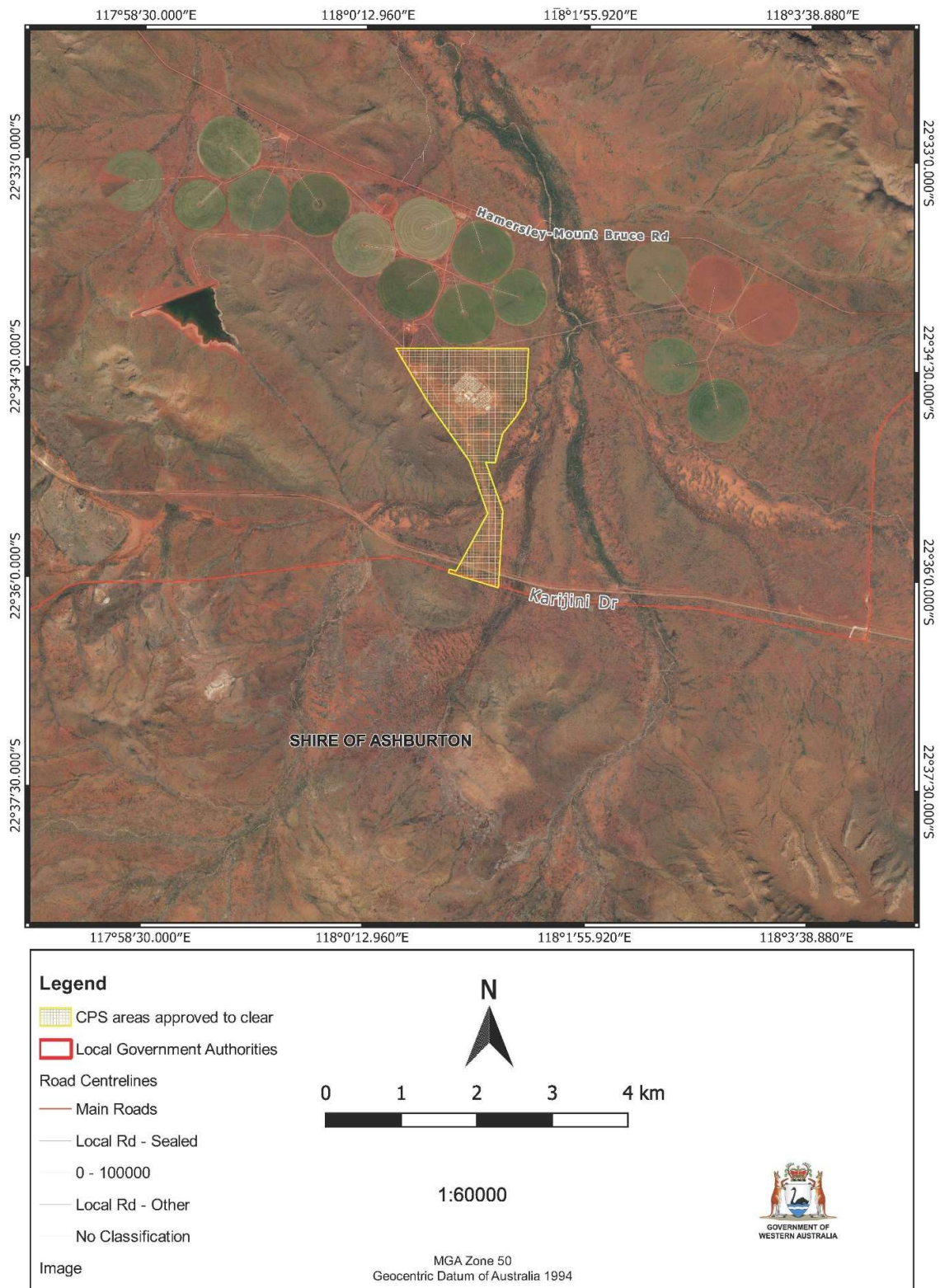


Figure 10: Map of the boundary of the areas within which clearing may occur under condition 1(a)

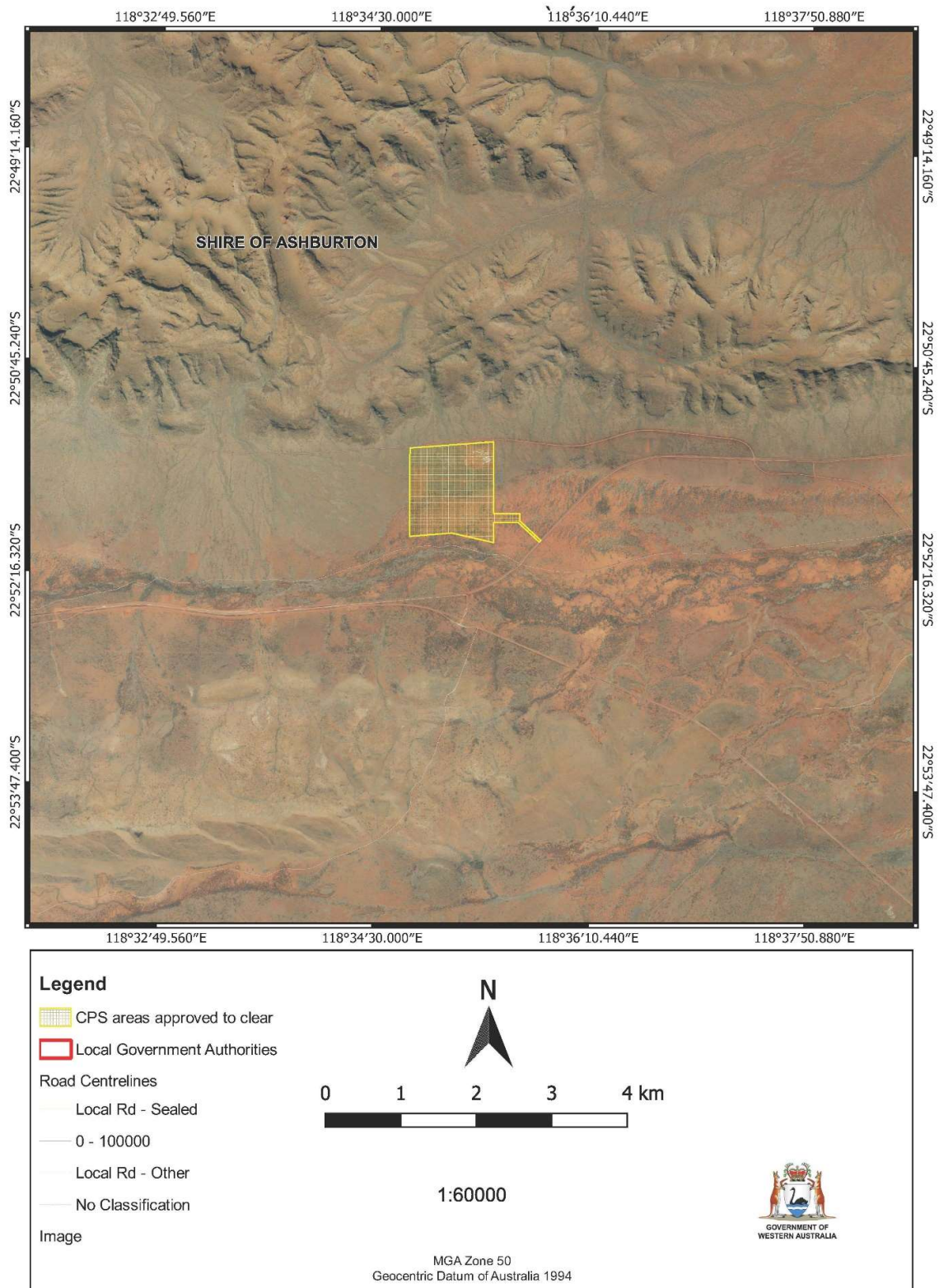


Figure 11: Map of the boundary of the areas within which clearing may occur under condition 1(a)

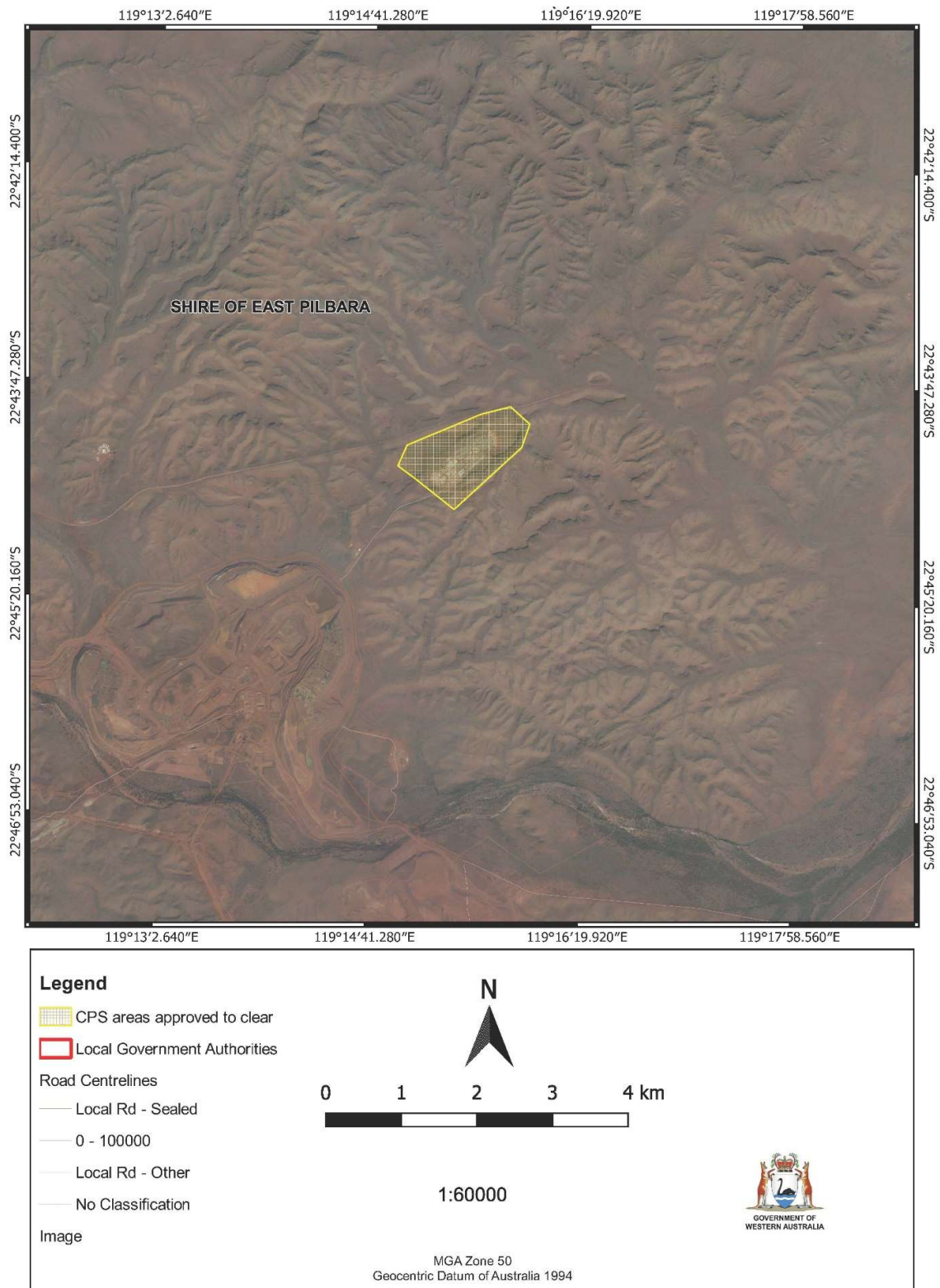


Figure 12: Map of the boundary of the areas within which clearing may occur under condition 1(a)

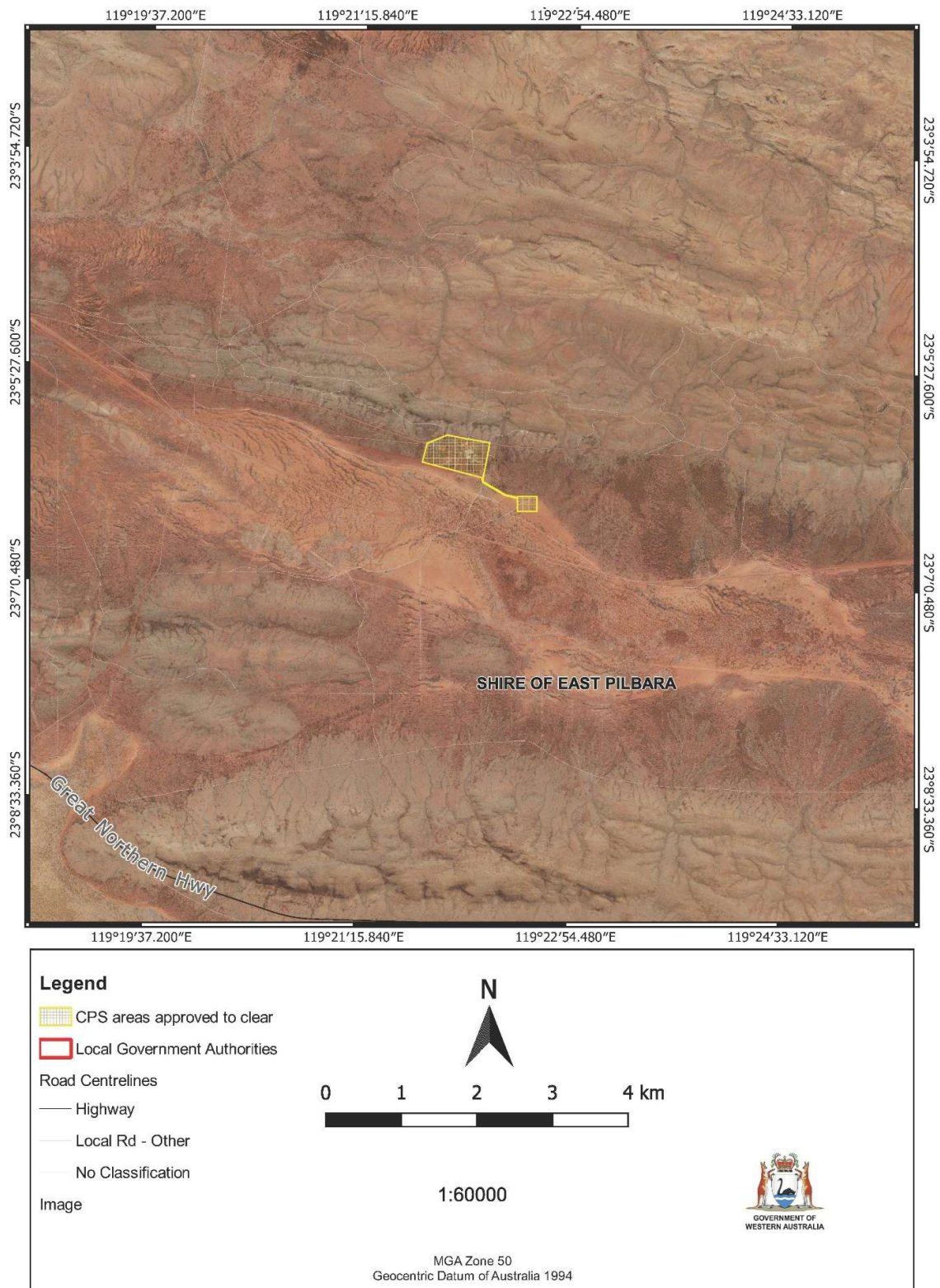


Figure 13: Map of the boundary of the areas within which clearing may occur under condition 1(a)

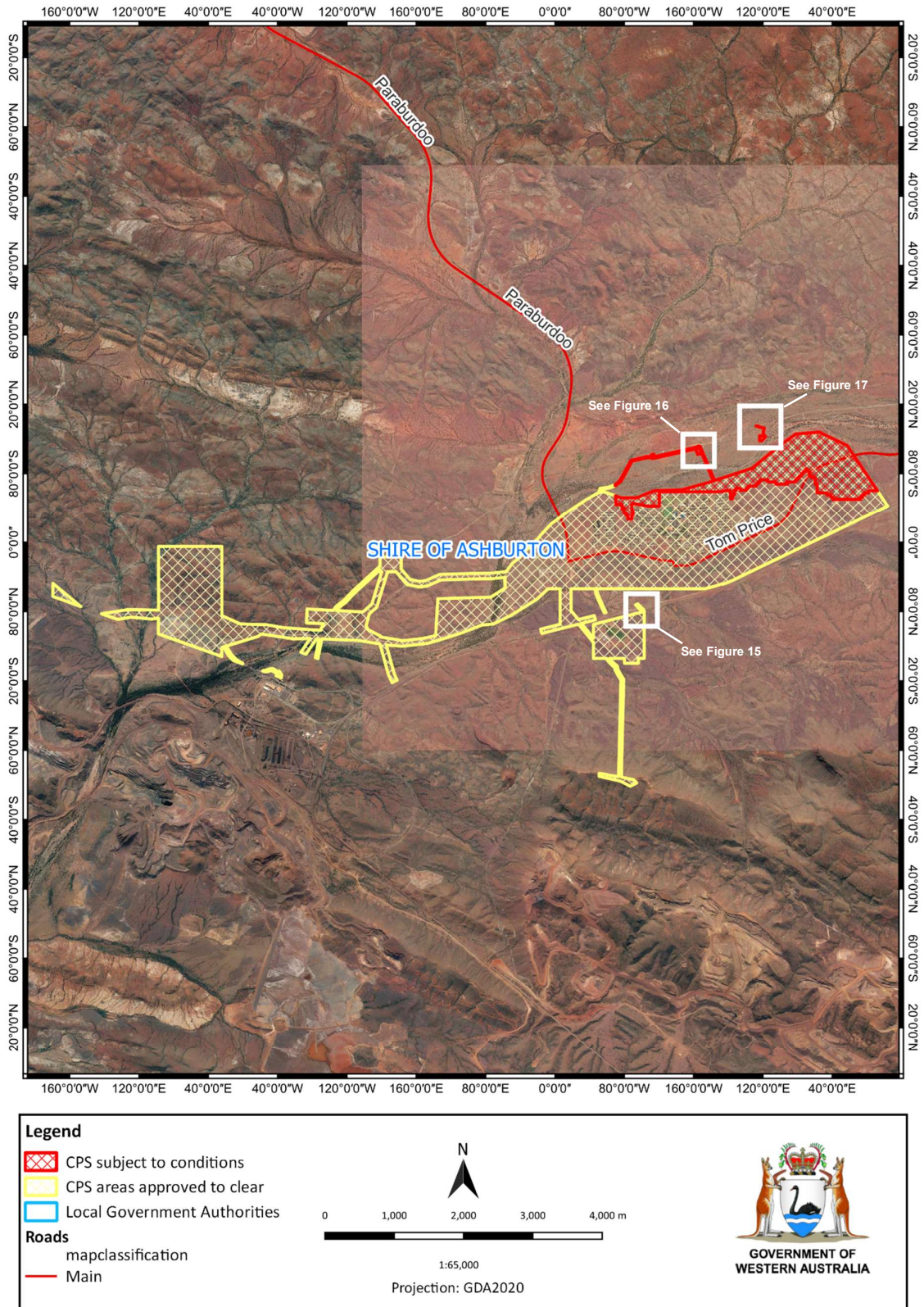


Figure 14: Map of the boundary of the areas within which clearing may occur under condition 1(a) (yellow cross hatch) and condition 1(b) (red cross hatch)

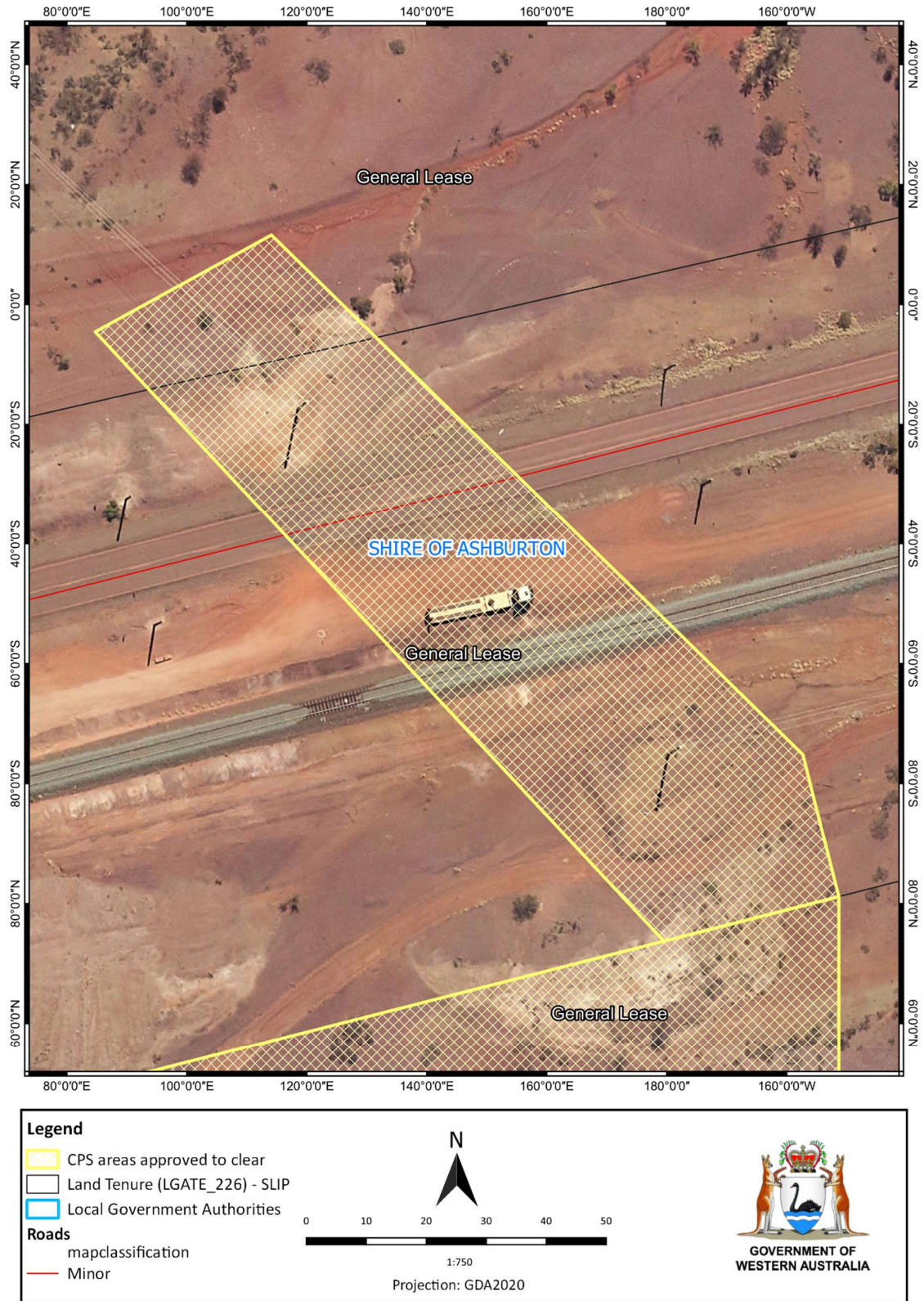


Figure 15: Map of the boundary of the areas within which clearing may occur under condition 1(a).

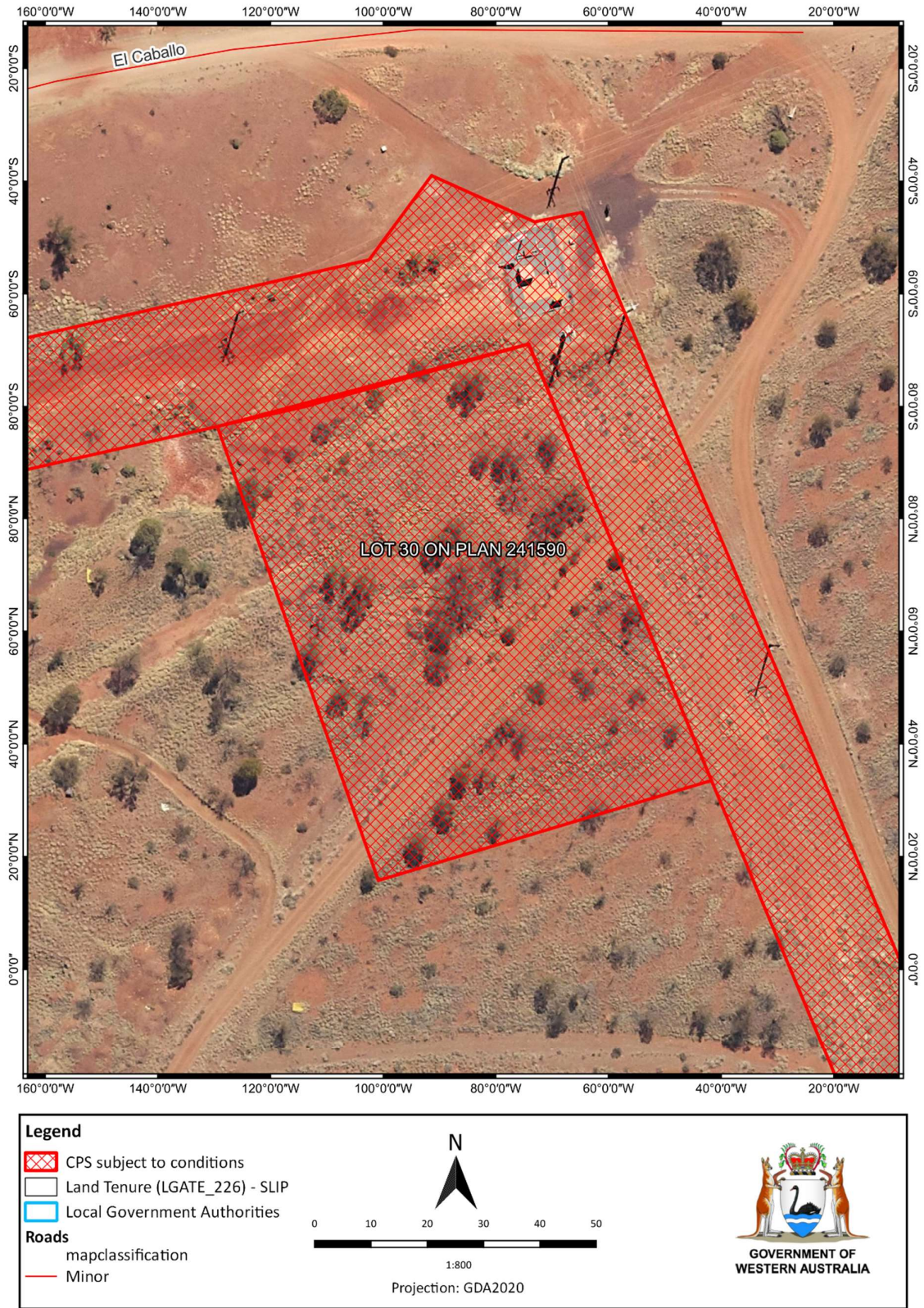


Figure 16: Map of the boundary of the areas within which clearing may occur under condition 1(b).

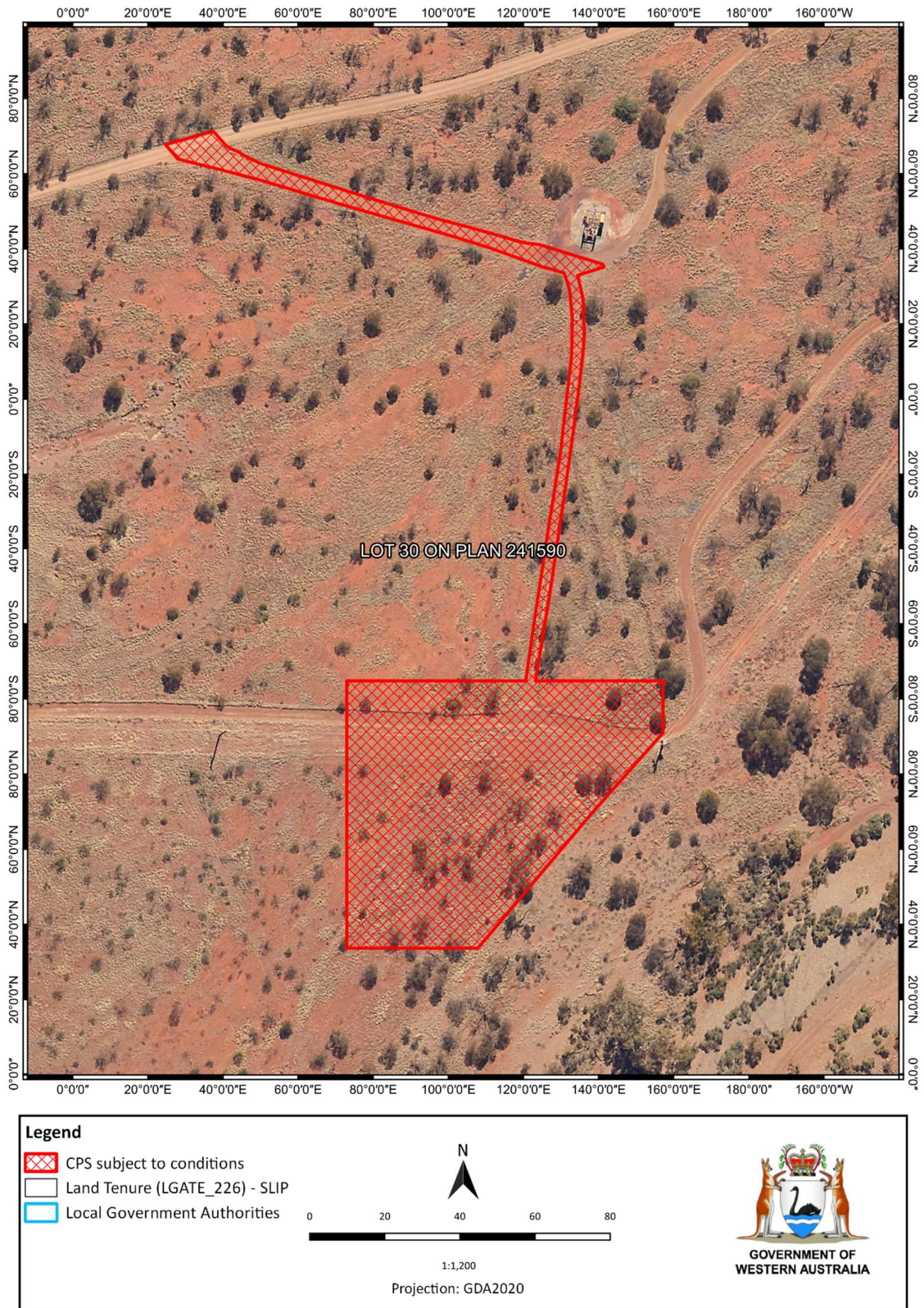


Figure 17: Map of the boundary of the areas within which clearing may occur under condition 1(b).



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 6110/7
Permit type:	Purpose permit
Applicant name:	Pilbara Iron Company (Services) Pty Ltd
Application received:	16 June 2023
Application area:	81 hectares of native vegetation within a 3332.28-hectare footprint
Purpose of clearing:	Constructing town and camp infrastructure and associated works and maintaining roads, access tracks, undertaking works associated with the monitoring bore network, and maintaining power infrastructure
Method of clearing:	Mechanical removal
Property:	Clearing authorised under this Permit is to be undertaken within land tenure or rights administered under the Mining Act 1904 (WA), Mining Act 1978 (WA), Land Act 1933 (WA), Land Administration Act 1997 (WA), Property Law Act 1969 (WA), Transfer of Land Act 1893 (WA), Strata Titles Act 1985 (WA), the Rights in Water and Irrigation Act 1914 (WA), the Water Corporation Act 1995 (WA), the Water Agencies (Powers) Act 1984 (WA) or the following State Agreement Acts – - Iron Ore (Hamersley Range) Agreement Act 1963 - Iron Ore (Robe River) Agreement Act 1964 - Iron Ore (Hamersley Range) Agreement Act 1968 (Paraburdoo) - Iron Ore (Mount Bruce) Agreement Act 1972 - Iron Ore (Channar Joint Venture) Agreement Act 1987 - Iron Ore (Hope Downs) Agreement Act 1992 - Iron Ore (Yandicoogina) Agreement Act 1996 - Karijini Drive Road reserve (Lot 106 on Plan 218877)
Location (LGA area/s):	Shire of Ashburton Shire of East Pilbara City of Karratha
Localities (suburb/s):	Maitland Dampier Juna Downs Newman Mount Sheila Rocklea Fortescue Burrup Chichester Paraburdoo Pannawonica Hamersley Range Cooya Pooya Dampier Archipelago

1.2. Description of clearing activities

This amendment was requested by the applicant to:

- Increase the size of the clearing permit boundary (envelope) by two hectares to capture additional areas where native vegetation is required to be cleared (see Figure 1);
- Amend Condition 3 to increase the area permitted to be cleared from 75.3 hectare to 81 hectare (increase of 5.7 hectares) to allow for future clearing;
- Amend Condition 8 to include a desktop study prior to undertaking a targeted flora survey. The targeted survey should only be required if desktop assessment identifies potential occurrences of, or suitable habitat for, threatened flora or priority flora (refer 1.3); and
- Extend the duration of the permit until 31 December 2029 as part of this amendment.

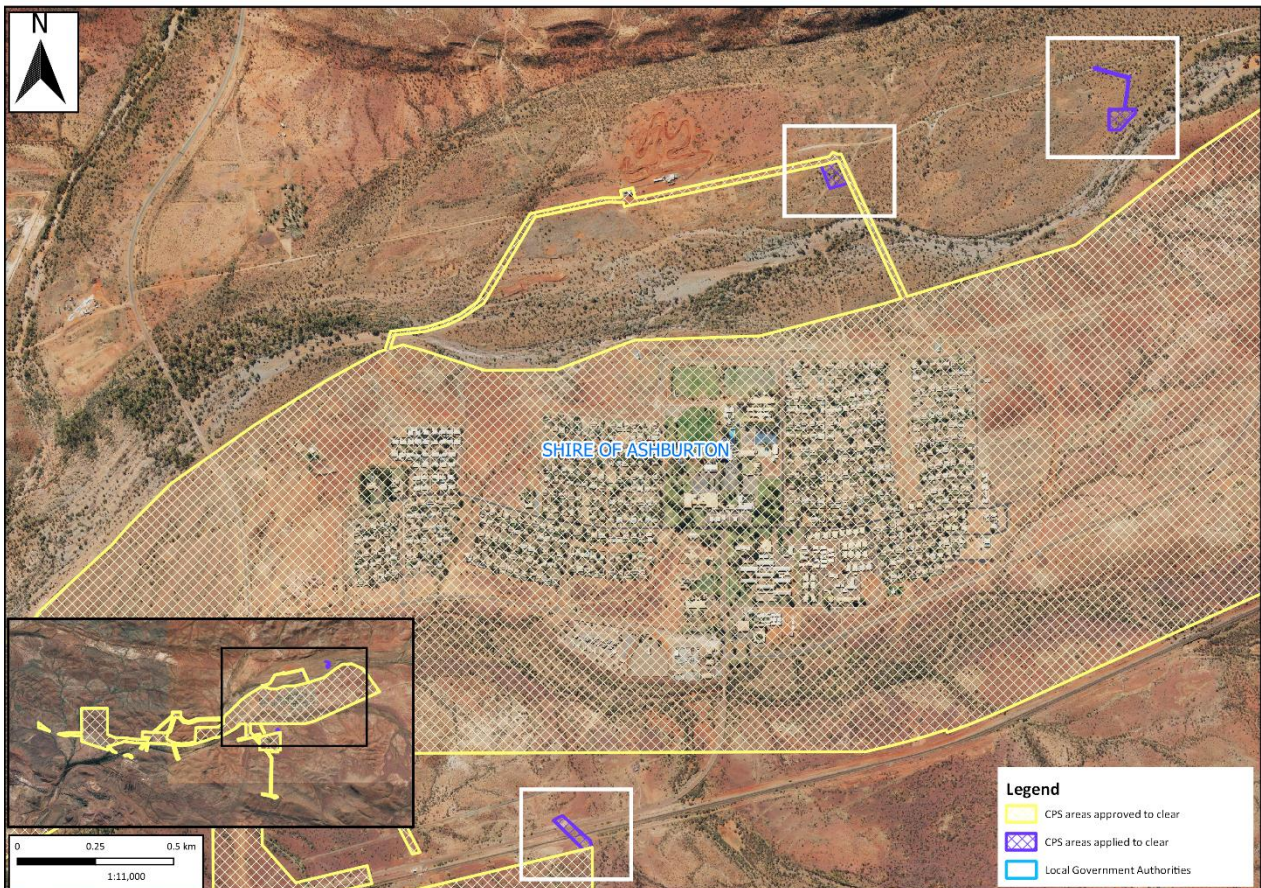


Figure 1. Additional areas (2.0035 ha purple hatched areas) proposed to be cleared under CPS 6110/7

The clearing permit (purpose permit) CPS 6110/6 was granted on 19 October 2021 allowed for the clearing of 75.3 hectares of native vegetation within a 3330.28-hectare footprint. A total of 9.54 hectares has been cleared to date under the permit CPS 6110/6 (and its previous versions).

The CPS 6110/7 amendment would allow for the clearing of up to 81 hectares of native vegetation within an amended 3332.28 hectare clearing footprint (Section 1.5, Figure 2 to 15). In addition, the amendment would extend the duration of the permit to 31 December 2029.

1.3. Decision on application

Decision:	Granted
Decision date:	17 November 2023
Decision area:	81 hectares of native vegetation within a 3332.28-hectare footprint, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit amendment application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a targeted flora, vegetation and fauna habitat assessment (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3.3). The Delegated Officer also took into consideration that the amendment was to:

- Increase the size of the clearing permit boundary (envelope) from 3330.28 hectares to 3332.28 hectares (increase of two hectares) to capture additional areas where native vegetation is required to be cleared (see Figure 1 and Figures 16-18);
- Amend Condition 3 to increase the area permitted to be cleared from 75.3 hectares to 81 hectares (increase of 5.7 hectares) to allow for future clearing;
- Extend the duration of the permit until 31 December 2029; and
- Amend Condition 8 to include a desktop study prior to undertaking a targeted flora survey. The targeted survey should only be required if desktop assessment identifies potential occurrences of, or suitable habitat for, threatened flora or priority flora (refer below).

It has been concluded that the assessment against the clearing principles is unchanged since the assessment for clearing permit CPS 6110/6 and that the proposed clearing is at variance to principle (f) and (i), may be at variance to principles (a), (b), and (c), and is not likely to be at variance to any of the remaining clearing principles. A review of current environmental information indicated that the additional 2.0035-hectare area was unlikely to contain environmental values in addition to those present within the existing permit area.

Although the assessment determination has not changed significantly since the assessment for CPS 6110/6, the assessment has considered environmental values of the additional area applied for under the amendment (see section 3.2).

The Delegated Officer determined that increasing the overall clearing footprint by 2.0035-hectares and increasing the total area authorised to be cleared under the permit to 81 hectares is not likely to lead to an unacceptable risk to environmental values. However, the Delegated Officer determined that amending Condition 8 (as per above) was likely to lead to an unacceptable risk to environmental values (flora) due to the relatively unsurveyed nature of the Pilbara region in which the clearing area occurs (see section 3.2). Given this, condition 8 has not been amended and will remain as per the Clearing Permit for 6110/6.

The Delegated Officer determined that the proposed clearing can be managed to be environmentally acceptable with the existing avoid and minimise, weed control, flora management, fauna management, and vegetation management conditions.

1.5. Site maps

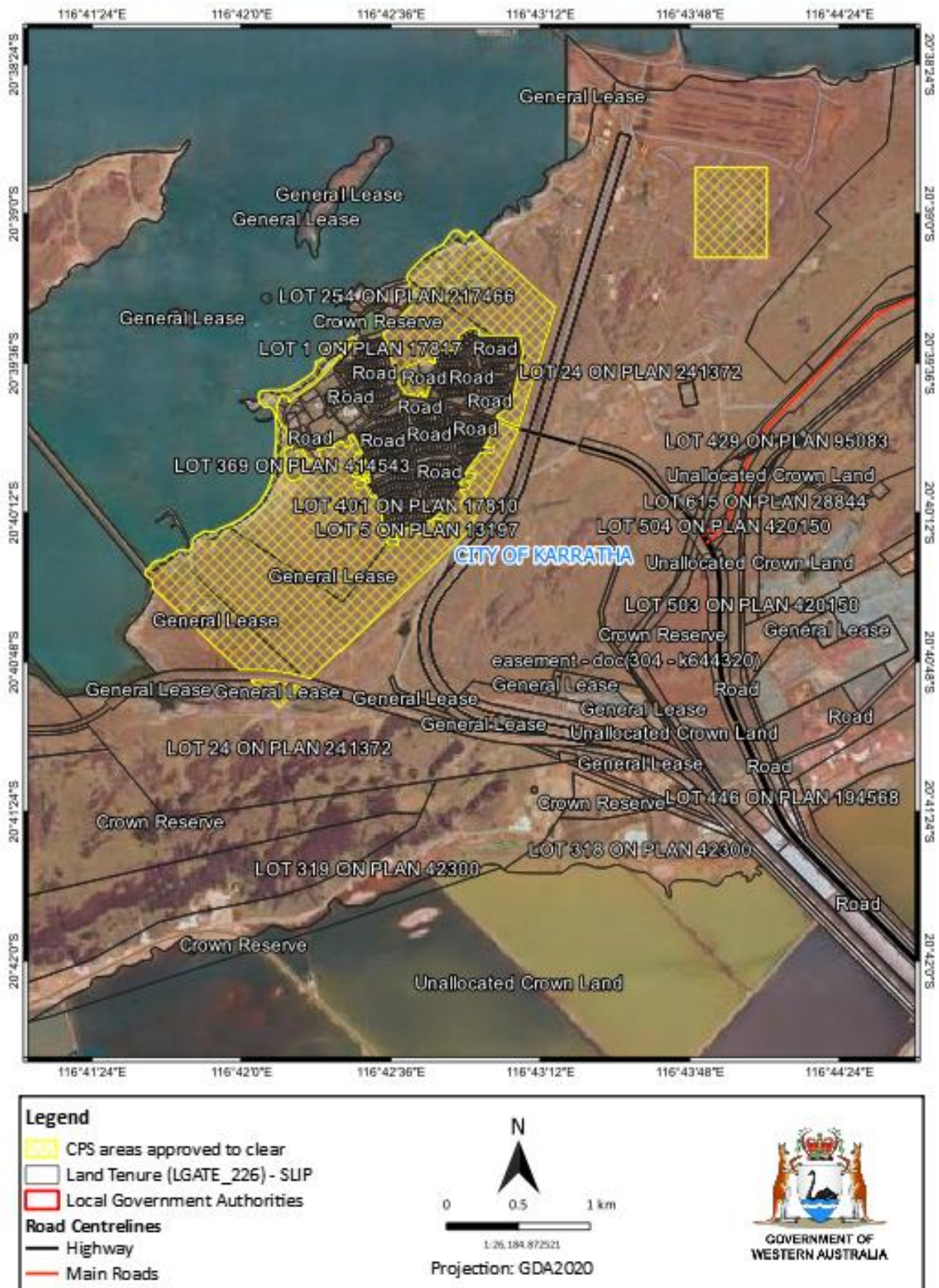


Figure 2. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

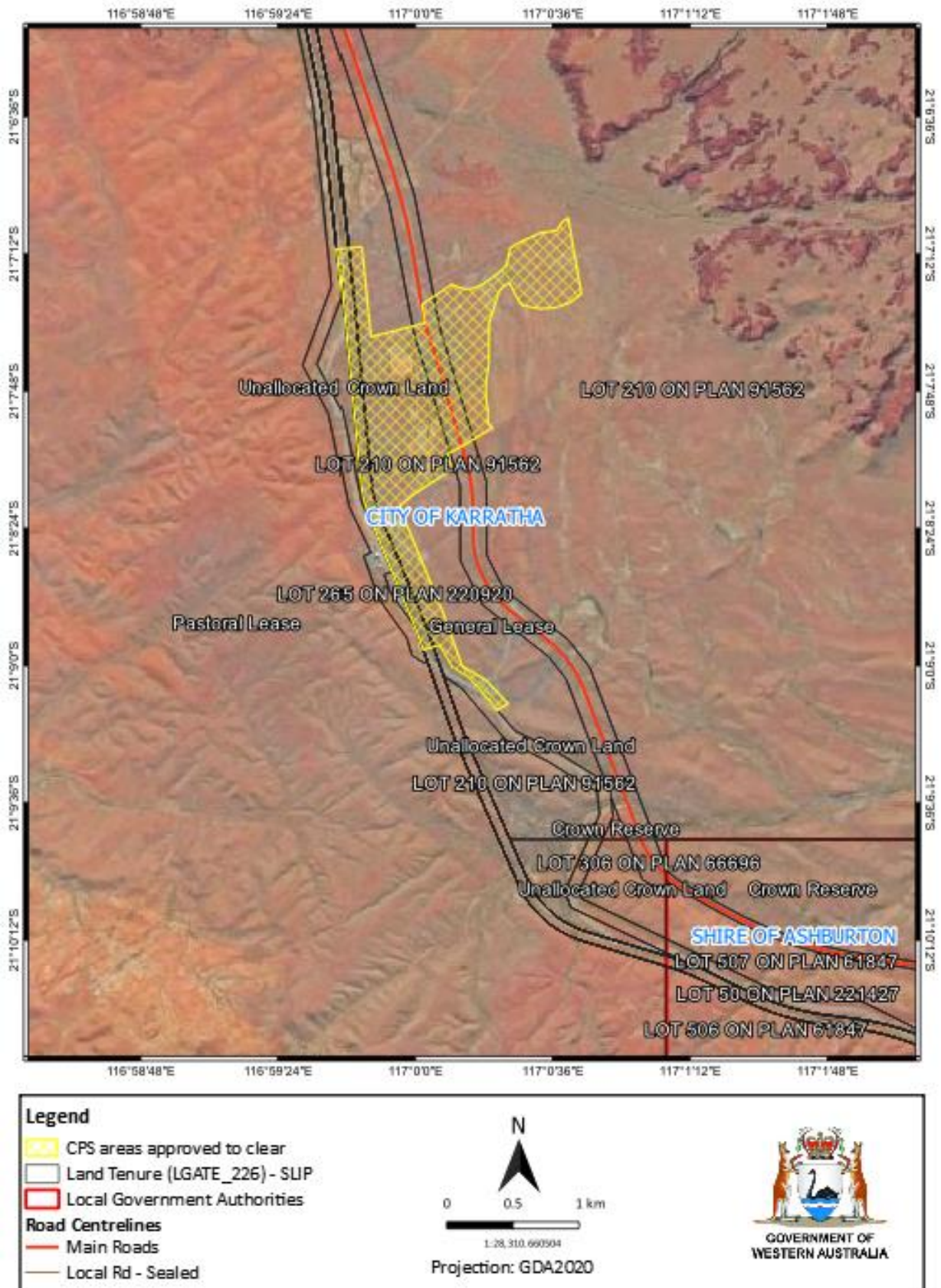


Figure 3. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

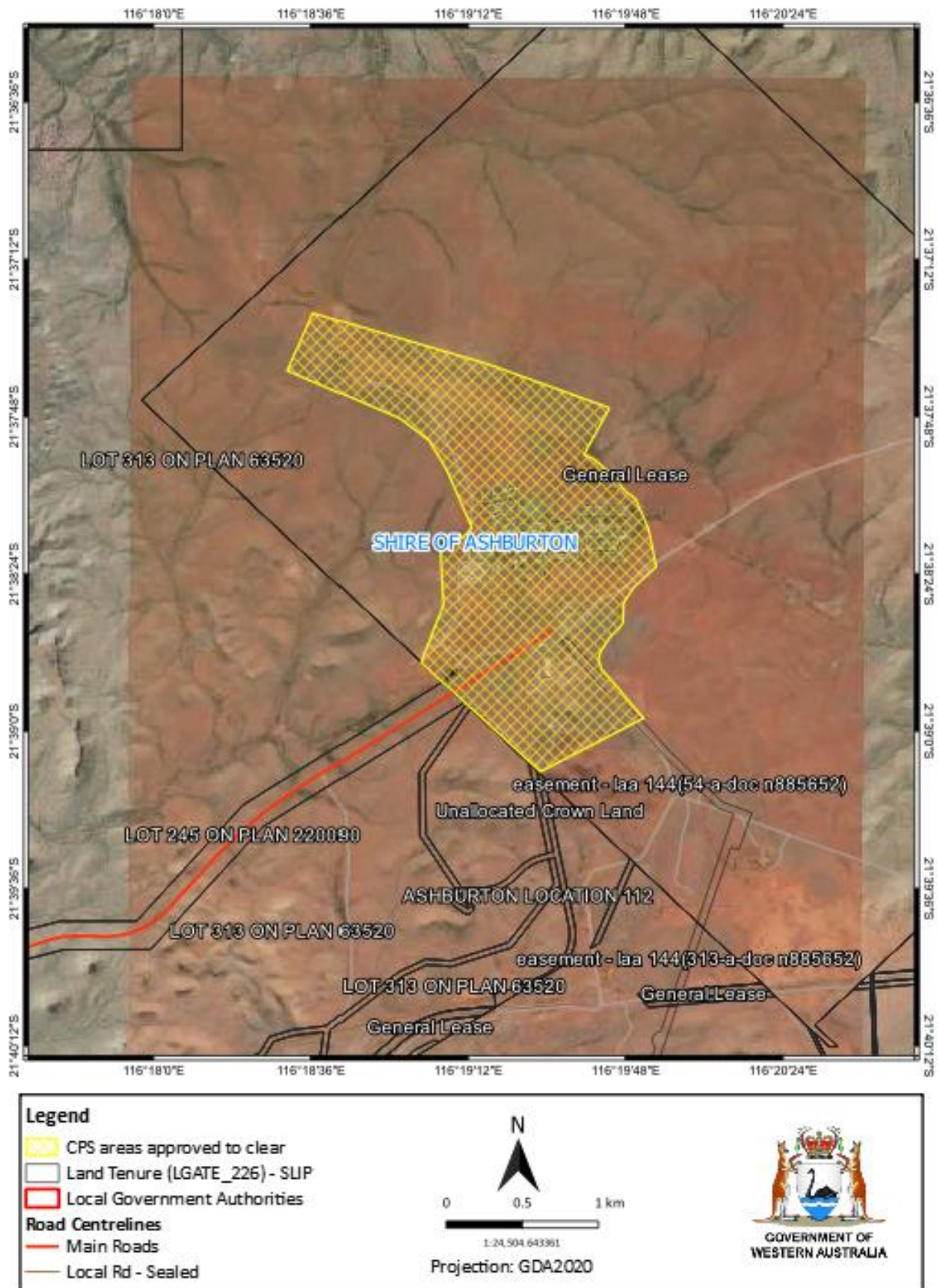


Figure 4. Map of the application area
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

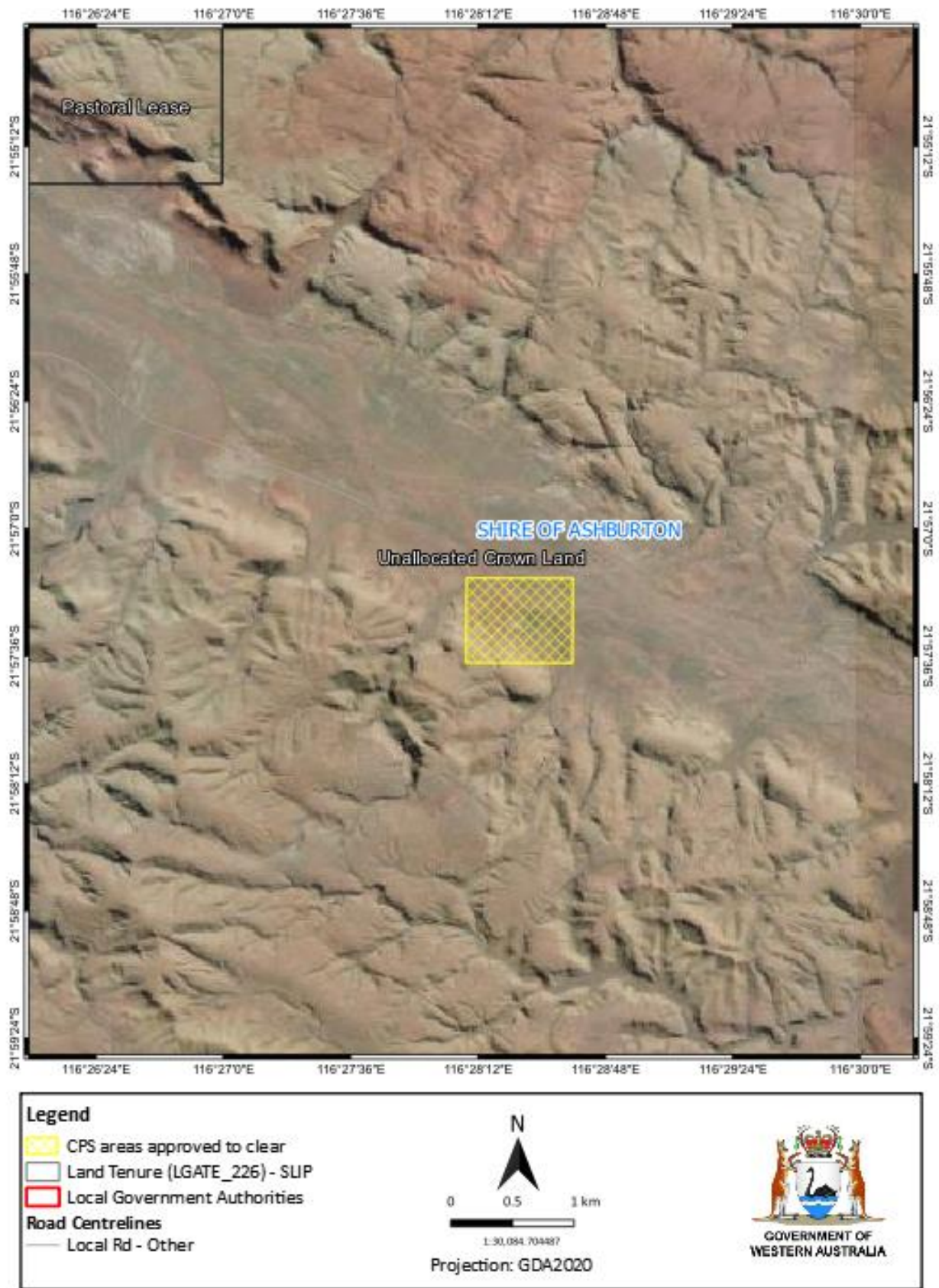


Figure 5. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

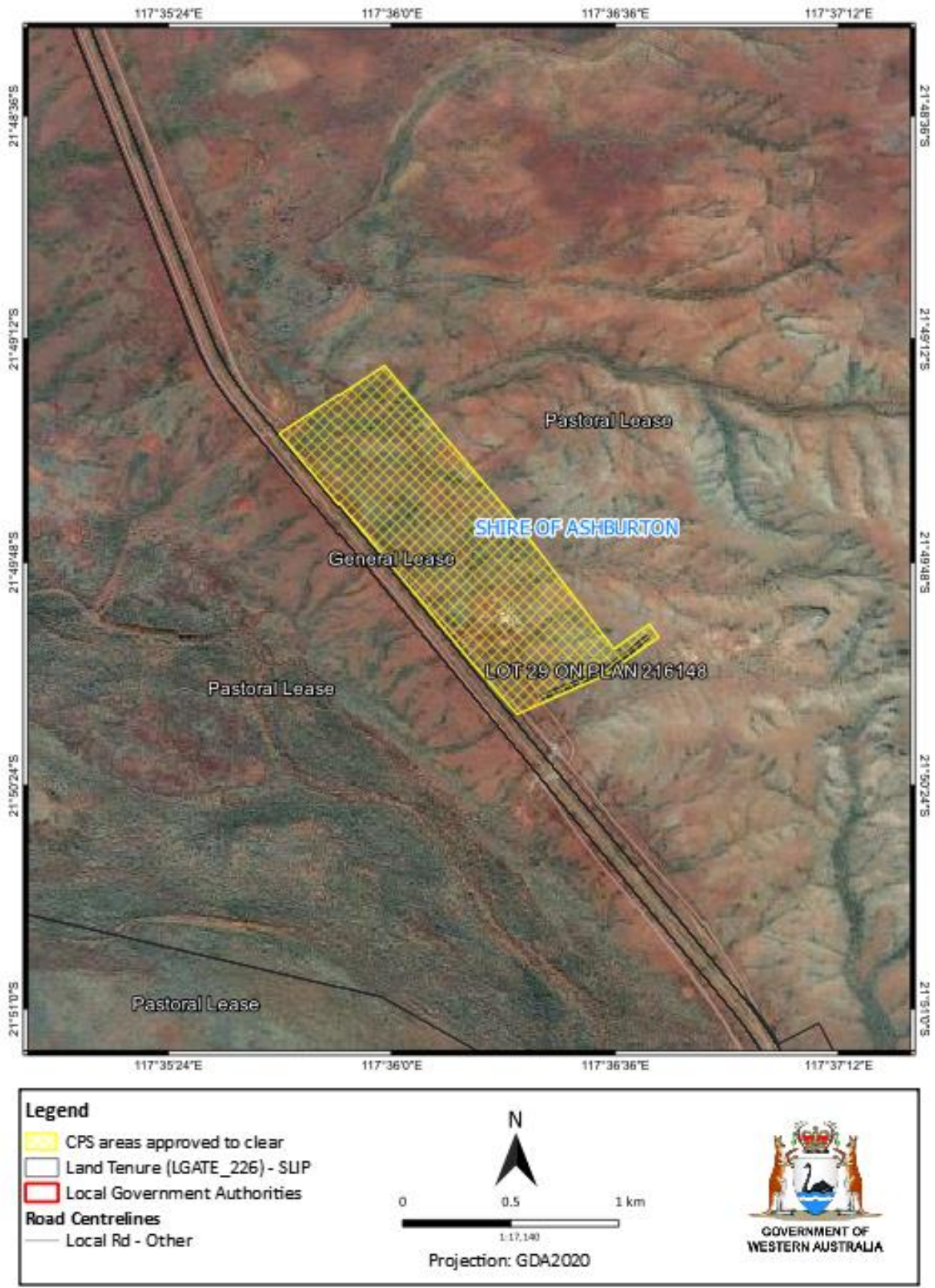


Figure 6. Map of the application area
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

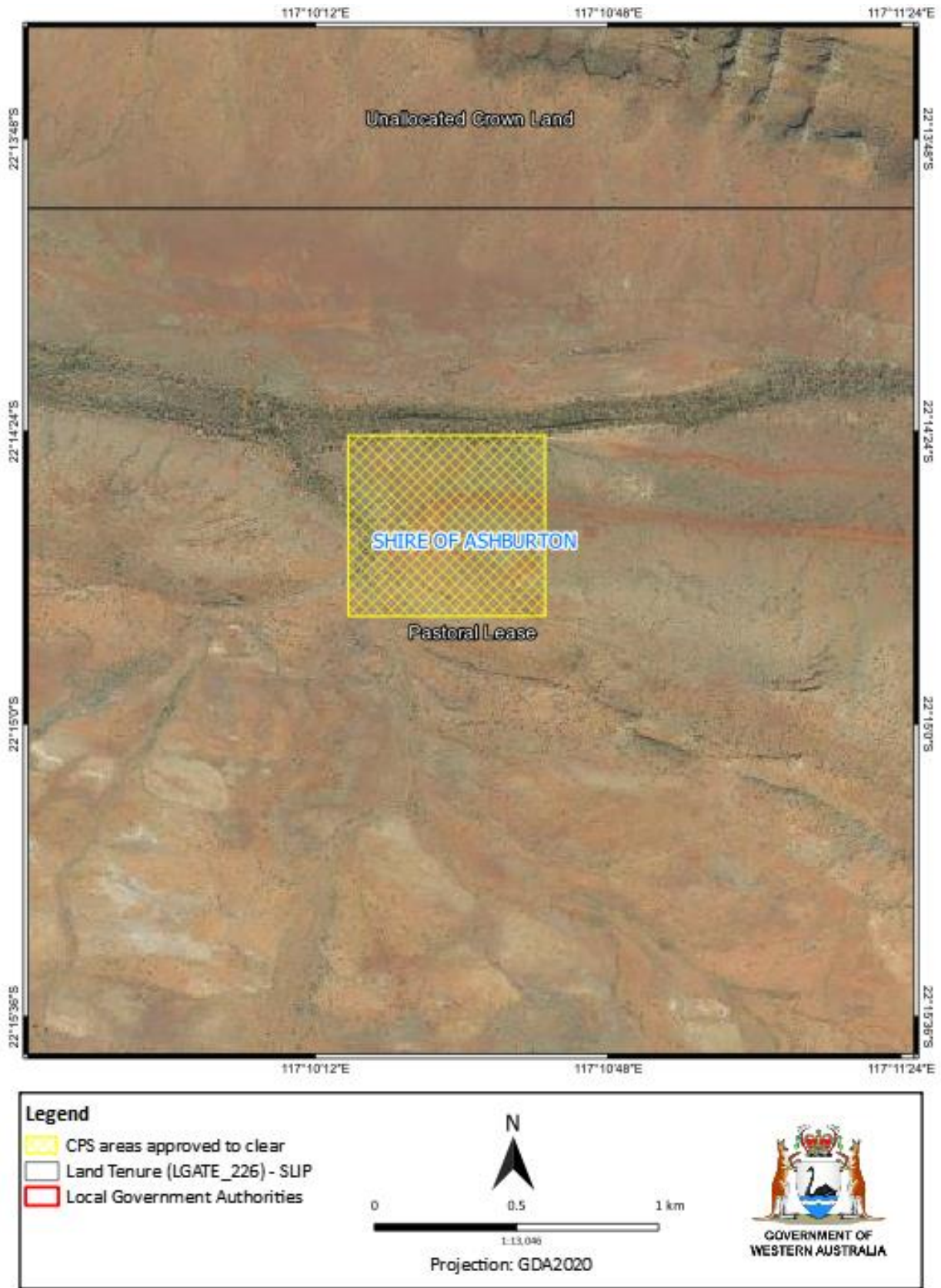


Figure 7. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

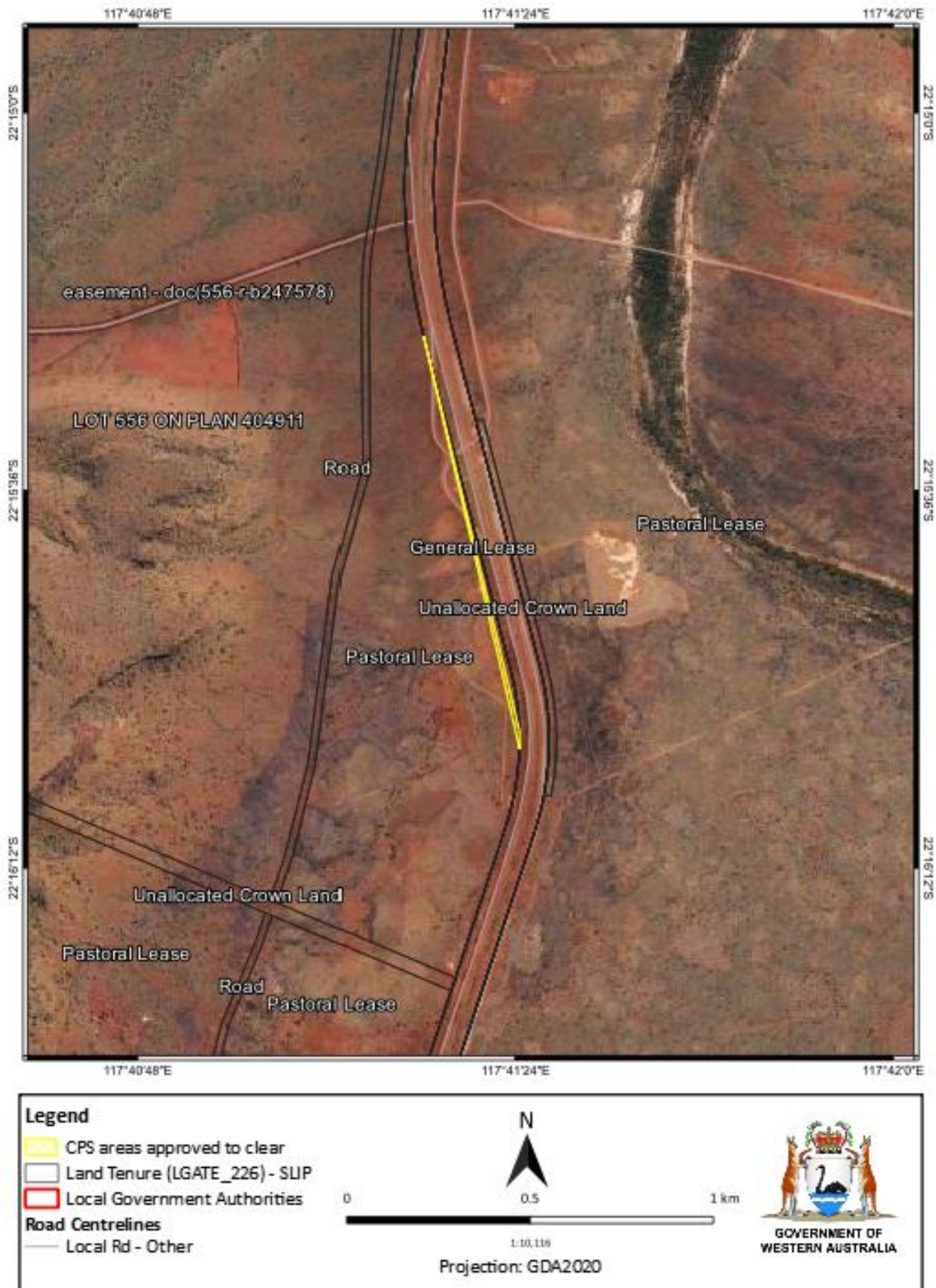


Figure 8. Map of the application area
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

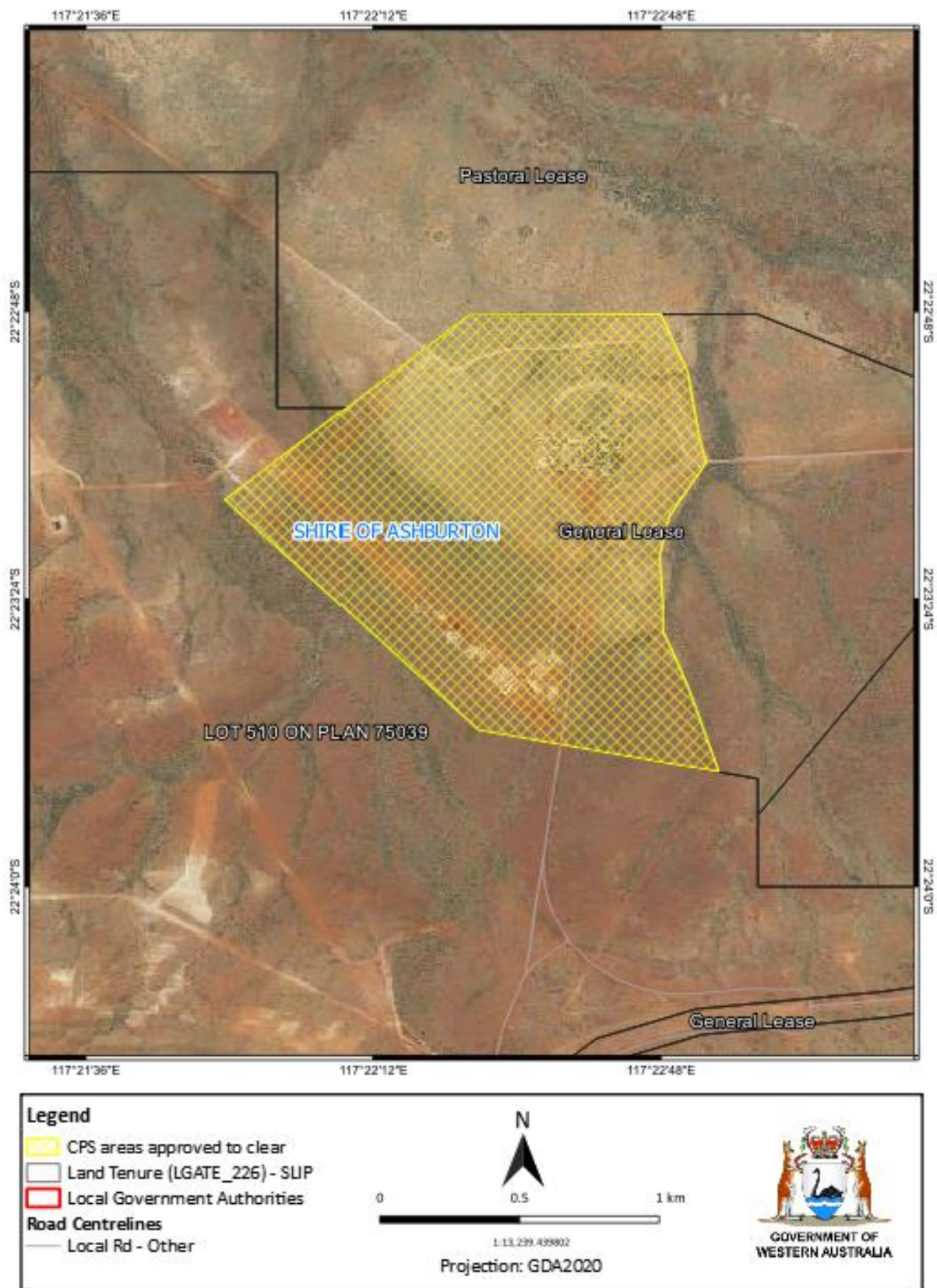


Figure 9. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

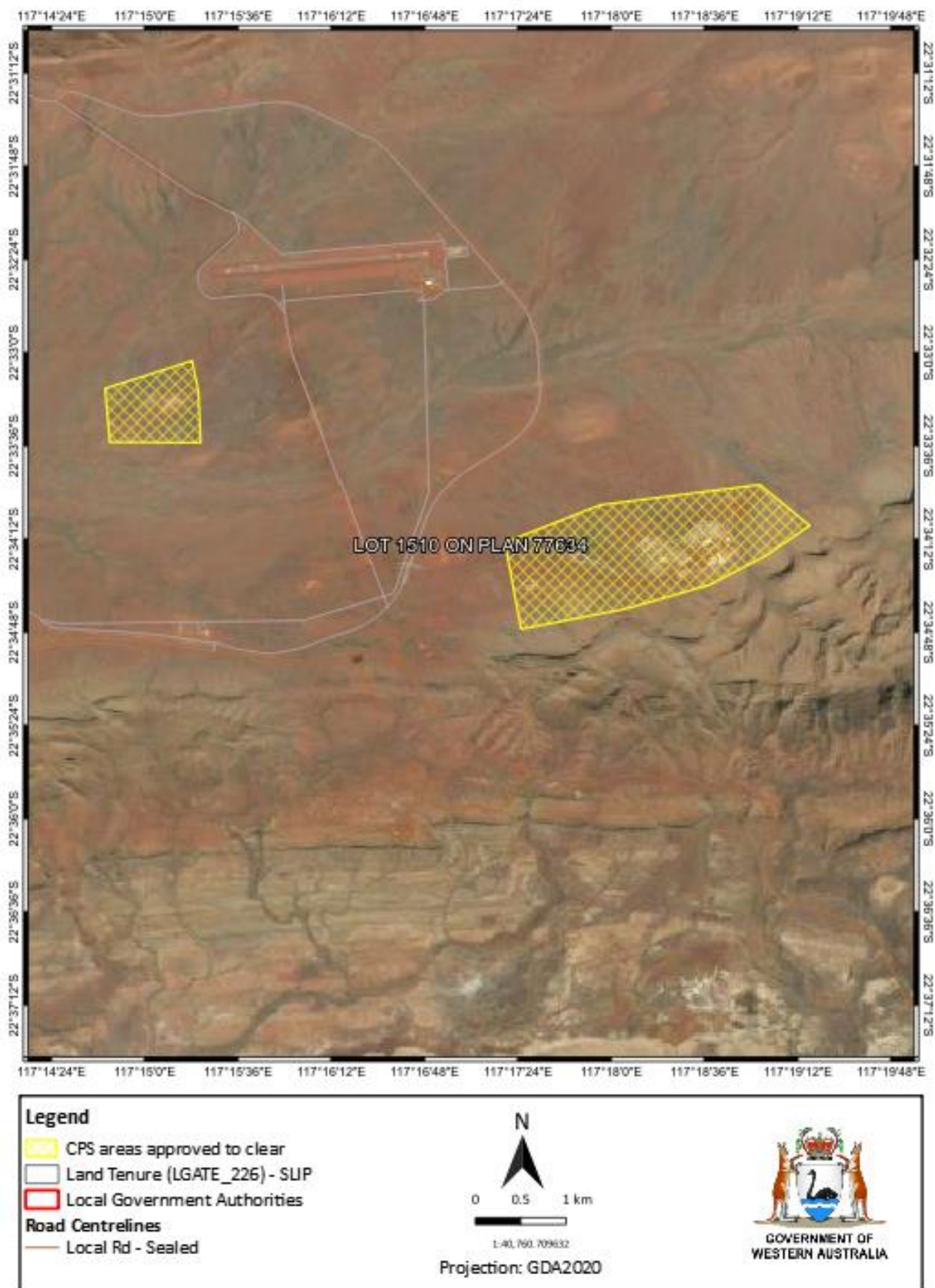


Figure 10. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

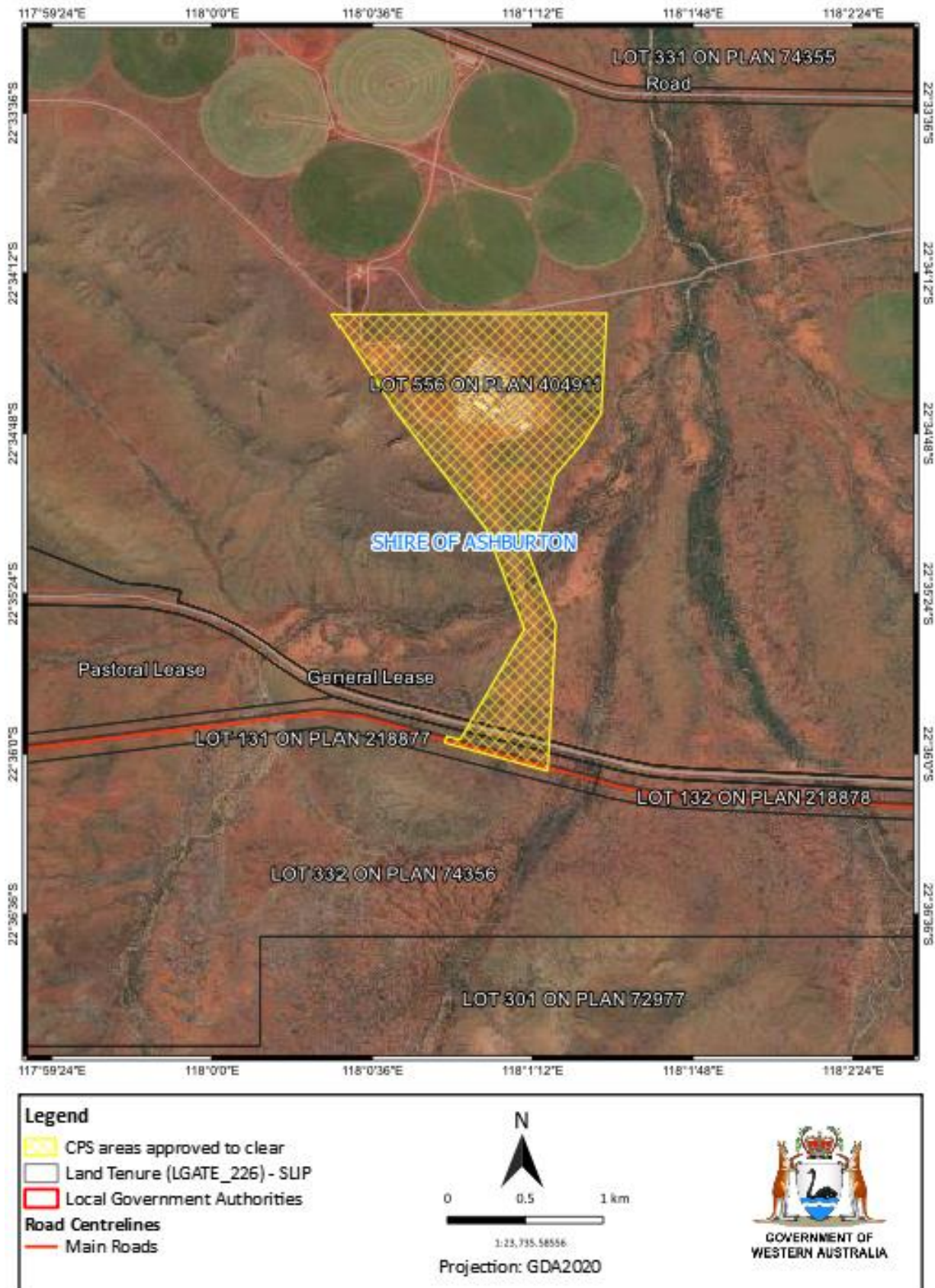


Figure 11. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

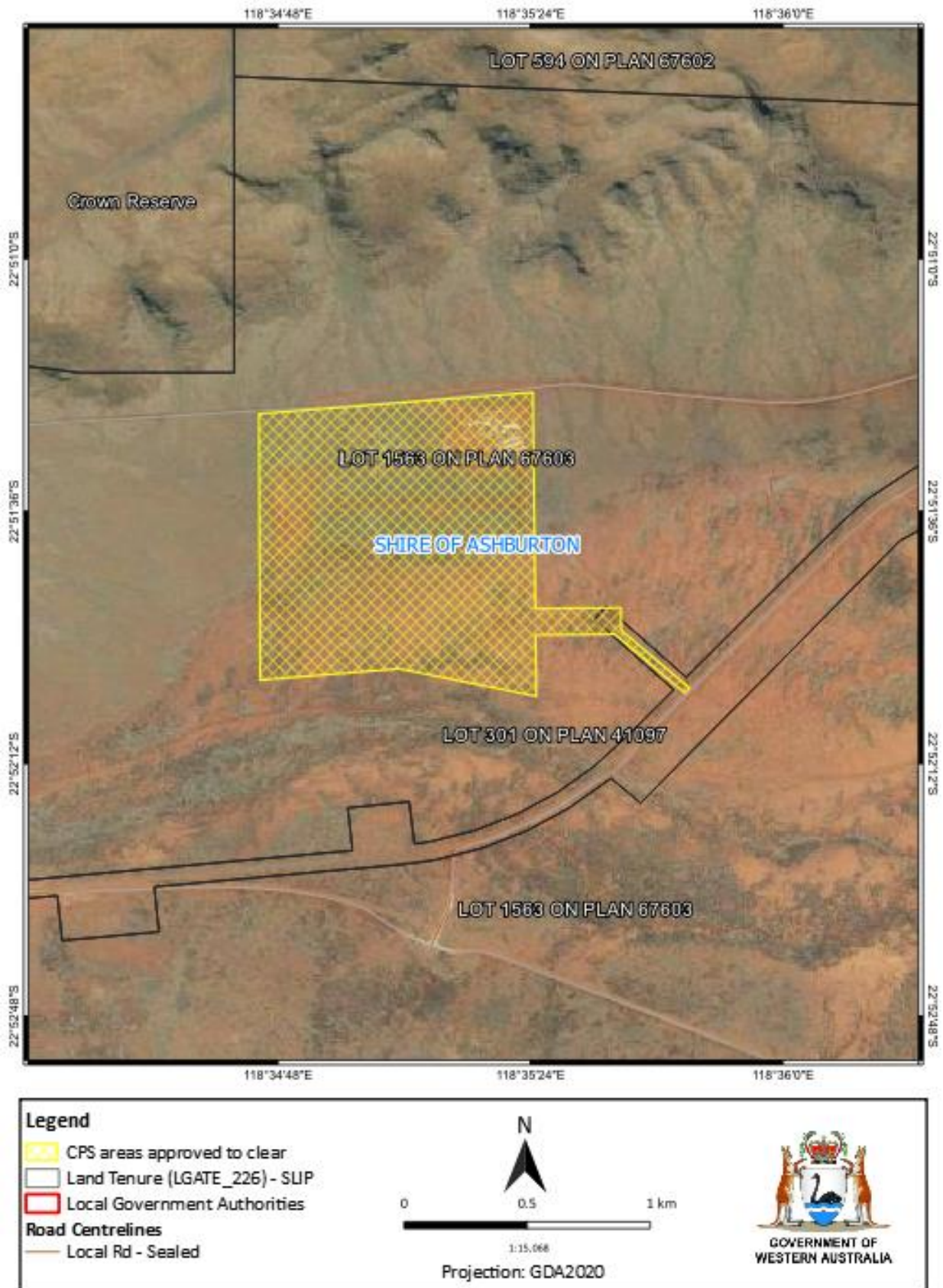


Figure 12. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

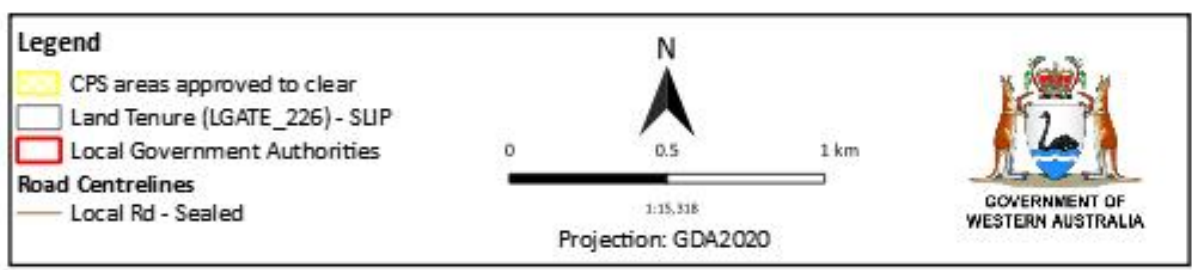
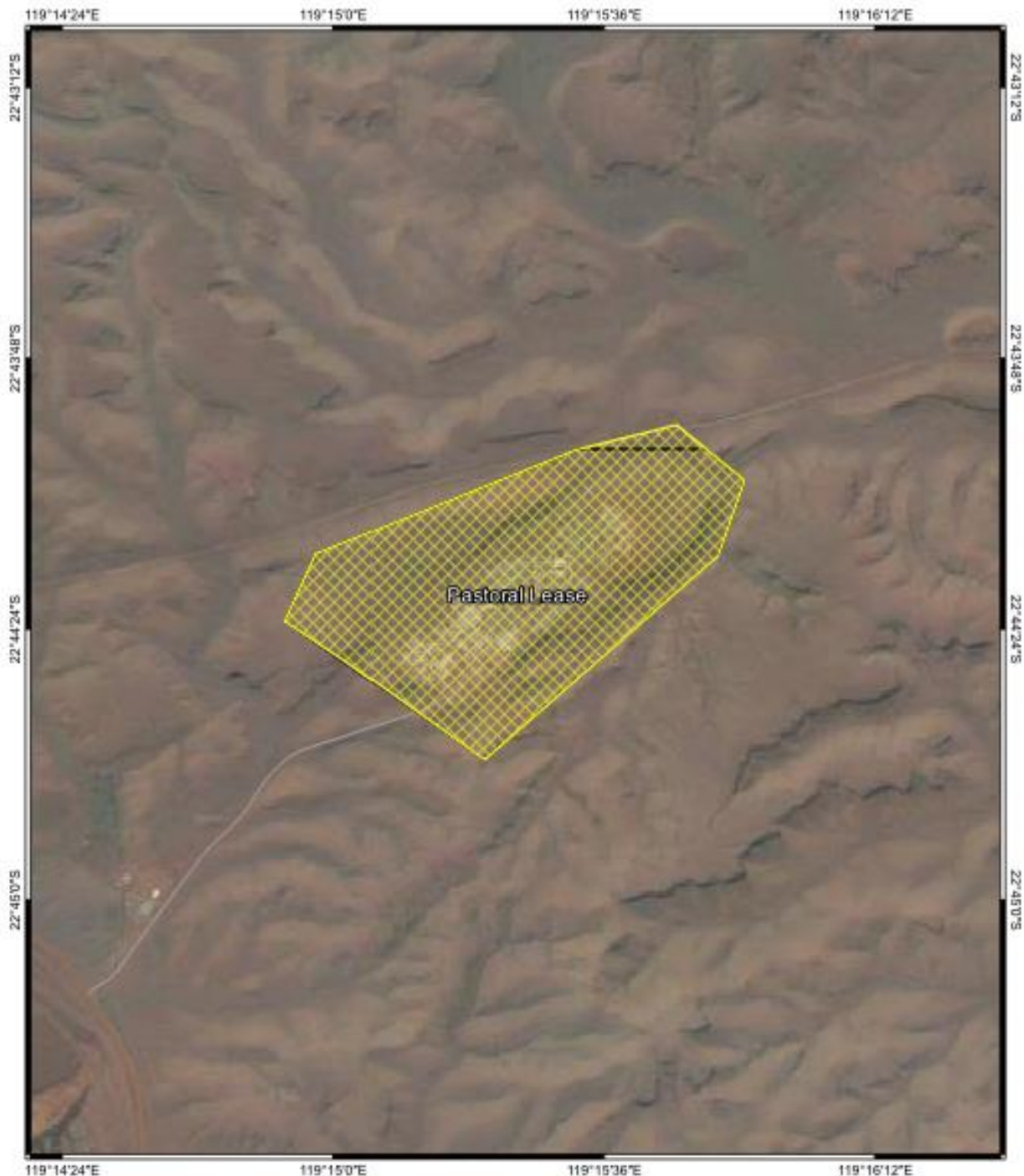


Figure 13. Map of the application area
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

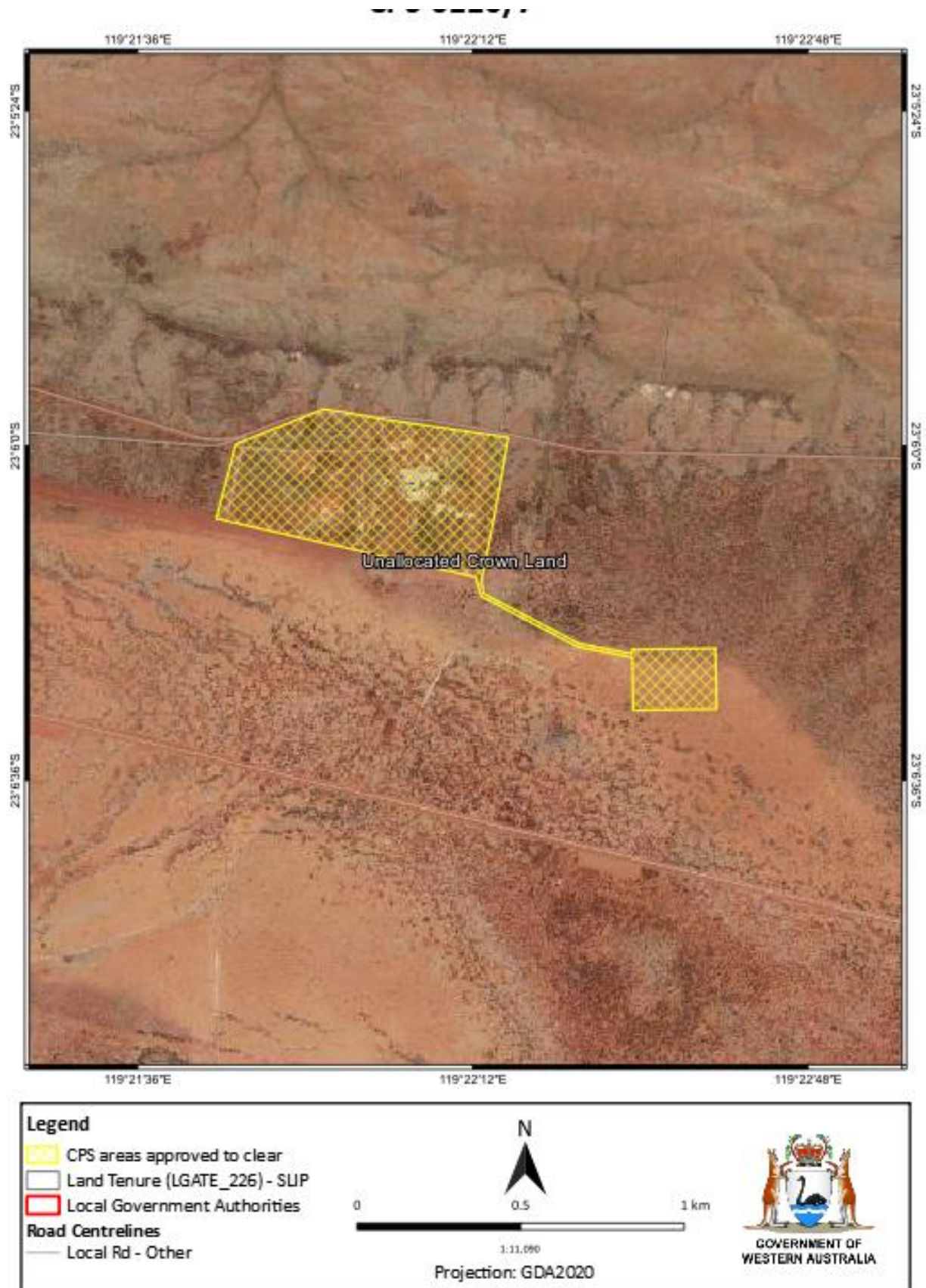


Figure 14. Map of the application area
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

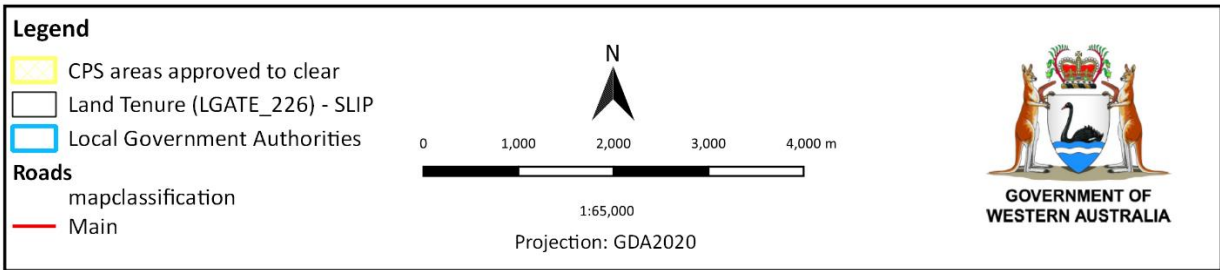
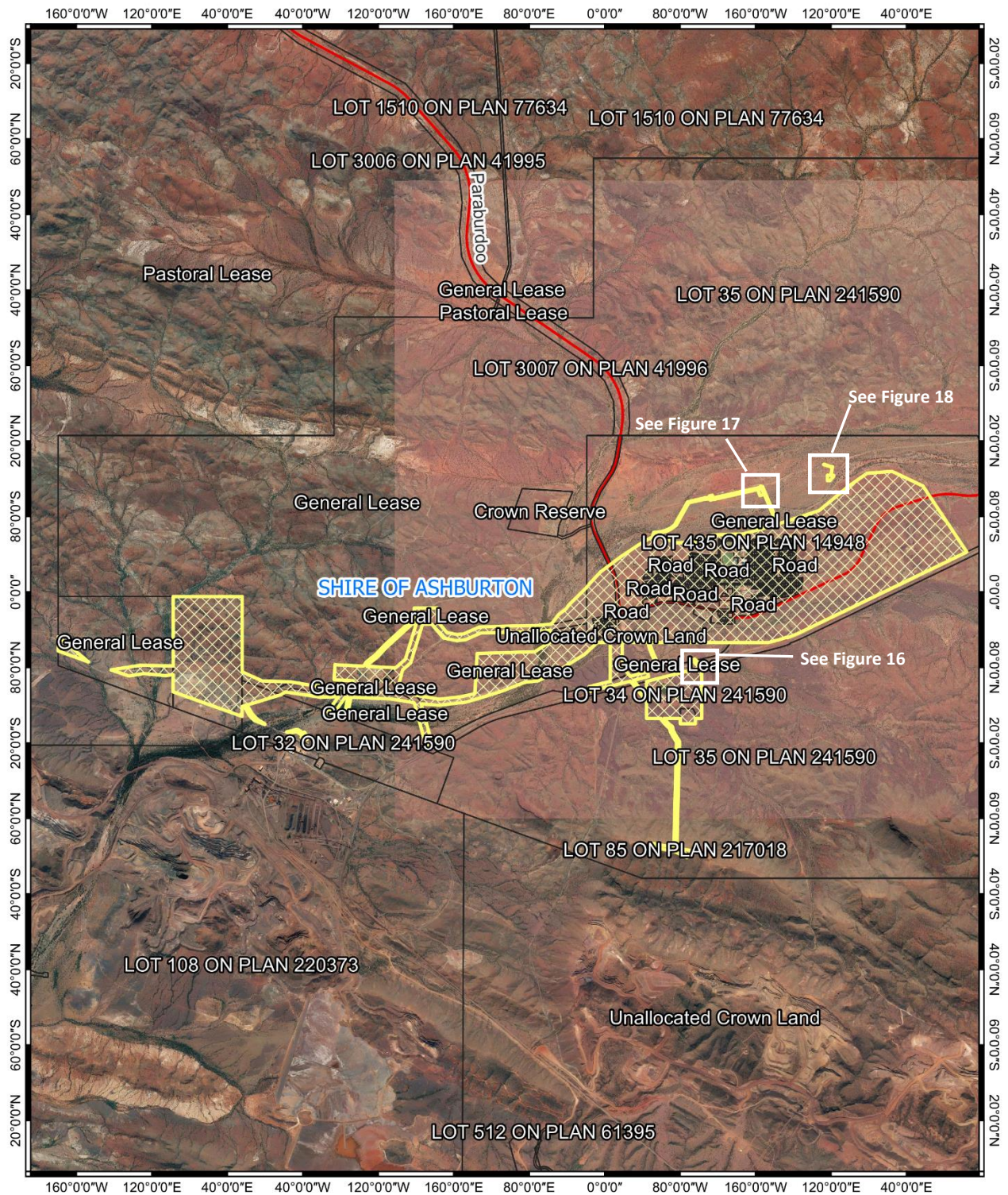


Figure 15. Map of the application area

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

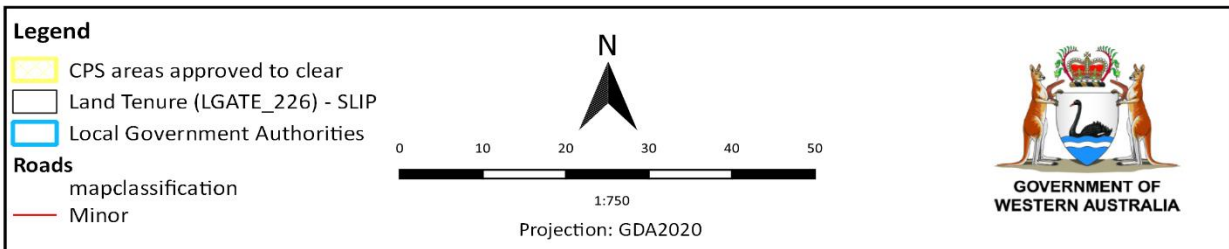
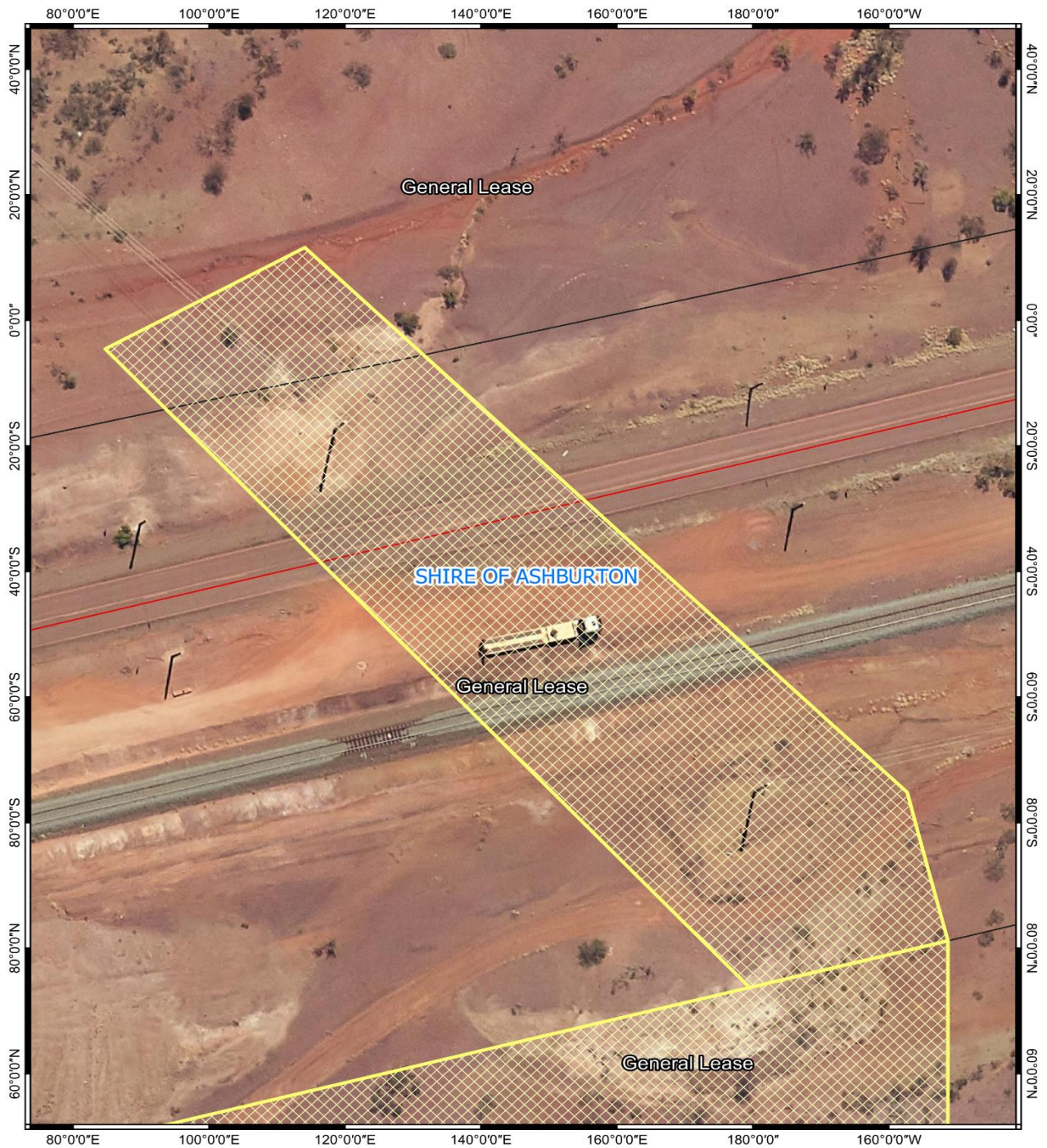





Figure 16. Map of the application area (additional area proposed under CPS 6110/7)
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.



Legend


-  CPS areas approved to clear
-  Land Tenure (LGATE_226) - SLIP



0 10 20 30 40 50 m

1:800

Projection: GDA2020



**GOVERNMENT OF
WESTERN AUSTRALIA**

Figure 17. Map of the application area (additional area proposed under CPS 6110/7)

The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

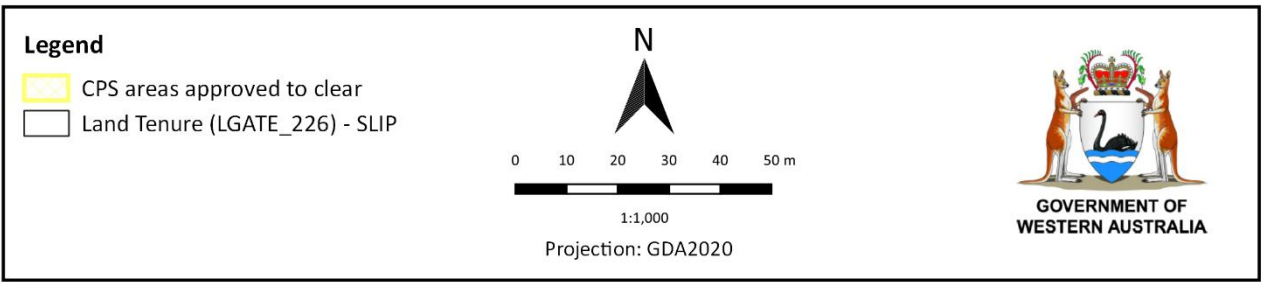
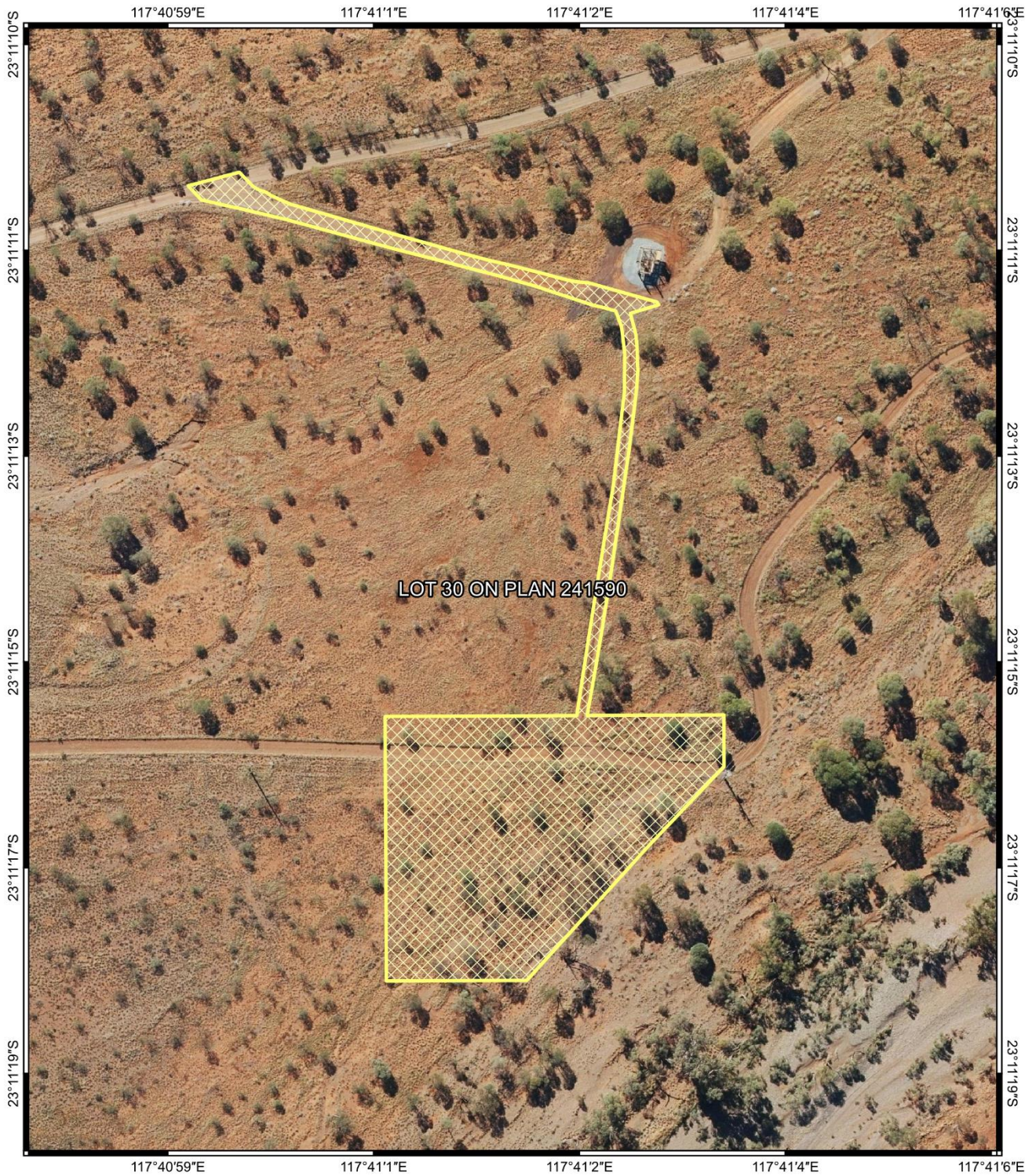


Figure 18. Map of the application area (additional area proposed under CPS 6110/7)
 The areas crosshatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)

Relevant policies considered during the assessment include:

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The Permit Holder has adhered to internal processes ensuring all biological and heritage surveys were completed and all government regulatory approvals were in place prior to the commencement of work. The processes minimise the risk of disturbing any protected areas, minimise the amount of area cleared and assist in complying with legal and social requirements.

The avoidance and minimisation measures implemented by the Permit Holder are unchanged and can be found in the Decision Report prepared for Clearing Permits CPS 6110/6. The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

The existing clearing footprint for CPS 6110/6 is comprised of 15 existing town and campsite areas (depicted on Figures 2-15 of the clearing permit) within the Shire of Ashburton, City of Karratha, and Shire of East Pilbara in the Pilbara Bioregion. The proposed amendment to CPS 6110/6 is for the purpose of increasing the proposed clearing permitted under CPS 6110/7 by 5.7 hectares, resulting in an increased total clearing area of the whole permit area to 81 hectares, and increasing the total clearing footprint by two hectares.

A review of current environmental information (Appendix A) revealed that the environmental values present within the existing permit area remain largely unchanged from the previous assessments of the permit, with the exception that *Seringia exastia* previously listed as Threatened has been removed from this list since the previous assessment of CPS 6110/6.

Assessment relating to additional areas

The assessment identified that the impacts of the additional clearing areas may present a risk to biological values, and land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below. The assessment against the clearing principles remain unchanged and can be found in the Decision Reports prepared for Clearing Permits CPS 6110/1, CPS 6110/2 and CPS 6110/6.

3.2.1. Biological values - Clearing Principles (a), (b), and (c)

Assessment relating to additional areas

According to available databases, the additional areas are mapped within Beard vegetation association 181 and are considered to comprise of shrublands; mulga and snakewood scrub.

The permit holder conducted two biological surveys to cover the additional study areas. Study area 1 and 2 (Rio Tinto, 2023a) and study area 3 (Rio Tinto, 2023b).

Flora

Study area 1 and 2 comprised one vegetation type: *Acacia citrinoviridis* tall sparse shrubland over *Acacia tetragonophylla* and *Eremophilla cuneifolia* mid sparse shrubland over *Cenchrus setiger* and *Cenchrus ciliaris* tussock grassland. This vegetation type covers 16.48% of the study area (0.32 ha), the remaining 1.65 ha (83.52%) of the study area had been cleared for tracks and infrastructure (powerlines, rail, tracks and water bore) (Rio Tinto, 2023a). Study area 3 comprised one vegetation type: *Acacia citrinoviridis* tall shrubland over *Aerva javanica*, *Eremophila fraseri* and *Corchorus crozophorifolius* open shrubland over *Cenchrus ciliaris* and *Cenchrus setiger* closed tussock grassland. This vegetation type covers 85.18% of the study area (0.46 ha), the remaining 0.08 ha (14.82%) of the study area had been cleared for tracks and infrastructure (Rio Tinto, 2023b).

A desktop review of current databases was undertaken for the local area (50-kilometre radius) of the additional proposed clearing areas. The desktop assessment identified a total of 32 threatened or priority flora species within the local area, comprising five Priority 1 (P1) flora, six Priority 2 (P2) flora, 14 Priority 3 (P3) flora, seven Priority 4 (P4) flora, and one Threatened (T) flora (Western Australian Herbarium, 1998). Based on a review of current environmental information, site characteristics, conservation status, habitat preferences, and the distribution and extent of existing records, nine conservation significant flora species recorded in the local area have the potential to occur within the permit area and impacts to individuals resulting from the proposed clearing may represent a significant impact to continuation of the species (see Appendix A.2.).

A biological survey recorded 34 flora species within study area 1 and 2 (Rio Tinto, 2023a) and 18 flora species within study area 3 (Rio Tinto, 2023b). No conservation significant flora species or weeds of national significance (WONS) were identified across any of the study areas.

The previous assessment of Clearing Permit 6110/6 also determined that the permit area may provide suitable and significant habitat for threatened and priority flora species. Flora management conditions (condition 8) on the existing permit require the Permit Holder to have a botanist to conduct a targeted flora survey of the areas proposed to be cleared prior to undertaking any clearing authorised under the permit. Where threatened or priority flora species are identified within the permit area during the targeted flora survey, all individuals must be demarcated and no clearing of individuals or their relevant buffers (20 to 50 metres) is permitted, unless otherwise approved by DWER. The Permit Holder has undertaken flora surveys of the areas that have already been cleared under previous versions of the permit, in accordance with this condition, and no conservation significant flora have been identified within the permit area to date (Rio Tinto, 2021a). The amendment application CPS 6110/7 proposed to remove the flora management conditions requiring a botanist to conduct a targeted flora survey of the area prior to undertaking any clearing authorised under the permit and change the condition to only be necessary if a desktop assessment indicates conservation significant flora is likely to occur within the proposed site. However, due to the relatively unsurveyed nature of the Pilbara Region, this would cause an unacceptable risk to environmental values (flora). Given this, condition 8 will not be amended and will remain as per CPS 6110/6. This condition will mitigate the environmental risk to the nine conservation significant flora species identified in the desktop assessment as potentially occurring within the application area (see Appendix A.2.).

Fauna

A desktop review of current databases was undertaken for the local area (50-kilometre radius) of the additional proposed clearing areas. The desktop assessment identified a total of 17 conservation significant fauna, including one Endangered (EN) fauna species, six migratory (MI) fauna species, two Priority 1 (P1) fauna species, three Priority 4 (P4) fauna species, four Vulnerable (VU) species, and one other specially protected (OS) fauna species. Of the 17 fauna species identified in the desktop analysis, seven of these species had been assessed in the previous assessments of Clearing Permit CPS 6110. See the list of fauna species in (Appendix A.3.).

In regard to assessing the suitability of the study areas vegetation for conservation significant fauna habitat, biological surveys were undertaken. The majority of the study area 1 and 2, comprised of disturbed habitat with no complex vegetation accounting for 1.65 ha (83.52%). The other 0.32 ha (16.48%) of the study area is Alluvial Plain habitat,

which comprises of alluvial, silt, clay or loams associated with floodplains adjacent to drainage lines (Rio Tinto, 2023a). Study area 3 majorly consists of Alluvial Plain habitat, accounting for 0.46 ha (85.18%). The other 0.08 ha (14.82%) of the study area is disturbed habitat with no complex vegetation (Rio Tinto, 2023b). All three study areas have portions that have been cleared/disturbed and the remaining vegetation in these areas are noted to be in poor condition. In consideration of the disturbed nature of the habitats within the three study areas, the additional application areas are considered to have little value to most fauna, including BC Act listed fauna, however, it is still acknowledged that the study areas have the potential to provide habitat for the seven significant fauna species listed (Appendix A.3.).

The previous assessment of Clearing Permit CPS 6110/6 also determined that the permit area could provide suitable habitat for conservation significant fauna species. To mitigate the risk to fauna, the existing permit includes a fauna management condition requiring a fauna specialist to undertake a fauna survey of the areas proposed to be cleared to identify areas of habitat which threatened, and priority fauna have a specific dependence, prior to undertaking any clearing authorised under the permit. Where conservation significant fauna or areas of habitat on which these fauna have a specific dependence are identified within the permit area, clearing of this habitat must be avoided in the first instance. Where clearing of these areas cannot be avoided, the Permit Holder must develop and implement a Fauna Management Plan including provisions for managing impacts to fauna habitat and managing any individuals identified during the fauna survey. The Fauna Management Plan must be approved by DWER, prior to being implemented by the Permit Holder. The Permit Holder has undertaken fauna surveys of the areas that have already been cleared under previous versions of the permit, in accordance with this condition, a Fauna Management Plan was submitted to the Department on 16 January 2023 to manage the impact to *Rhinonictis aurantia* (Pilbara Leaf-nosed Bat) of clearing near the Seven Mile Creek (Bullen, R.D., 2022). Portions of the area proposed for clearing in CPS 6110/7 are adjacent to the Seven Mile Creek, indicating that the vegetation proposed to be cleared may be suitable habitat for the Pilbara Leaf-nosed bat and therefore may contain environmentally significant values to this species.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in an increased risk to environmental values of conservation significant flora and fauna. However, the Delegated Officer determined that amending Condition 8 as requested by the permit holder was likely to lead to an unacceptable risk to environmental values (flora) due to the relatively unsurveyed nature of the Pilbara region in which the clearing area occurs. Given this, condition 8 has not been amended and will remain as per clearing permit for 6110/6.

Given the existing biological (flora and fauna) management conditions, it is not considered likely that the proposed clearing under CPS 6110/7 represent an increased risk to biological values. Therefore, the Delegated Officer has determined that the assessment of impacts to biological values remains unchanged from the previous assessments of the permit and the existing permit conditions are still adequate to mitigate any potential impacts to conservation significant flora and fauna.

3.2.2. Land and water resources - Clearing Principles (f), and (i)

Assessment relating to additional areas

As per the previous assessments of this permit, various permit areas are adjacent to or intersect various minor tributaries of Duck Creek and the Maitland, Robe, Fortescue, and Ashburton rivers. The permit areas are also mapped within the Pilbara Surface Water Area and the Pilbara Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act). The groundwater of the permit area ranges from 500 to 3000 milligrams per litre total dissolved solids and it is not expected that clearing for the maintenance of infrastructure or associated works authorised under this permit will require groundwater abstraction or result in direct or indirect impacts to groundwater resources. The additional clearing areas proposed under CPS 6110/7, are acknowledged to occur adjacent to various tributaries of the nonperennial Ashburton River and 7 Mile Creek which may impact on- or off-site hydrology and water quality. Previous assessments of the permit also acknowledge that the permit area is likely to include vegetation growing in, or in association with, an environment associated with a watercourse and that the proposed clearing has the potential to result in short-term impacts to surface water quality through turbidity and sedimentation resulting from the removal of riparian vegetation. Existing permit conditions include a vegetation management condition, requiring the Permit Holder to avoid the clearing of riparian vegetation in the first instance. Where the clearing of riparian vegetation cannot be avoided, the Permit Holder is required to maintain the existing surface flow of the watercourse by use of culverts. Given the above and the existing vegetation management condition, is it unlikely that the additional clearing proposed will result in increased risks to the environmental values of associated watercourses or result in significant impacts to surface or groundwater resources. Therefore, the assessment of these impacts remains unchanged from previous assessments of the permit.

A desktop assessment identified that the additional clearing areas (Figure 17-18) proposed, fall within the Paraburdoo Priority 1 (P1) Water Reserve Public Drinking Water Source Area (PDWSA) as proclaimed under the *Country Areas Water Supply Act 1947* (CAWSA) and PDWSA Wellhead Protection Zone (WHPZ). The proposed clearing poses an increased risk to water quality within the PDWSA zones and may contribute to a significant impact to water quality resources. Various sites within the currently approved permit areas were also identified to fall within various PDWSAs. Areas approved for clearing under the existing permit are also situated within the Paraburdoo P1 Water Reserve PDWSA. Advice received from DWER's Water Source Protection Planning Branch (Water Source Protection) relevant to the Paraburdoo P1 Water Reserve PDWSA in the assessment of CPS 6110/6 advised that the existing permit area at Figure 15 is located within the Paraburdoo Water Reserve WHPZ and may represent a significant risk to water quality and public health if extensive clearing is to occur within the WHPZ or clearing is undertaken for a purpose that is not a compatible land use within the WHPZs of P1 PDWSAs as per relevant Water Quality Protection Note (WQPN) 25, for example constructing infrastructure or on-site wastewater treatment systems (DWER, 2021). Updated advice from Water Source Protection recommended five additional best management practices as outlined in the WQPN (DWER, 2023b); see Planning instruments and other relevant matters (Section 3.3). The additional clearing proposed under CPS 6110/7 is unlikely to lead to an unacceptable risk to environmental values and can be mitigated through the existing permit conditions.

Conclusion

Given the above, and the existing vegetation and WQPN management practices recommended in the previous decision report for CPS 6110/6, the Delegated Officer determined that the proposed amendments to CPS 6110/6 and the clearing proposed under 6110/7 are unlikely to result in significant impacts to the environmental values of the associated watercourses or result in significant impacts to surface or groundwater resources, and that the assessment of these impacts remains unchanged from previous assessments of the permit.

3.3. Relevant planning instruments and other matters

The amendment application was advertised on the Department of Water and Environmental Regulations website on 29 July 2023, inviting submissions from the public within a 21-day period. No submissions were received in relation to this application.

Pilbara Iron Company (Services) Pty Ltd requested an additional one hectare clearing footprint during the assessment stage of the application, bringing the amendment application's total proposed clearing footprint to 2.0035 hectares. The amendment application was readvertised on the Department of Water and Environmental Regulations website on 2 October 2023, inviting submissions from the public within a 7-day period. No submissions were received.

The Shires of Ashburton and East Pilbara, and City of Karratha were invited to provide comments on the proposed amendment to CPS 6110/6. To date, no response has been received from any Local Government Authority.

A review of the annual reports submitted to the Department of Water and Environmental Regulation (DWER) was conducted for previous versions of CPS 6110/6. It was determined following this investigation that a total of 9.54 hectares has been undertaken under permit CPS 6110/6 (see Table 1; Rio Tinto, 2021a).

Table 1. Clearing and rehabilitation summary

Clearing completed during the report period (ha)	5.54
Date(s) during the report period when clearing was undertaken	January – May 2021
Clearing completed in previous report periods (ha)	4
Total clearing conducted under the permit (ha)	9.54
Total approved clearing under the permit (ha)	75.3
Rehabilitation completed during the report period (ha)	0
Date(s) during the report period when rehabilitation was undertaken	N/A
Rehabilitation completed in previous report periods (ha)	0
Total rehabilitation conducted under the permit (ha)	0

As discussed in Section 3.2., it is acknowledged that the permit area intersects a Priority 1 PDWSA and Wellhead protection area at the Paraburdoo Water Reserve at Figure 15-18. The existing areas approved under CPS 6110/6 also intersect four other PDWSAs including the Harding Dam Catchment Area at Figure 3, the Pannawonica Water Reserve at Figure 4, the Bungaroo Creek Water Reserve at Figure 5, and the Millstream Water Reserve at Figure 6 and 8. Water Source Protection advised that, while undertaking clearing and associated works under CPS 6110/7, the Permit Holder should follow best management practices outlined in the following WQPNs:

- Condition 14: Adequate decommissioning of drill holes (water bores and mining exploration holes) is required to prevent contamination of the water source. This may include backfilling, plugging, and or capping bore holes. [The Minimum construction requirements for water bores in Australia](#) and the Department of Mines, Industry Regulation and Safety's [Guidelines for protection of surface and groundwater resources during exploration drilling](#).
- Condition 24: Hydrocarbons, chemicals and other toxic or hazardous substances should be stored so there is no discernible risk of contamination of groundwater or surface water. This should include effective secondary barriers to contain the system, such as double-walled tanks and bunding. Restrictions apply for storage tanks as explained in [WQPN 56: Tanks for fuel and chemical storage near sensitive water resources](#). See also [WQPN 65: Toxic and hazardous substances](#) for further information. A contingency plan for managing and responding to spills should be in place, as per [WQPN 10: Contaminant spills – emergency response plan](#).
- [Water Quality Protection Note \(WQPN\) 30: Groundwater monitoring bores](#)
- [WQPN 44: Roads near sensitive water resources](#)
- [WQPN 83: Infrastructure corridors near sensitive water resources](#)
- [Better urban water management](#) (WAPC) (DWER, 2023b).

It is noted that the associated chemicals storage as recommended by WQPN 56 is not supported in P1 areas and may need to be located outside of them (DWER, 2023b).

The advice for best management practises related to the remaining four PDWSA's listed above remain unchanged from Decision Report CPS 6110/6 (DWER, 2021).

Contaminated Sites Branch did not advise of any concerns relating to the proposed amendments to CPS 6110/6 or the clearing proposed under CPS 6110/7, and stated human health risks can be mitigated through the relevant health and safety protocols (DWER, 2023a).

Several Aboriginal sites of significance have been mapped within the application area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

The remaining assessment against planning instruments and other matters is unchanged and can be found in the Decision Reports prepared for Clearing Permits CPS 6110/1, CPS 6110/2, and CPS 6110/6.

End

Appendix A. Site characteristics

A.1. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

Characteristic	Details
Local context	<p>The proposed clearing occurs within the Pilbara bioregion across multiple areas within the Shire of Ashburton, the Shire of East Pilbara and the City of Karratha.</p> <p>Spatial data indicates the local area (50-kilometre radius from the centre of the area proposed to be cleared) retains over 90 per cent of the original native vegetation cover.</p> <p>Unchanged from previous assessments.</p> <p>The additional one-hectare area at Figure 15 is located at the south-western extent of the existing permit area at Paraburdoo (Figure 1).</p>
Ecological linkage	<p>There are no mapped ecological linkages within the additional application area.</p> <p>Unchanged from previous assessments.</p>
Conservation areas	<p>Conservation lands amount to less than ten percent of the total area of the Pilbara bioregion. Two National Parks are located within the local area.</p> <ul style="list-style-type: none"> • Millstream Chichester National Park, 1.6 kilometres from the permit area, and • Karijini National Park, 0.2 kilometres from the permit area. <p>Unchanged from previous assessments.</p>
Vegetation description	<p>The application area is mapped as the following Beard vegetation associations:</p> <ul style="list-style-type: none"> • 117: Hummock grasslands, grass steppe; soft spinifex; • 152: Hummock grasslands, grass steppe; soft & hard spinifex soft spinifex; • 173: Hummock grasslands, low tree steppe; snappy gum over soft spinifex & Triodia brizioides; • 607: Hummock grasslands, low tree steppe; snappy gum & bloodwood over soft spinifex & Triodia wiseana; • 82: Hummock grasslands, low tree steppe; snappy gum over Triodia wiseana; • 565: Hummock grasslands, low tree steppe; bloodwood over soft spinifex; • 29: Sparse low woodland; mulga, discontinuous in scattered groups; • 18: Low woodland; mulga (<i>Acacia aneura</i>); • 567: Hummock grasslands, shrub steppe; mulga & kanji over soft spinifex & Triodia basedowii; and • 181: Shrublands; mulga & snakewood scrub (Shepherd et al, 2001) <p>The mapped vegetation types retain over 90 per cent of the original extent (Government of Western Australia, 2019).</p> <p>Unchanged from previous assessments.</p> <p>The additional clearing areas are mapped as Beard vegetation association 181.</p>
Vegetation condition	<p>Vegetation condition ranges across the application area from Very Good to Completely Degraded (Trudgen, 1991).</p> <p>The condition of the vegetation was determined via aerial imagery, previous environmental assessments undertaken by the former Department of Mines and Petroleum and the former Department of Environment Regulation, and flora survey's undertaken by Matiske Consulting Pty Ltd (2011) and Rio Tinto (2017) (Matiske Consulting Pty Ltd, 2011; Rio Tinto, 2017).</p>

Characteristic	Details
	<p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p> <p>Unchanged from previous assessments.</p> <p>Representative photos are available in Appendix DD.</p>
Climate and landform	<p>The climate of the Pilbara is semi-desert tropical with the region experiencing two distinct seasons; a hot summer from October to April, and a mild winter from May to September with the majority of rainfall received during the hot summer months (REF).</p> <p>The annual rainfall for the closest town of Newman is approximately 300 to 500 millimetres (BOM 2023).</p>
Soil description	<p>The soil types within the application area are mapped as the following systems:</p> <ul style="list-style-type: none"> • Granitic System (256Gr), described as rugged granitic hills supporting shrubby hard and soft spinifex grasslands, • Ruth System (289Rt), described as hills and ridges of volcanic and other rocks supporting shrubby hard spinifex and occasionally soft spinifex grasslands, • Capricorn System (289Cp), described as rugged sandstone hills, ridges, stony footslopes and interfluves supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs, • Rocklea System (282Rk), described as basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs, • Urandy System (285Uy), described as stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands, • Newman System (285Ne), described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands, • Boolgeeda System (284Bg), described as stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands, • Calcrete System (285Ca), described as rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands, • Table System (285Ta), described as low calcrete plateaux, mesas and lower plains supporting mulga and cassia shrublands and minor spinifex grasslands, • Jurrawarrina System (285Ju), described as hardpan plains and alluvial tracts supporting mulga shrublands with tussock and spinifex grasses, • Wannamunna System (285Wn), described as hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands and occasionally eucalypt woodlands, • Marandoo System (285Md), described as basalt hills and restricted stony plains supporting grassy mulga shrublands, and • River System (285Ri), described as narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex (DPIRD, 2021). <p>Unchanged from previous assessments.</p> <p>The additional clearing areas are mapped within the River System and Marandoo System.</p>
Land degradation risk	<p>The mapped soils are not susceptible to land degradations risks.</p>

Characteristic	Details
Waterbodies	<p>The desktop assessment and aerial imagery indicated that a portion of the permit area is adjacent to a major tributary of the Ashburton River and that the remaining application area intersect various non-perennial minor tributaries of Duck Creek and the Maitland, Robe, Fortescue, and Ashburton rivers.</p> <p>In addition, the Fortescue Marshes (Draft proposed Ramsar addition), located 29 kilometres east of the permit area.</p> <p>Unchanged from previous assessments.</p>
Hydrogeography	<p>The permit area is mapped within the Pilbara Surface Water Area and the Pilbara Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act).</p> <p>The permit area intersects five Public Drinking Water Source Areas proclaimed under the Country Areas Water Supply Act 1947 (CAWSA), including the Harding Dam Catchment Area (P1), the Pannawonica Water Reserve (Priority not assigned), the Bungaroo Creek Water Reserve (P1), the Millstream Water Reserve (P2), and the Paraburdoo Water Reserve (P1).</p> <p>Groundwater salinity within the permit area is mapped as 500 to 3000 milligrams per litre total dissolved solids.</p> <p>Unchanged from previous assessments.</p>
Flora	<p>According to available databases, a total of 134 threatened or priority flora species have been recorded within the local area (a 50-kilometre radius from each clearing area), comprising 33 Priority 1 (P1) flora, 24 Priority 2 (P2) flora, 65 Priority 3 (P3) flora, 10 Priority 4 (P4) flora, and two threatened flora (Western Australian Herbarium, 1998).</p> <p>One flora species, <i>Seringia exastia</i>, previously listed as Threatened under the BC Act has been delisted since the previous assessment.</p>
Ecological communities	<p>The permit area intersects an occurrence of the Priority Ecological Community (PEC) Stygofaunal Community of the Bungaroo Aquifer (Priority 1).</p> <p>Outside of the Stygofaunal Community of the Bungaroo Aquifer PEC, the closest PEC is an occurrence of the Brockman Iron cracking clay communities of the Hamersley Range (Brockman Iron cracking clay communities) PEC approximately 100 metres west of the permit area. The closest state-listed threatened ecological community (TEC) is an occurrence of the Themeda grasslands on cracking clays (Hamersley Station, Pilbara) (Themeda grasslands) TEC approximately 2.3 kilometres of the permit area.</p> <p>Unchanged from previous assessments.</p>
Fauna	<p>According to available databases, a total of 108 conservation significant fauna species have been recorded within the local area, including 35 threatened fauna species, 27 priority fauna species, 42 fauna species protected under international agreement, three other specially protected fauna species, and one extinct species (DBCWA, 2007-).</p> <p>Unchanged from previous assessments.</p>

A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information (Rio Tinto, 2023), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Aluta quadrata</i>	T	Y	Y	Y	10.78	4	Y
<i>Eremophila magnifica subsp. magnifica</i>	P4	Y	Y	Y	0.48	3	Y
<i>Goodenia sp. East Pilbara</i> (A.A. Mitchell PRP 727)	P3	Y	Y	Y	2.89	3	Y
<i>Hibiscus campanulatus</i>	P1	Y	Y	Y	2.84	24	Y
<i>Isotropis forrestii</i>	P1	Y	Y	Y	9.78	1	Y
<i>Ptilotus trichocephalus</i>	P4	Y	Y	Y	1.07	8	Y
<i>Sida sp. Barlee Range</i> (S. van Leeuwen 1642)	P4	Y	Y	Y	0.48	4	Y
<i>Streptoglossa sp. Cracking clays</i> (S. van Leeuwen et al. PBS 7353)	P3	Y	Y	Y	6.54	1	Y
<i>Solanum octona</i>	P2	Y	Y	-	9.4	35	-

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

A.3. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information (Rio Tinto, 2023), impacts to the following conservation significant fauna required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Dasyurus hallucatus</i>	EN	Y	Y	1.07	1	Y
<i>Falco peregrinus</i>	VU	Y	Y	4.7	1	Y
<i>Leggadina lakedownensis</i>	P4	Y	Y	42.84	1	Y
<i>Liasis olivaceous barroni</i>	VU	Y	Y	1.04	1	Y
<i>Macroderma gigas</i>	VU	Y	Y	4.32	5	Y
<i>Pseudomys chapmani</i>	P4	Y	Y	11.74	1	Y
<i>Rhinonictis aurantia</i>	VU	Y	Y	2.76	1	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The additional area proposed to be cleared may contain locally or regionally significant assemblages of plants.</p>	<p>May be at variance</p> <p>as per CPS 6110/6)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.1, above.</i></p>
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The additional area proposed to be cleared may contain significant habitat for conservation significant fauna.</p>	<p>May be at variance</p> <p>as per CPS 6110/6)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.1, above.</i></p>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared may contain habitat for flora species listed under the BC Act.</p>	<p>May be at variance</p> <p>as per CPS 6110/6)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.1, above.</i></p>
<p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	<p>Not likely to be at variance</p> <p>as per CPS 6110/6)</p>	<p>No</p>
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	<p>Not likely to be at variance</p> <p>as per CPS 6110/6)</p>	<p>No</p>
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	<p>Not likely to be at variance</p> <p>as per CPS 6110/6)</p>	<p>No</p>
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p>	<p>At variance</p> <p>as per CPS 6110/6)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.2, above.</i></p>

Assessment against the clearing principles	Variance level	Is further consideration required?
Given a number of water course or wetlands are recorded within one kilometre of the application area, the proposed clearing may impact on- or off-site hydrology and water quality.		
<p><u>Principle (g):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</p> <p><u>Assessment:</u></p> <p>The mapped soils are not susceptible to wind / water erosion, nutrient export, or salinity. The proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance as per CPS 6110/6)	No
<p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u></p> <p>Given the application area is recorded within a Priority 1 Public Drinking Water Source Area (PDWSA) and a PDWSA protection zone, the proposed clearing may impact surface or ground water quality.</p>	At variance as per CPS 6110/6)	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>Local flooding occurs seasonally in the Pilbara region as a result of cyclonic activity and sporadic thunderstorm activity. The small scale clearing proposed is not expected to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance as per CPS 6110/6)	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation’s ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.

Condition	Description
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Biological survey information excerpts / photographs of the vegetation



Vegetation code	Description	Extent (ha) within study area	Proportion (%) within study area	Photo
AcAIEcCsCc (Fauna habitat = Alluvial Plain)	<i>Acacia citrinoviridis</i> tall sparse shrubland over <i>Acacia tetragonophylla</i> and <i>Eremophilla cuneifolia</i> mid sparse shrubland over * <i>Cenchrus setiger</i> and * <i>Cenchrus ciliaris</i> tussock grassland. This vegetation type had disturbances from weeds, tracks, cattle, litter, previous clearing and infrastructure and overall was in Poor condition.	0.32	16.48	
HD	Highly modified Areas that are heavily disturbed, degraded, weed infested or cleared.	1.65	83.52	
Total		1.97	100	

Figure 19. Vegetation types within Study Area 1 and 2 (Rio Tinto, 2023a)



Vegetation code	Description	Extent (ha) within study area	Proportion (%) within study area	Photo
AcAjEFCroCsCcil (Fauna habitat = Alluvial Plain)	<i>Acacia citrinoviridis</i> tall shrubland over * <i>Aerva javanica</i> , <i>Eremophila fraseri</i> and <i>Corchorus crozophorifolius</i> open shrubland over * <i>Cenchrus ciliaris</i> and * <i>Cenchrus setiger</i> closed tussock grassland. This vegetation type had disturbances from weeds, tracks, cattle, litter, previous clearing and infrastructure and overall was in Poor condition.	0.46	85.18	
HD	Highly modified Areas that are heavily disturbed, degraded, weed infested or cleared.	0.08	14.82	
Total		0.54	100	

Figure 20. Vegetation types within Study Area 3 (Rio Tinto, 2023b)

Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

- Bullen, R.D. (2022) *Fauna Management Plan – Pilbara Leaf-nosed Bat (Rhinonicteris aurantia)*, received 16 January 2023. Bat Call WA (DWER Ref: DWERDT695627).
- Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (accessed 30 September 2023).
- Department of Water and Environmental (DWER) (Contaminated Sites – Science and Planning) (2023a) *Contaminated Sites Act 2003 advice for clearing permit application CPS 6110/7*, received 17/ August 2023 (DWER Ref: A2197852).
- Department of Water and Environmental Regulation (DWER) (Water Source Protection Planning) (2021) *Public Drinking Water Source Area (PDWSA) advice for clearing permit application CPS 6110/6*, received 21 April 2021, 27 May 2021 and 8 July 2021 (DWER Ref: A1999674, A2014868, and A2027066).
- Department of Water and Environmental Regulation (DWER) (Water Source Protection Planning) (2023b) *Public Drinking Water Source Area (PDWSA) advice for clearing permit application CPS 6110/7*, received 21 September 2023 (DWER Ref: DWERDT840165).
- Environmental Protection Authority (EPA) (2016). *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment*. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf.
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- Rio Tinto (2021a) *Native Vegetation Clearing Permit CPS 6110/5 – 2020 Annual Report*, received 30 June 2021 (DWER Ref: DWERDT473565).
- Rio Tinto (2023a) *Supporting information for clearing permit application CPS 6110/7*, received 16 June 2023 (DWER Ref: DWERDT811783).
- Rio Tinto (2023b) *Supporting information for clearing permit application CPS 6110/7*, received 29 September 2023 (DWER Ref: DWERDT842295).
- Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.
- Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 20 September 2023)