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ATLAS Stage 3 – EPBC Pre-clearance Report - Hillendale

Prepared for:
Senex

Report issued:
March 2025

This document has been prepared and is certified by:
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Document status

Revision	Reason for issue	Author	Reviewed	Issued to	Date
A	Draft report	B. Osborne M. Neill	-	-	13/03/2024
0	Final Report	B. Osborne M. Neill	L. Eade	Senex	14/03/2025
1	Final Report	B. Osborne M. Neill	L. Eade	Senex	18/03/2025
2	Updated mapping	B. Osborne M. Neill	L. Grigg	Senex	21/03/2025

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Glossary of Terms

Acronym	Description
ATP	Authority to prospect
DBH	Diameter at breast height
EA	Environmental authority
ECPPFD	*Environmental Constraints Protocol for Planning and Field Development*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EP Regulation	*Environmental Protection Regulation 2008*
ESA	Environmentally Sensitive Area
GTRE	Ground-truthed regional ecosystem
ha	Hectare
km	Kilometres
m	Metres
MNES	Matter of National Environmental Significance
MSES	Matter of State Environmental Significance
PL	Petroleum lease
sp.	Species (singular)
spp.	Species (plural)
Sqm	Square metres
SQP	Suitably qualified person
TEC	Threatened Ecological Community

1 Introduction

The pre-clearance survey methodology applied within this package of works is deemed appropriate to confirm the on-the-ground biodiversity values present.

1.1 Project background

The Atlas Stage 3 Gas Project (EPBC Act referral 2022/09410) involves developing, operating, decommissioning and rehabilitating up to 151 coal seam gas wells; gas and water gathering systems for the producing wells; access tracks; brine and produced water storages; borrow pits; and ancillary supporting facilities on Petroleum Lease (PL) 1127, PL1037, PL445 and PL209 in the central part of the Surat Basin, Queensland (Senex, 2024).

This report provides the results of pre-clearance survey on a proposed infrastructure layout including wells, gathering, camp, laydowns and extra workspaces (known hereafter as 'The Footprint') and a 30 m buffer within the Hillendale property:

- Lot 50 on Plan FT167
- Lot 51 on Plan FT429

1.2 Scope

Ausecology Pty Ltd (Ausecology) was engaged by Senex Energy Pty Ltd (Senex) to undertake pre-clearance ecological surveys as part of the approval conditions for the Atlas Stage 3 Gas Project and in accordance with the Atlas Stage 3 Environmental Constraints Protocol for Planning and Field Development (ECPPFD) document (Senex, 2024). The ECPPFD provides a framework for identifying, assessing and managing potential impacts to Matters of National Environmental Significance (MNES) and Matter of State Environmental Significance (MSES) associated with development of the Atlas Stage 3 Gas Project. Data collected during the pre-clearance surveys will be used by Senex to ensure:

- infrastructure siting complies with relevant environmental approval conditions and does not exceed the maximum disturbance limits
- infrastructure siting adheres to the constraints mapping; and
- no functional change to Koala dispersal habitat, the approval holder must not remove more than a total of 4 ha of trees, measured in canopy cover within mapped koala dispersal habitat.

Results from the pre-clearance survey findings (this report) will be published on the website, including:

- the location and extent of trees to be cleared, including maps; and
- a discussion of how removal of trees will not change the ability of koalas to disperse across the landscape.

This survey also involved targeted threatened flora surveys, active threatened fauna surveys (where suitable habitat was identified) and fauna habitat identification (where encountered) as per the ECPPFD.

1.3 EPBC conditions

This report will validate compliance with the following EPBC approval conditions:

4. In accordance with the Constraints Protocol, the approval holder must:
b) adhere to the constraints mapping.
5. To ensure no functional change to Koala dispersal habitat, the approval holder must not remove

more than a total of 4 ha of trees, measured in canopy cover within mapped Koala dispersal habitat.

PRE-CLEARANCE SURVEYS

6. Prior to commencing clearing, the approval holder must:

a) undertake at least one pre-clearance survey of the proposed area of clearing, and

b) publish on the website the pre-clearance survey findings, including:

i) the location and extent of trees to be cleared, including maps, and

ii) a discussion of how removal of trees will not change the ability of Koalas to disperse across the landscape.

2 Methodology

An Ausecology senior ecologist (suitably qualified) and ecologist conducted field surveys on foot on the 3rd to the 6th of March 2025 to determine impacts from the planned gas infrastructure including wells, gathering, laydowns extra workspaces and a camp on the Hillendale property. The area surveyed and mapped in this report is shown in Figure 2-1.

2.1 Regional ecosystem assessment and threatened ecological communities

2.1.1 Desktop assessment

Desktop assessment and constraints assessments have previously been undertaken on the property including by Ausecology in November 2024). These surveys included ground-truthed regional ecosystem (GTRE) mapping and threatened ecological community surveys. This report has been reviewed as part of this desktop assessment prior to the pre-clearance surveys and were deemed to have been conducted to an acceptable level of detail. Given the level of detail in prior reports, no further detailed desktop analysis has been conducted.

2.1.2 Regional ecosystem assessment

During pre-clearance surveys, quaternary site assessments to verify regional ecosystems were undertaken where necessary (i.e., where vegetation and ecological communities have been determined to vary from the mapped GTRE at the time of the pre-clearance surveys). These assessments were conducted in accordance with the ECPPFD.

2.1.3 Threatened ecological communities

Where necessary Threatened Ecological Community (TEC) assessments were undertaken to confirm the presence and condition of TECs identified as known or potential in The Footprint if these were determined to vary from the mapped TEC areas identified in the constraints mapping.

2.2 Targeted threatened flora surveys

These surveys were conducted by a suitably qualified person (SQP). Targeted flora surveys of all known, likely or potential threatened flora species were conducted within The Footprint and 30 m buffer, where mapped constraint areas were present and/or suitable habitat was identified by the SQP, in accordance with the ECPPFD.

These surveys were conducted using the random meander methodology and if a species was encountered, a population survey was undertaken to determine the extent and density of the population. Threatened flora species and the locations of all individuals were recorded and specimens collected of any unknown individual requiring confirmation by the Queensland Herbarium.

Potentially occurring threatened species in the area as per the ECPPFD include Belson's panic (*Homopholis belsonii*), red soil woolly wrinklewort (*Rutidosis lanata*) and winged nightshade (*Solanum stenopterum*).

2.3 Fauna habitat assessment

Senex has committed to not clearing any areas confirmed as habitat for threatened species (ECPPFD), with the exception of koala (*Phascolarctos cinereus*) dispersal habitat and short-beaked echidna (*Tachyglossus aculeatus*) habitat. Fauna habitat baseline assessments have been conducted to an adequate level of detail to enable known, likely and potentially present species to be identified and comprehensive Project impact assessment and constraints mapping has been completed (ECPPFD).

The pre-clearance surveys will reassess the habitat present (as mapped in the constraints mapping (ECPPFD)) or otherwise identified by the SQP during the pre-clearance surveys) in order to refine mapped habitat areas. They will also identify and record micro-habitat features and breeding sites to facilitate avoidance and minimisation of impacts to potentially utilised micro-habitat features and breeding sites. Recorded micro-habitat features, where present include:

- Hollow-bearing trees;
- Dead standing trees;
- Hollow logs;
- Termite mounds;
- Woody debris;
- Surface rocks;
- Gilgais;
- Soil cracks / cracking clay;
- Rocky outcrops, crevices, overhangs and caves;
- Mistletoes;
- Nests;
- Animal burrows;
- Watercourses, wetlands and dams (including proximity); and
- Any other significant habitat features, or values present, such as dense leaf litter, heavily decorticating bark, dense grass/shrub shelter, seeding grass cover, fruiting plants, nectar and pollen producing plants and koala food trees.

2.4 Threatened fauna surveys

As areas confirmed as habitat for threatened species have been effectively avoided by The Footprint (with the exception of koala dispersal habitat and echidna habitat), the area required to be surveyed was minimal.

Active fauna surveys of all known, likely or potential threatened fauna species are to be undertaken where suitable potential habitat is mapped or found to be present within The Footprint (refer to the constraints mapping and the habitat features listed in Appendix A of the ECPPFD). Active fauna searches as per Table 1, Appendix A of the ECPPFD include scanning trees, the ground and habitat features; overturning rocks, logs and other woody debris; searching under peeling bark; raking leaf litter and soil at the base of trees; and flushing birds from dense shrubs and groundcover.

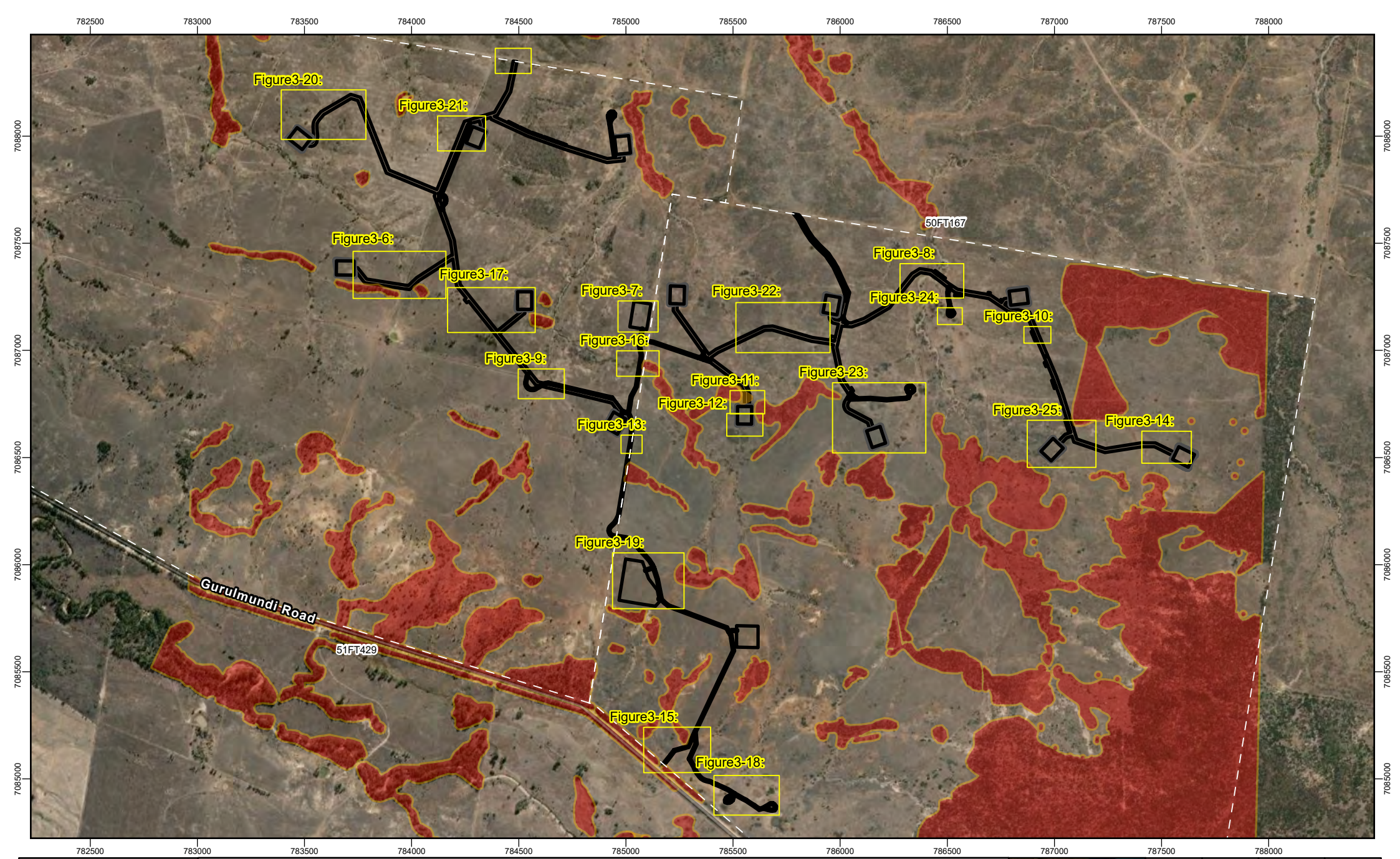
Invasive active searches were not undertaken in the 30 m buffer of The Footprint within mapped constraint areas, given no impact is expected and active searches outside of The Footprint would be detrimental to the fauna species habitat. Instead of invasive searches in the 30 m buffer, surveys included incidental observations and scat and sign searches.

2.5 Koala dispersal habitat

An initial desktop survey was undertaken to analyse all previous ecology data collected in the field, analysis of the ECPPFD and associated constraints mapping, and to identify areas of mapped koala dispersal habitat that would require further ground verification.

Areas identified were highlighted on GIS mapping for further identification and field verification. Additional points were collected in the field where applicable. All tree ID numbers have been provided in individual maps of the area surveyed and further details provided in the results.

Canopy cover was measured by walking the dripline of trees located in koala dispersal areas using a sub-10 cm accuracy handheld Trimble GPS unit. The diameter at breast height (DBH) of each of the abovementioned trees was measured and height data was collected. Where denser regrowth was present and canopy cover of individual trees could not be distinguished, the canopy cover of the clump of trees was walked at the outer dripline and average height assessed. Thorny tree species which are not able to be climbed by koala (i.e. desert lime (*Citrus glauca*) were noted in the field but excluded from the final koala tree canopy cover calculations.



Ausecology
a Niche company

Figure 2-1:

Hillandale
Atlas 3 - Constraint Overview

High Constraint Area
No Go Area
Property Boundary
Proposed Infrastructure Extent
Map Extent

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	12/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:22,000

N

0 400 800
Metres

3 Results

The Hillandale property has been historically cleared for cattle grazing and is dominated by cleared pasture lands of introduced grasses and scattered paddock trees such as poplar box (*Eucalyptus populnea),* brigalow *(Acacia harpophylla),* belah *(Casuarina cristata)* and wilga (*Geijera parviflora)* (Figure 3-2). Small patches of remnant and regrowth vegetation were also found throughout the property (Figure 3-2).

Figure 3-1 Representative image of cleared grazing pastures

Figure 3-2 Representative image of patchy regrowth vegetation

3.1 Regional ecosystems and threatened ecological communities

Where mapped constraints areas occurred within the disturbance footprint or 30 m buffer these were assessed in the field to ensure they aligned with the mapping. No mapped constraints in the survey area were found to require changes. The survey also confirmed that the proposed disturbance areas do not contain any listed TEC or any TEC within the 30 m buffer area.

3.2 Targeted threatened flora surveys

No Belson's panic (*Homopholis belsonii*), red soil woolly wrinklewort (*Rutidosis lanata*) and winged nightshade (*Solanum stenopterum)* were identified within The Footprint. It is unlikely for these species to be present in The Footprint, due to the grazing pressure and presence of non-native grasses, mainly buffel grass (*Cenchrus ciliaris*).

3.3 Opportunistic fauna survey and habitat assessment

No threatened fauna species were observed in suitable potential habitat within 30 m of The Footprint, a total of 31 incidental fauna species were found, with the full list shown in Appendix A. Habitat searches found 20 micro-habitat features other than koala dispersal trees including course woody debris, dead standing trees (stags), decorticating bark and bird nests within The Footprint and 30 m buffer, with a full list shown in Appendix B. All nests identified in The Footprint did not have any nesting birds at the time of the survey. Invasive searches were not undertaken on habitat features in the proposed footprint, as fauna would be disturbed too soon before clearing, and habitat may be unnecessarily destroyed.

Within The Footprint two polygons were mapped as habitat due to the large number of features present. One area mapped between Atlas-274 and Atlas-253 had frequent course woody debris and logs from past clearing (Figure 3-3). The second mapped polygon south of Atlas-258 has numerous stags with some containing hollows, cracks or decorticating bark as well as some course woody debris (Figure 3-4).

Figure 3-3 Scattered course woody debris between Atlas-274 and Atlas-253

Figure 3-4 Numerous scattered stags south of Atlas-258

3.4 Weeds

Restricted invasive species under the *Biosecurity Act 2014* present within The Footprint included scattered *Opuntia stricta* and *Opuntia tomentosa*. An additional 18 weed species were also noted, see Appendix C for a list of weeds identified in The Footprint.

3.5 Erosion

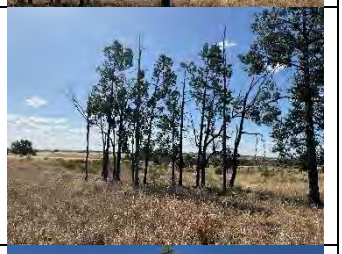
Multiple erosion points were recorded around the property, particularly along drainage lines. Several erosion issues in proximity to The Footprint are shown in Appendix D.

3.6 Ground-truthed koala dispersal trees

Table 3-1 provides the results including canopy cover, height and DBH of the trees assessed in the field in koala dispersal areas. All trees were assessed and, where determined they could be avoided (through underground boring or realignment), have been marked up as “retain” and will be avoided during construction. Trees unable to be avoided have had their canopy cover assessed and calculated under disturbance limits. Mapping of each location (Desktop ID) are shown in Figure 3-5 to 3-25.

Table 3-1 Dispersal habitat trees

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL01	48.48	*Geijera parviflora*	39	8.2	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL02	14.20	*Casuarina cristata*	10	5.3	Remove	
HLL03	13.59	*Owenia acidula*	23	5.8	Retain	
HLL04	35.02	*Callitris glaucophylla*	40	12.5	Retain	
HLL05	78.40	*Callitris glaucophylla*	31	11.5	Retain	
HLL06	7.73	*Callitris glaucophylla*	14	6.3	Retain	
HLL07	5.19	*Callitris glaucophylla*	10	6.2	Retain	
HLL08	8.80	*Callitris glaucophylla*	15	6.5	Retain	
HLL09	5.22	*Callitris glaucophylla*	14	4.4	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL10	11.20	*Acacia pendula*	20	6.5	Retain	
HLL11	9.28	*Callitris glaucophylla*	16	6	Retain	
HLL12	21.30	*Casuarina cristata*	22	10.2	Retain	
HLL13	38.46	*Eucalyptus melanophloia*	32	9.9	Remove	
HLL14		*Eucalyptus melanophloia*	23	10.1		
HLL15	22.82	*Acacia excelsa*	10	4.5	Remove	
HLL16		*Eucalyptus melanophloia*	30	10.1		
HLL19	42.51	*Geijera parviflora*	37	5.6	Retain	
HLL20	30.63	*Geijera parviflora*	28	6.6	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL21	76.29	*Geijera parviflora*	47	11.7	Retain	
HLL22	3.80	*Eucalyptus melanophloia*	10	4.7	Retain	
HLL23	2.92	*Eucalyptus melanophloia*	10	4.7	Retain	
HLL24	58.55	*Geijera parviflora*	41	8	Retain	
HLL25	76.09	*Acacia harpophylla*	16	9.4	Retain	
HLL26	38.60	*Acacia harpophylla*	18	7.4	Retain	
HLL28	6.99	*Acacia harpophylla*	12	6.6	Retain	
HLL29	20.78	*Acacia harpophylla*	18	6.6	Retain	
HLL30	8.06	*Acacia harpophylla*	18	6.8	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL33	15.07	*Atalaya hemiglauca*	21	7.2	Retain	
HLL34	23.22	*Geijera parviflora*	20	5.3	Remove	
HLL35	4.69	*Eucalyptus populnea*	25	8	Retain	
HLL36	10.38	*Acacia harpophylla*	15	6.6	Retain	
HLL37	76.35	*Acacia salicina*	30	7	Remove	
HLL38	28.48	*Acacia salicina*	15	6	Retain	
HLL39	30.30	*Acacia salicina*	21	6.8	Retain	

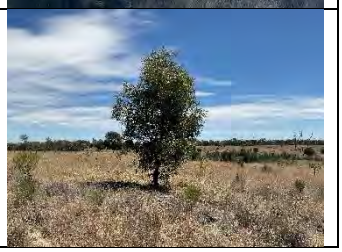
Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL40	5.20	*Eremophila mitchellii*	18	6.6	Remove	
HLL41	11.45	*Eucalyptus orgadophila*	21	9.8	Retain	
HLL42	64.64	*Brachychiton rupestris*	106	7.1	Remove	
HLL43	9.22	*Eucalyptus populnea*	17	6.4	Retain	
HLL44	18.19	*Eremophila mitchellii*	23	7.3	Retain	
HLL45	11.85	*Geijera parviflora*	9	5	Retain	
HLL46	5.60	*Eucalyptus populnea*	10	5.5	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL47	14.43	*Acacia harpophylla*	16	5.8	Retain	
HLL48	20.04	*Acacia harpophylla*	28	9.3	Retain	
HLL49	19.10	*Acacia harpophylla*	21	5.7	Retain	
HLL50	110.19	*Owenia acidula*	42	9.1	Retain	
HLL51	33.04	*Eremophila mitchellii*	16	6.6	Retain	
HLL52	10.48	*Geijera parviflora*	14	4.3	Remove	
HLL53	48.15	*Owenia acidula*	40	9	Remove	
HLL54	234.65	*Owenia acidula*	65	13.8	Retain	
HLL56	21.14	*Acacia salicina*	25	7	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL57	22.48	*Geijera parviflora*	15	6.3	Retain	
HLL59	6.37	*Acacia harpophylla*	11	6	Retain	
HLL61	22.99	*Acacia salicina*	11	7.2	Retain	
HLL62	107.45	*Acacia salicina*	38	11	Retain	
HLL63	35.77	*Acacia salicina*	35	12.5	Retain	
HLL64	30.01	*Acacia harpophylla*	36	7.1	Retain	
HLL65	9.62	*Acacia harpophylla*	44	14.6	Retain	
HLL66		*Acacia harpophylla*	29	13.4		

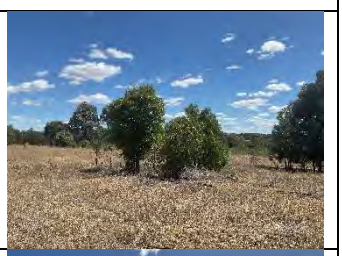
Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL67	4.44	*Acacia harpophylla*	24	10.8	Retain	
HLL68	12.15	*Acacia harpophylla*	32	9.8	Retain	
HLL69	8.86	*Santalum lanceolatum*	19	7.3	Remove	
HLL70	18.83	*Acacia salicina*	31	9.2	Retain	
HLL71	57.47	*Acacia salicina*	20	6.8	Remove	
HLL72	41.70	*Acacia salicina*	27	8.5	Retain	
HLL73	6.16	*Acacia salicina*	27	9.8	Retain	
HLL74	3.04	*Acacia salicina*	17	4.5	Retain	
HLL76	10.79	*Acacia salicina*	11	4.7	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL77	23.56	*Acacia salicina*	27	8.5	Retain	
HLL78	19.40	*Acacia salicina*	30	5.3	Retain	
HLL79	16.48	*Acacia salicina*	7.4	35	Retain	
HLL80	9.80	*Acacia salicina*	17	9.5	Retain	
HLL82	11.38	*Geijera parviflora*	10	4.5	Retain	
HLL83	14.67	*Atalaya hemiglauca*	23	7	Retain	
HLL84	27.30	*Geijera parviflora*	16	5.9	Retain	
HLL85	9.12	*Santalum lanceolatum*	14	4.9	Retain	
HLL86	109.61	*Owenia acidula*	46	12.1	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL87	34.67	*Geijera parviflora*	48	10.2	Retain	
HLL88	9.54	*Acacia salicina*	12	5	Retain	
HLL89	34.27	*Acacia salicina*	15	6.2	Retain	
HLL90	11.74	*Acacia salicina*	11	4.5	Retain	
HLL91	12.22	*Acacia salicina*	14	6.5	Retain	
HLL92	7.90	*Acacia salicina*	20	8	Retain	
HLL93	3.45	*Eremophila mitchellii*	22	6.2	Retain	
HLL94	21.03	*Acacia harpophylla*	14	4.9	Remove	

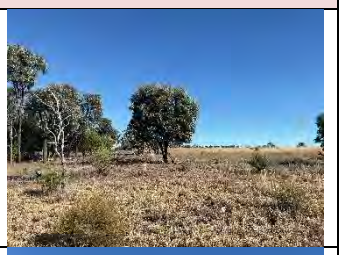
Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL95	71.52	*Acacia harpophylla*	24	9.6	Retain	
HLL96	39.12	*Acacia harpophylla*	24	5.8	Retain	
HLL97	3.53	*Acacia harpophylla*	12	4.8	Remove	
HLL98	36.61	*Atalaya hemiglauca*	13	5.3	Remove	
HLL99	11.10	*Acacia excelsa*	15	6.1	Remove	
HLL100	8.07	*Eucalyptus orgadophila*	10	5.5	Remove	
HLL101	79.03	*Acacia salicina*	30	13.3	Retain	

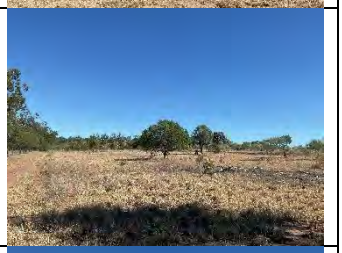
Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL102	16.12	*Atalaya hemiglauca*	27	9.1	Remove	
HLL103	8.29	*Atalaya hemiglauca*	25	9	Remove	
HLL104	47.43	*Brachychiton rupestris*	190	9.5	Retain	
HLL105	48.39	*Brachychiton rupestris*	180	11.4	Remove	
HLL106	19.19	*Brachychiton rupestris*	150	8.7	Retain	
HLL107	31.99	*Acacia harpophylla*	15	6.5	Retain	
HLL108	23.03	*Acacia harpophylla*	17	8.7	Remove	
HLL109	8.79	*Acacia harpophylla*	12	5.3	Remove	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL110	6.02	*Acacia harpophylla*	14	5.2	Remove	
HLL112	33.60	*Brachychiton rupestris*	100	10.9	Retain	
HLL113	16.13	*Brachychiton rupestris*	70	6	Retain	
HLL114	38.54	*Acacia harpophylla*	13	5.2	Remove	
HLL115	11.14	*Acacia harpophylla*	15	7.1	Remove	
HLL116	20.04	*Acacia harpophylla*	12	5.2	Retain	N/A
HLL117	16.91	*Notelaea macrocarpa*	14	4.2	Retain	
HLL118	5.61	*Acacia harpophylla*	10	4.7	Retain	
HLL119	33.04	*Acacia harpophylla*	20	8	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL121	28.57	*Brachychiton rupestris*	170	9.1	Retain	
HLL122	37.35	*Acacia salicina*	10	5.3	Retain	
HLL123	35.69	*Acacia salicina*	10	7.3	Retain	
HLL124	108.21	*Owenia acidula*	63	12.9	Remove	
HLL126	47.81	*Acacia harpophylla*	30	8	Retain	
HLL127	38.78	*Acacia harpophylla*	30	8	Remove	
HLL128	21.85	*Eucalyptus populnea*	32	9	Remove	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL129	10.75	*Acacia harpophylla*	15	5.5	Remove	
HLL131	44.08	*Acacia harpophylla*	14	6.1	Retain	
HLL132	10.11	*Casuarina cristata*	13	6.1	Retain	
HLL133	14.82	*Casuarina cristata*	12	7.6	Retain	
HLL134	19.19	*Casuarina cristata*	12	6.8	Retain	
HLL135	10.01	*Casuarina cristata*	10	5.7	Retain	
HLL136	6.58	*Casuarina cristata*	10	6	Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL137	7.89	*Acacia harpophylla*	12	5.8	Retain	
HLL140	15.43	*Geijera parviflora*	18	5.8	Retain	
HLL141	43.95	*Geijera parviflora*	68	8.3	Retain	
HLL142	3.50	*Acacia salicina*	10	4.5	Retain	
HLL143	10.73	*Geijera parviflora*	12	7	Retain	
HLL144	35.21	*Geijera parviflora*	17	5	Retain	
HLL145	7.10	*Geijera parviflora*	10	4.7	Retain	
HLL146	9.70	*Geijera parviflora*	20	6	Retain	N/A

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL147	5.31	*Geijera parviflora*	15	6	Retain	N/A
HLL149	2.99	*Eucalyptus populnea*	11	8	Remove	
HLL150	17.08	*Geijera parviflora*	10	4.8	Retain	
HLL151	40.34	*Eremophila mitchellii*	15	6.1	Retain	
HLL152	12.98	*Eucalyptus populnea*	15	6.6	Retain	
HLL153	36.96	*Geijera parviflora*	34	7.9	Remove	
HLL154	2.42	*Casuarina cristata*	10	7.9	Retain	
HD46	26.12	*Eucalyptus populnea*	20	5	Retain	N/A
HLL155	4.94	Patch of regrowth *Acacia salicina*	Avg: 15	Avg: 5	Retain	
HLL156	1.51				Retain	
HLL157	1.47				Retain	
HLL158	2.69				Retain	
HLL159	1.52				Retain	

Location (Desktop ID)	Area (sqm)	Species	DBH (cm)	Height (m)	Action	Photo
HLL160	1.50				Retain	
HLL161	1.71				Retain	
HLL162	1.27				Retain	
HLL163-HLL164	1.46				Retain	
HLL165	2.71				Retain	
HLL166	1.23				Retain	
HLL167-HLL168	15.10				Retain	
HLL169	7.24				Retain	
HLL170	4.80				Retain	
HLL171	5.83				Retain	
HLL172	15.88				Retain	
HLL173	13.16				Retain	
HLL174	21.63	Patch of regrowth *Acacia salicina* with scattered *Geijera parviflora*	Avg: 15	Avg: 5	Retain	
HLL175	16.22				Retain	
HLL176	29.05				Retain	
HLL177	12.87				Retain	
HLL178-HLL181	39.32				Remove	
HLL182-HLL184	28.68				Remove	
HLL185-HLL187	13.46				Remove	
HLL188	31.91				Remove	
HLL189	9.66				Retain	
HLL190	85.58				Retain	
Remove area:		**Total (sqm)**	**943.40**			
		Total (ha)	**0.094**			
Retain area:		*Total (sqm)*	***3058.83***			
		Total (ha)	***0.306***			

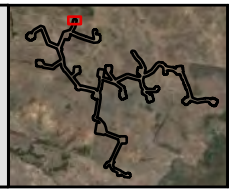
Ausecology
a Niche company

Figure 3-5:

Hillandale
Atlas 3 - Detailed

Access Tracks
Proposed Pipelines
RoW

Koala Habitat Tree
Retain
Remove
Retain
Remove



REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N

0 15 30
Metres

Ausecology
a Niche company

Figure 3-6:
Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Remove
- Retain
- Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,600

N

0 30 60
Metres

Ausecology
a Niche company

Figure 3-7:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Tracks Corridors
- Earthworks Extent
- Workpad Workspaces

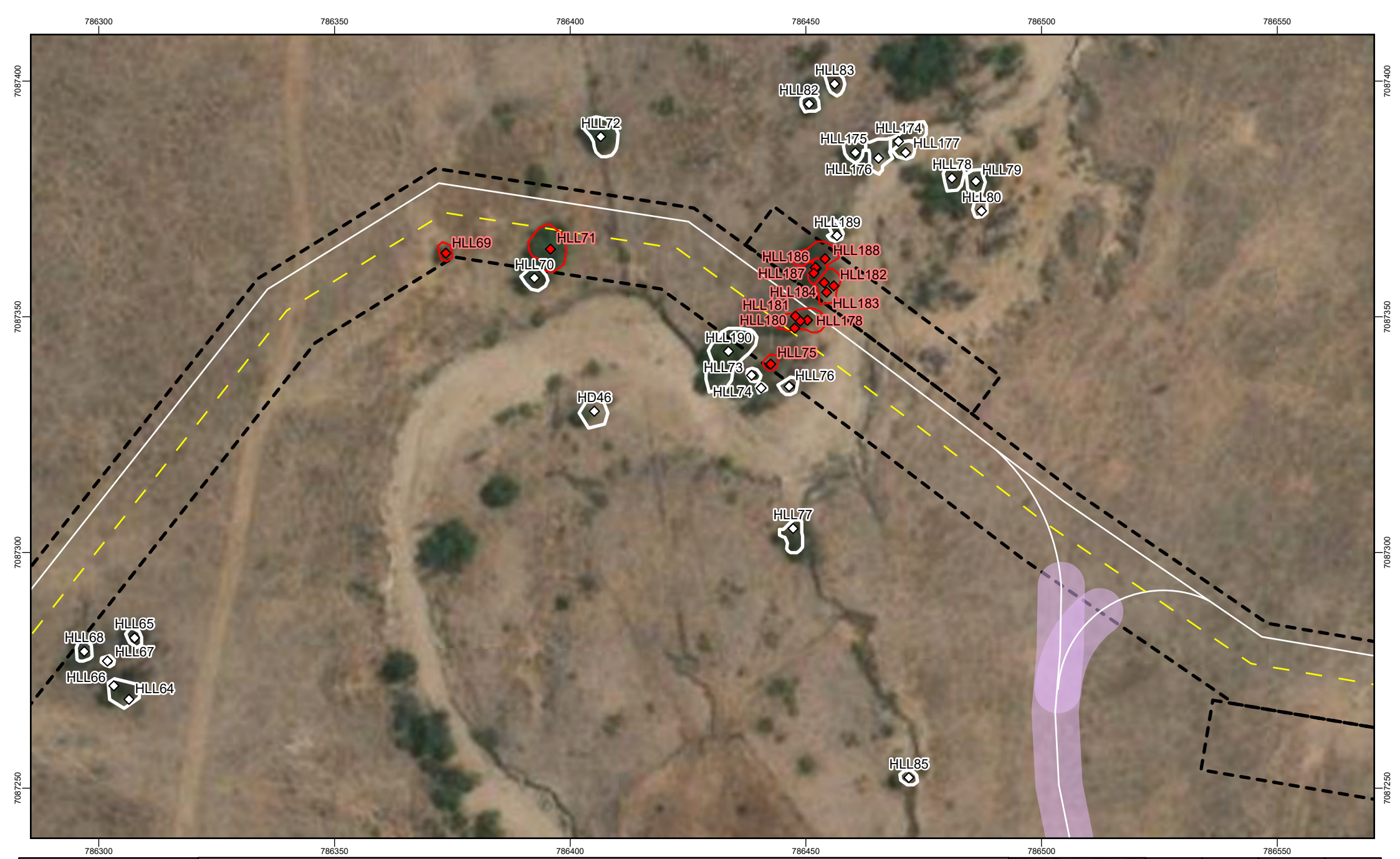
Koala Habitat Tree
- Remove
- Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N

0 15 30
Metres



Ausecology
a Niche company

Figure 3-8:
Hillandale
Atlas 3 - Detailed

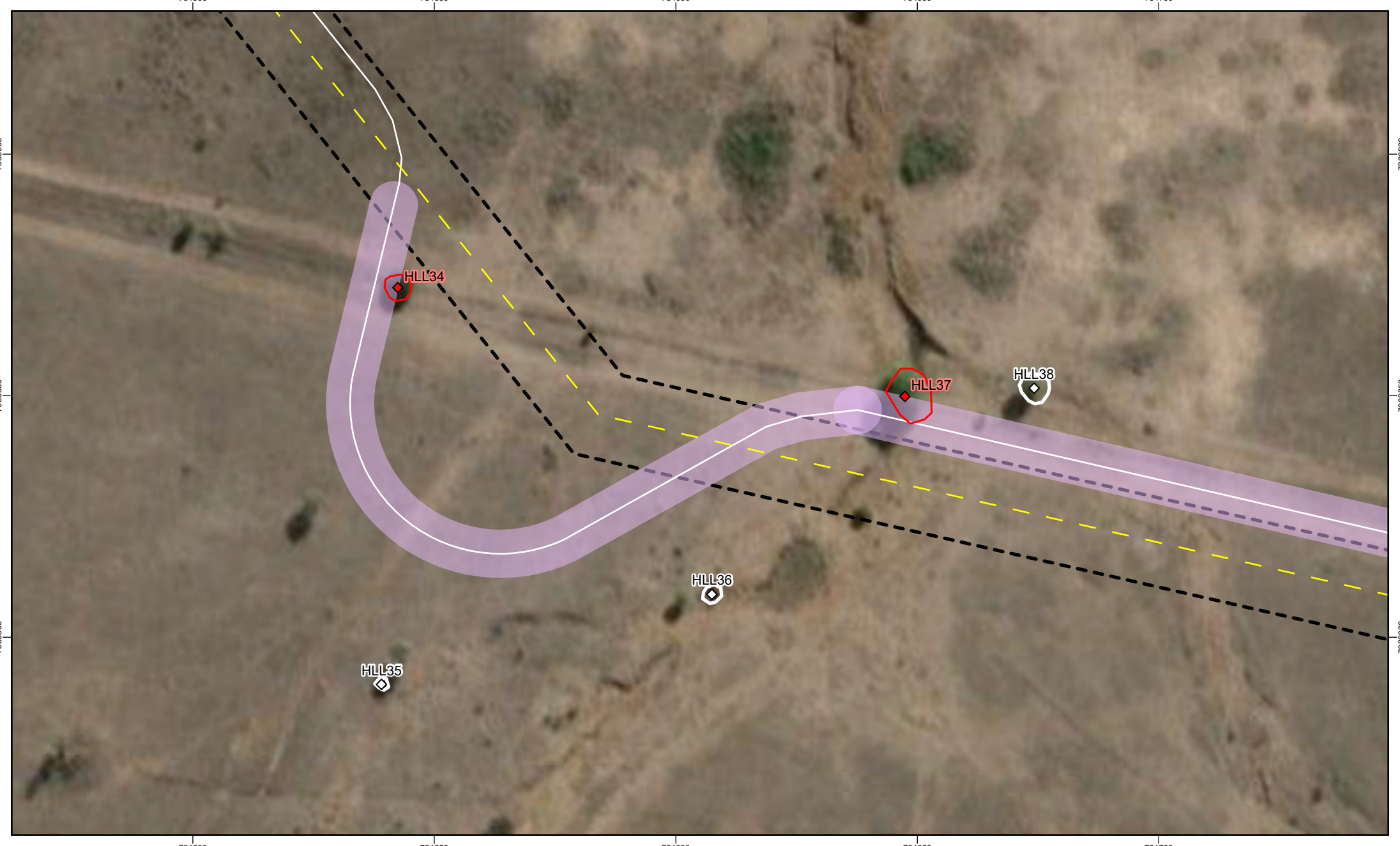
Access Tracks
Proposed Pipelines
RoW
Tracks Corridors

Koala Habitat Tree
Retain
Remove
Retain
Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N
0 15 30
Metres



Ausecology
a Niche company

Figure 3-9:
Hillandale
Atlas 3 - Detailed

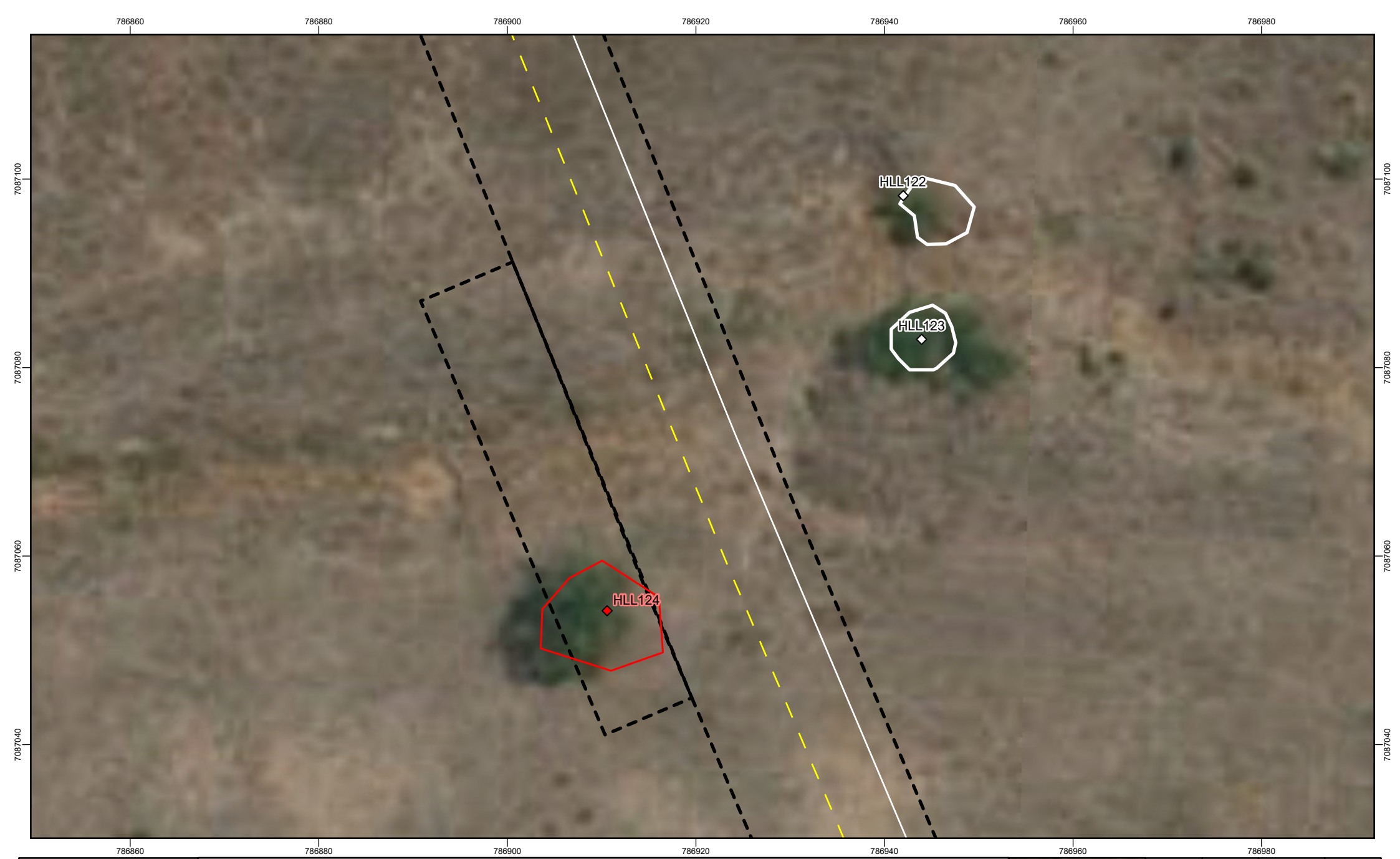
Access Tracks
Proposed Pipelines
RoW
Tracks Corridors

Koala Habitat Tree
Retain
Remove
Retain
Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N
0 15 30
Metres



Ausecology
a Niche company

Figure 3-10:

Hillandale
Atlas 3 - Detailed

Access Tracks
Proposed Pipelines
RoW

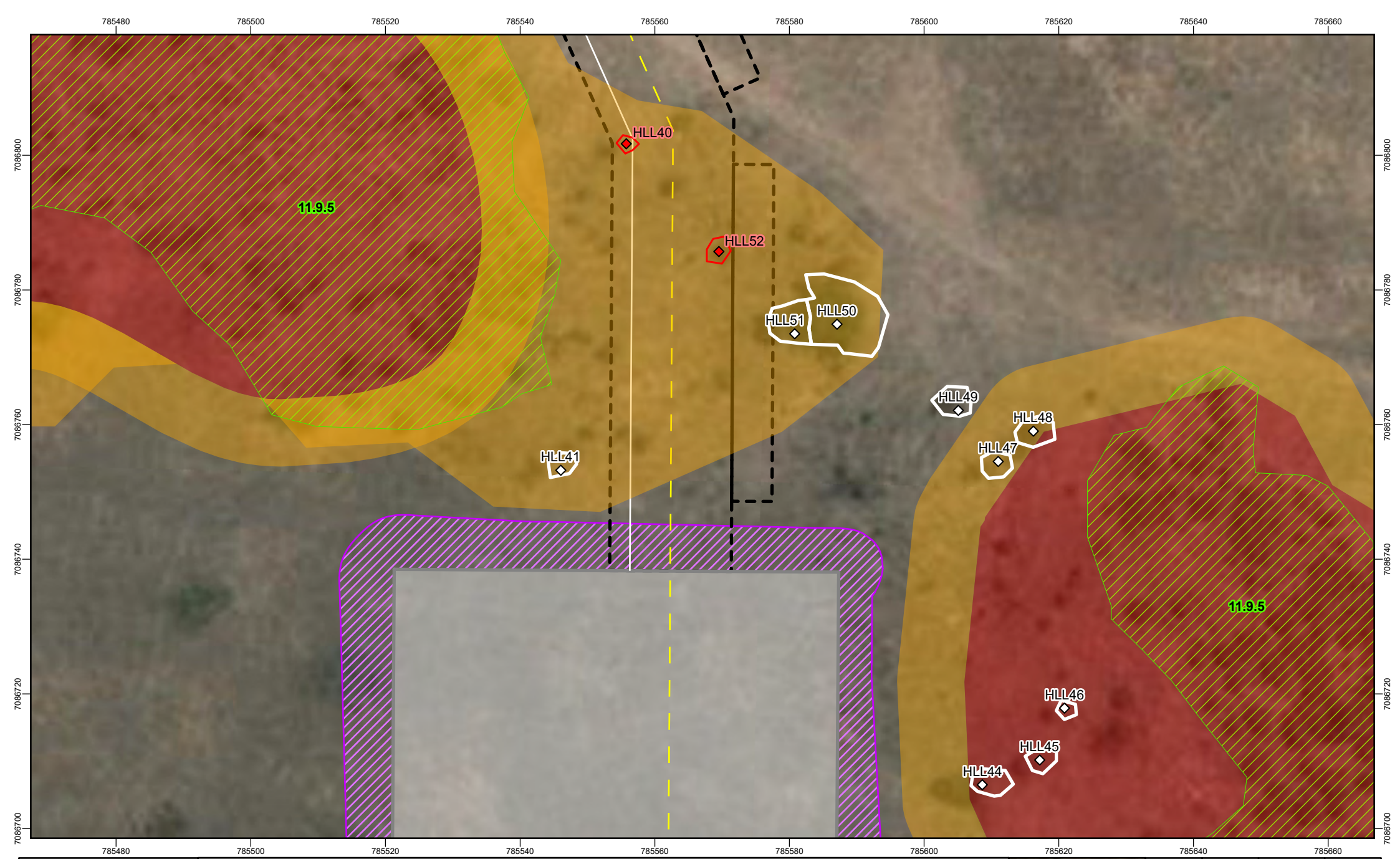
Koala Habitat Tree
Retain
Remove
Retain
Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:500

N

0 5 10
Metres



Ausecology
a Niche company

Figure 3-11:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

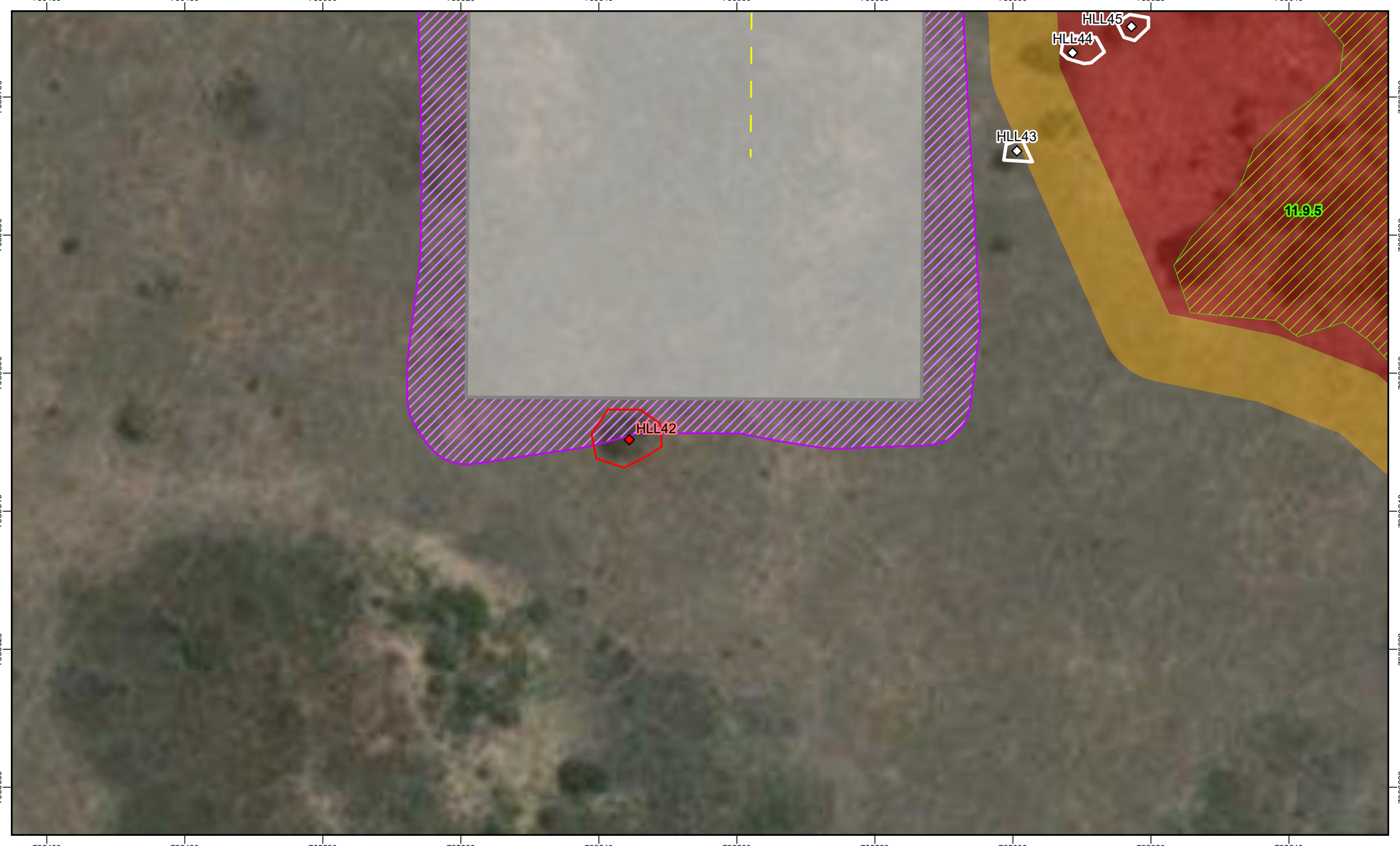
Koala Habitat Tree
- Retain
- Remove
- Retain
- Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:700

N

0 12.5 25
Metres



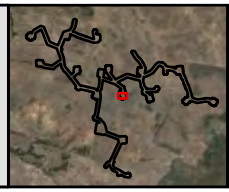
Ausecology
a Niche company

Figure 3-12:

Hillandale
Atlas 3 - Detailed

- Proposed Pipelines
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Remove
- Retain
- Remove

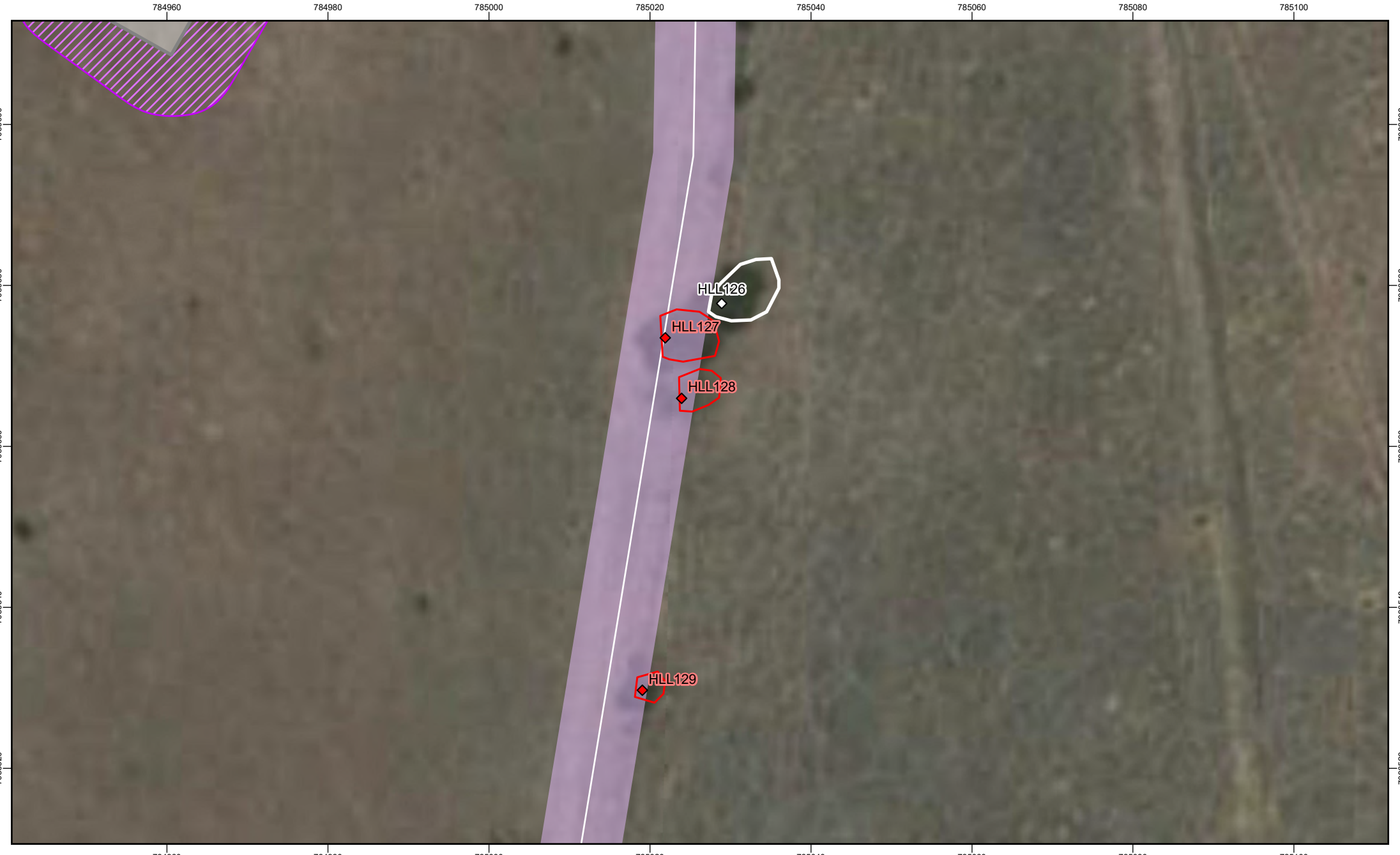


REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:700

N

0 12.5 25
Metres



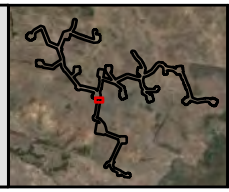
Ausecology
a Niche company

Figure 3-13:

Hillandale
Atlas 3 - Detailed

Access Tracks
Tracks Corridors
Earthworks Extent
Workpad Workspaces

Koala Habitat Tree
Retain
Remove
Retain
Remove



REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:600

N

0 10 20
Metres

Ausecology
a Niche company

Figure 3-14:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces

Koala Habitat Tree
- Retain
- Remove

- Retain
- Remove

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N

0 15 30
Metres

Ausecology
a Niche company

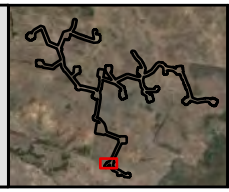
Figure 3-15:

Hillandale
Atlas 3 - Detailed

Access Tracks
Tracks Corridors

High Constraint Area
No Go Area
GTRE Vegetation Extent

Koala Habitat Tree
Retain
Remove
Retain
Remove

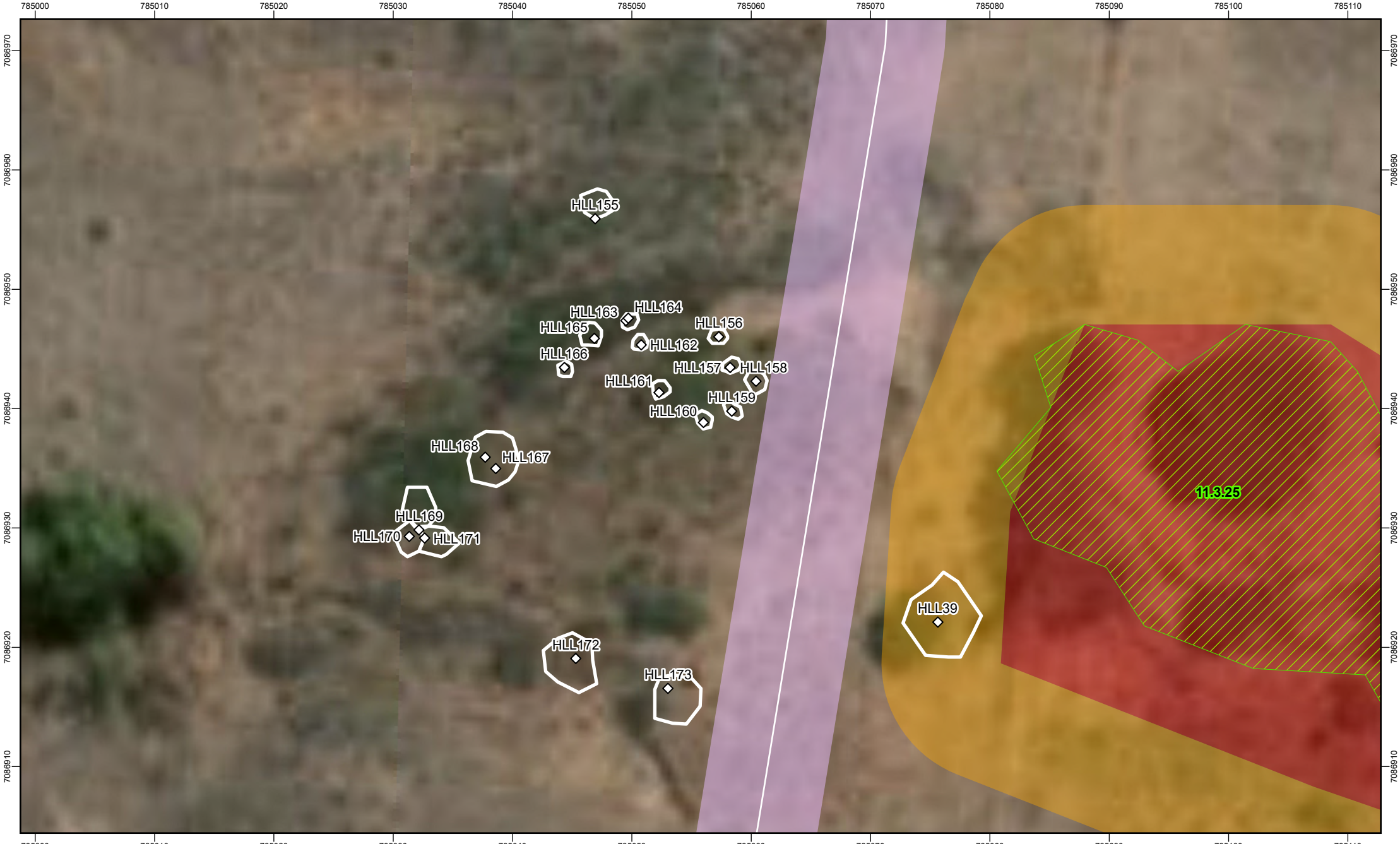


REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,300

N

0 25 50
Metres



Ausecology
a Niche company

Figure 3-16:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Tracks Corridors
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:400

N

0 5 10
Metres

Ausecology
a Niche company

Figure 3-17:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

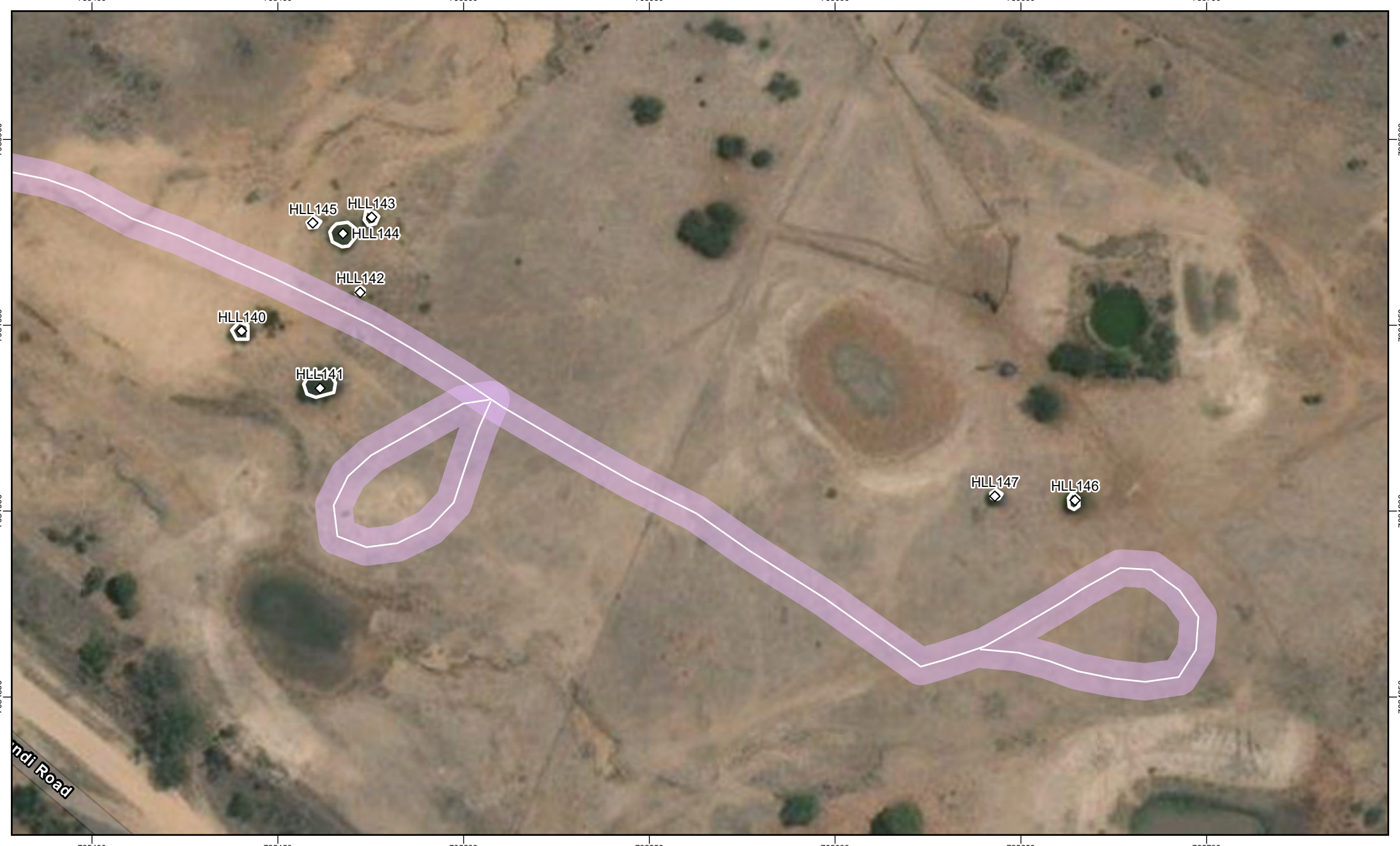
Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,500

N

0 25 50
Metres



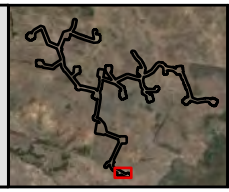
Ausecology
a Niche company

Figure 3-18:

Hillandale
Atlas 3 - Detailed

Access Tracks
Tracks Corridors

Koala Habitat Tree
Retain
Retain

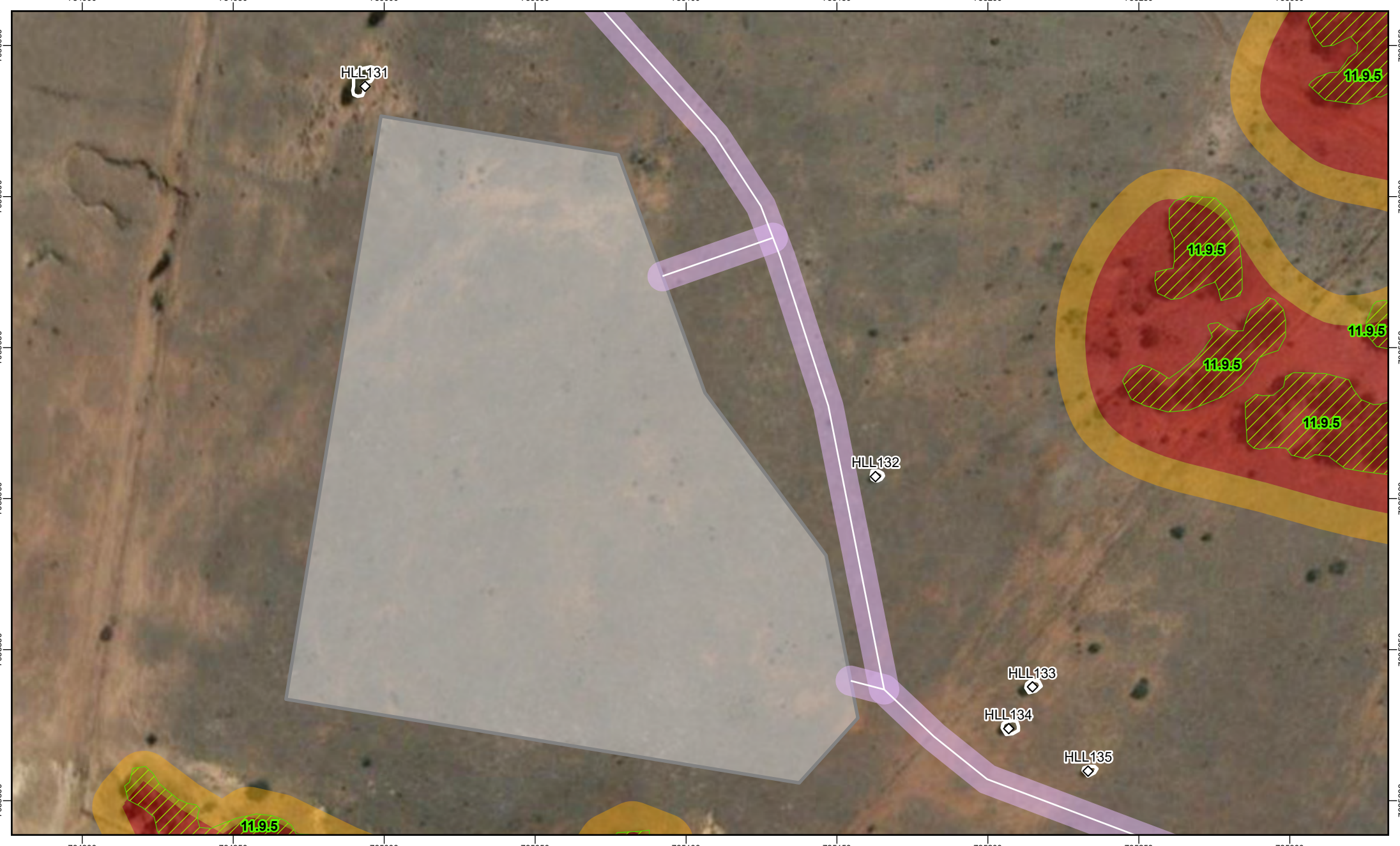


REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,300

N

0 25 50
Metres



Ausecology
a Niche company

Figure 3-19:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Tracks Corridors
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,600

N

0 30 60
Metres

Ausecology
a Niche company

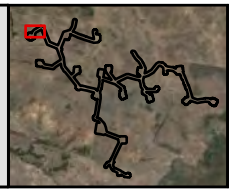
Figure 3-20:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces

Koala Habitat Tree

- Retain
- Retain



REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,500

N

0 25 50
Metres

Ausecology
a Niche company

Figure 3-21:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Tracks Corridors
- Earthworks Extent
- Workpad Workspaces

Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,000

N

0 15 30
Metres

Ausecology
a Niche company

Figure 3-22:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces

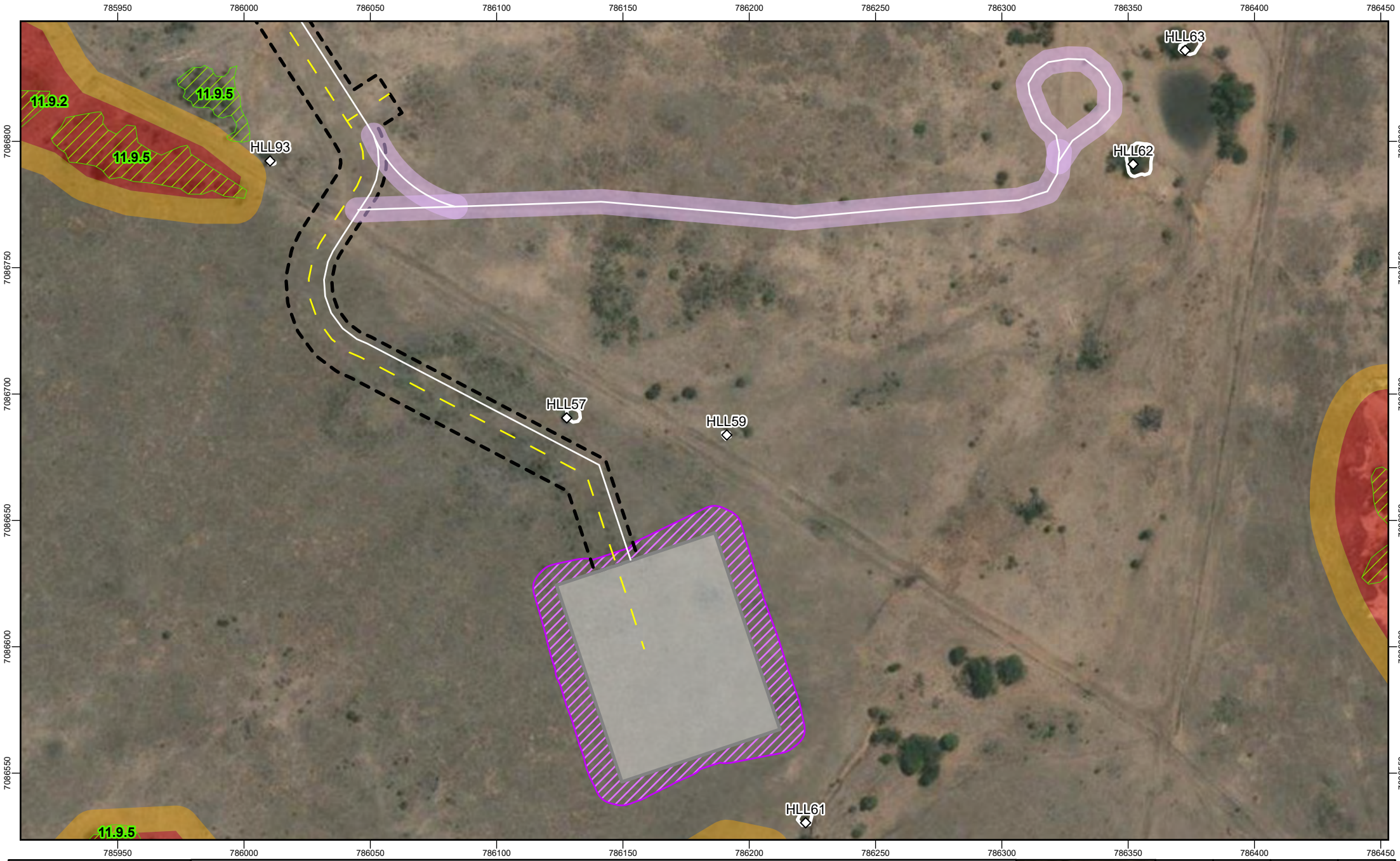
Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,500

N

0 25 50
Metres



Ausecology
a Niche company

Figure 3-23:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Tracks Corridors
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Retain

REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,900

N

0 35 70
Metres

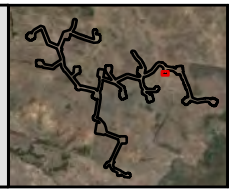
Ausecology
a Niche company

Figure 3-24:

Hillandale
Atlas 3 - Detailed

Access Tracks
Tracks Corridors

Koala Habitat Tree
Retain
Retain

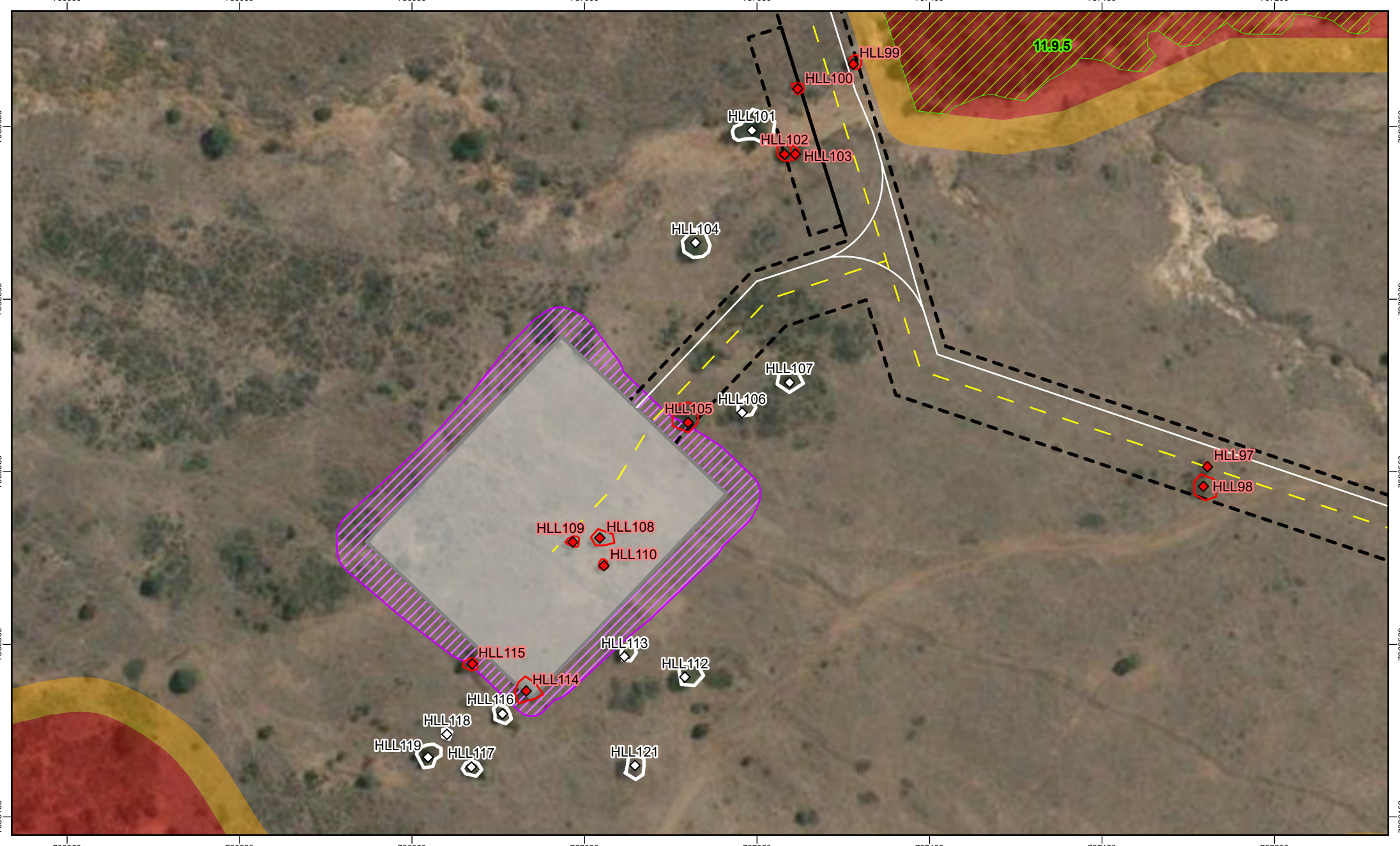


REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:500

N

0 5 10
Metres



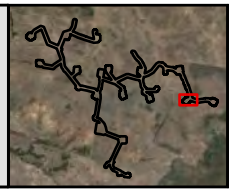
Ausecology
a Niche company

Figure 3-25:

Hillandale
Atlas 3 - Detailed

- Access Tracks
- Proposed Pipelines
- RoW
- Earthworks Extent
- Workpad Workspaces
- High Constraint Area
- No Go Area
- GTRE Vegetation Extent

Koala Habitat Tree
- Retain
- Remove
- Retain
- Remove



REVISION	AUTHOR	REVIEWER	DATE
0	BD	LE	17/03/2025
1	NC	LG	21/03/2025

GDA2020 MGA Zone 55
Scale: 1:1,400

N

0 25 50
Metres

Discussion

The surveys on the Hillandale property found that the projects' impacts to koala habitat or dispersal habitat would be minimal with a total of 0.094 ha to be potentially cleared. The majority of the impact footprint is located within predominantly cleared agricultural areas and has actively avoided major remaining fragments of habitat and potential dispersal trees following the constraint mapping. Trees retained within close proximity to those that are unable to be avoided total 0.31 ha, and the removal of 0.094 ha is unlikely to have a significant effect on the ecological function of dispersal habitat on the property for koalas.

No remnant or HVR regulated vegetation, TEC and potential threatened fauna habitat are present within The Footprint. Threatened flora searches found no threatened species within or in proximity to The Footprint. Numerous weed species were observed on the property, notably listed restricted and WoNS; common prickly pear (*Opuntia stricta*) and velvety tree pear (*Opuntia tomentosa*).

The area is a known echidna and potential koala dispersal area. Numerous other least concern species were observed in the area and a total of 20 habitat features were recorded within The Footprint. Several patches within The Footprint have been mapped as habitat as there were many habitat features in a certain area such as course woody debris and stags. It is recommended that a qualified fauna spotter catcher undertake a pre-clearance survey across the disturbance footprint to identify habitat features prior to clearing and be present during clearing works to check habitat features and relocate fauna, and where possible habitat features in order to minimise impacts to fauna.

Appendix A – Fauna records

Common Name	Scientific Name
Eastern grey kangaroo	*Macropus giganteus*
Red-rumped parrot	*Psephotus haematonotus*
Willie wagtail	*Rhipidura leucophrys*
Masked lapwing	*Vanellus miles*
Apostlebird	*Struthidea cinerea*
Pied butcherbird	*Cracticus nigrogularis*
Galah	*Eolophus roseicapilla*
Australian bustard	*Ardeotis australis*
Crested pigeon	*Ocyphaps lophotes*
Brown falcon	*Falco berigora*
Black-faced cuckoo-shrike	*Coracina novaehollandiae*
Grey-crowned babbler	*Pomatostomus temporalis*
Bar-shouldered dove	*Geopelia humeralis*
Fairy martin	*Petrochelidon ariel*
Double-barred finch	*Taeniopygia bichenovii*
Torresian crow	*Corvus orru*
Welcome swallow	*Hirundo neoxena*
Black-fronted dotterel	*Elseyornis melanops*
Australian grebe	*Tachybaptus novaehollandiae*
Magpie-lark	*Grallina cyanoleuca*
Pied currawong	*Strepera graculina*
Superb fairy-wren	*Malurus cyaneus*
Black-shouldered kite	*Elanus axillaris*
Bearded dragon	Pogona barbata
Grey teal	Anas gracilis
Australian magpie	Gymnorhina tibicen
Wedge-tailed eagle	Aquila audax
Red-necked wallaby	Notamacropus rufogriseus
Emu	Dromaius novaehollandiae
Burns's dragon	Amphibolurus burnsi
Sand monitor	Varanus gouldii

Appendix B – Habitat features

Habitat type	Habitat location
Logs	-26.3061136817389, 149.843751325637
Stag	-26.3104496365203, 149.860117992689
Hollows	-26.3071343226787, 149.855715838246
Hollow logs	-26.3032510680815, 149.862784318615
Logs	-26.3043381625709, 149.863923484141
Large hollow log	-26.3044931411042, 149.864422852287
Hollow logs	-26.3065240580668, 149.864886547633
Scattered logs	-26.3068657066144, 149.86469566733
Martin mud nests in bank	-26.3074818789267, 149.851112582827
Pardalote holes/nests	-26.3074885135865, 149.851174244093
Small stick nest, dome shaped	-26.3106417089938, 149.860083432721
Scattered logs	-26.3111832600946, 149.860199142088
Scattered logs	-26.311602862932, 149.860397032926
Scattered large hollow logs	-26.3105754510471, 149.860658883663
Small stick nest, dome shaped	-26.3103334655332, 149.860340790162
Large log stumps	-26.3058305284376, 149.864719857055
Large log	-26.3108527797986, 149.865412326702
Coarse woody debris	-26.305664074441, 149.867463815257
Scattered logs	-26.304678014857, 149.868913368285
Coarse woody debris	-26.2998971774815, 149.851205101305
Scattered medium logs	-26.307952518527, 149.864066287931
Several large logs	-26.3080916594125, 149.859678747656
Scattered medium logs	-26.3080793318977, 149.864471045498
Decorticating bark	-26.3084516243952, 149.864287291534
Scattered medium logs	-26.3084742290864, 149.864376663137
Scattered medium logs	-26.3086012698115, 149.864387603734
Medium hollows	-26.3086266864677, 149.864480565005
Scattered medium logs	-26.3088337471652, 149.864407692786
Large logs - log pile	-26.3122744793423, 149.881679909253
Large log	-26.3125006733628, 149.8807684228
Medium logs	-26.3118587212081, 149.876401409844
Large log	-26.3125006733628, 149.8807684228
Medium logs	-26.3118587212081, 149.876401409844
Coarse woody debris	-26.3080875505359, 149.864032239098
Large log	-26.3080560281676, 149.864224086021
Hollow log	-26.3080322155115, 149.863858566882
Log	-26.3081463314173, 149.862736960856

Habitat type	Habitat location
Two stags with peeling bark	-26.3082116950978, 149.864375263533
Hollow	-26.3091104547951, 149.864601291458
Two hollow stags	-26.3121378478342, 149.876345390029
Large log in gully	-26.3112199322561, 149.875303672875
Small stick nest	-26.3111721769088, 149.875425680268
Medium logs in gully	-26.3113646339101, 149.875260923859
Scattered medium and large logs	-26.3102743220926, 149.867308670402
Scattered medium and large logs	-26.3104818332987, 149.866163735136
Scattered medium and large logs	-26.3104773520873, 149.865808353487
Logs	-26.3264139793092, 149.858409266513
Logs	-26.3262445100708, 149.858366941468
Burrow - *Varanus gouldii* observed	-26.3266500182459, 149.85897171078
Scattered CWD	-26.3255992851252, 149.857856073036
Scattered large logs	-26.3247622952369, 149.857884964565
Small stag with cracks	-26.324532270956, 149.857841075545
Two medium logs	-26.3269915759571, 149.859753439232

Appendix C – Weed species list

Scientific Name	Common Name	Status	Abundance
Bidens pilosa	Cobbler's pegs	*	Rare
Chloris gayana	Rhodes grass	*	Occasional
Cirsium vulgare	Spear thistle	*	Rare
Eragrostis trichophora	Hairyflower lovegrass	*	Frequent
Erigeron bonariensis	Flaxleaf fleabane	*	Common
Glandularia aristigera	Desert verbena	*	Occasional
Gomphrena celosioides	Gomphrena weed	*	Frequent
Megathyrsus maximus	Guinea grass	*	Occasional
Melinis repens	Natal grass	*	Occasional
Opuntia stricta	Common prickly pear	Restricted-Category-3	Occasional
Opuntia tomentosa	Velvety tree pear	Restricted- Category 3	Frequent
Senna occidentalis	Coffee senna	*	Rare
Setaria pumila	Pale pigeon grass	*	Occasional
Sida rhombifolia	Common sida	*	Occasional
Vachellia farnesiana	Mimosa bush	*	Rare
Verbesina encelioides	Crownbeard	*	Rare
Xanthium occidentale	Noogoora burr	*	Rare
Zinnia peruviana	Wild zinnia	*	Rare

Appendix D – Erosion points and photos

Type of erosion	GPS	Photo of erosion
Gully erosion	-26.312197, 149.867154	
Beginning of erosion gully	-26.309866, 149.851060	N/A
Gully erosion	-26.321265, 149.861284	
Gully erosion	-26.317769, 149.861049	

Type of erosion	GPS	Photo of erosion
Gully erosion	-26.311777, 149.878461	
Gully erosion	-26.311955, 149.876855	
Sheet erosion	-26.319381, 149.855936	
Beginning of erosion gully	-26.305729, 149.842739	N/A