

**ATLAS PROJECT**

**ADDENDUM REPORT:**

**EISA QUADRAT PHASE 2 REVISITS**

**AND**

**EISA ADDITIONAL CORRIDORS**

**Prepared for**

**Image Resources**

**by**

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**October 2022**

## **EXECUTIVE SUMMARY**

Image Resources is proposing to seek approval for the Atlas project in the Nambung region under Part IV of the *Environmental Protection Act 1986* (EP Act) (Figure 1). A detailed flora and vegetation survey was conducted over a number of years for the Atlas project (hereafter Atlas Project) for Image Resources NL (Morgan, 2022). The Atlas Project survey area included the ‘Mine Envelope study area’ (MESA) and the ‘External Infrastructure study area’ (EISA) (Figure 1). While the MESA survey was a two phase survey, the EISA survey was a single phase survey undertaken in Spring 2021.

In order to comply with the EPA’s Technical Guidance for flora and vegetation surveys (EPA, 2016), Preston Consulting, acting for Image Resources NL, commissioned a second Phase survey of the original EISA (hereafter EISA Phase 2). Furthermore, due to minor changes during project development, Image Resources had identified additional infrastructure corridors which required a flora and vegetation survey (hereafter Additional EISA). The Additional EISA corridors had a total length of 4.8 km and were between 25 and 30 metres wide, with a total area of 13.98 ha (Figure 1) and were located within the Atlas Project locality.

The EISA Phase 2 and Additional EISA surveys were carried out in Autumn between the 19<sup>th</sup> and 21<sup>st</sup> May 2022.

The EISA Phase 2 site revisits and the Additional EISA corridor survey resulted in twelve species being added to the overall Atlas MESA and EISA survey area species list – 9 native taxa and 3 weed taxa. This brings the total number of taxa recorded in the overall Atlas MESA and EISA survey areas to four hundred and ninety six (496) native plant taxa, consisting of 494 species of native flowering plants, one native cycad (the *Zamia Palm*, *Macrozamia fraseri*) and one native conifer (the Swamp Cypress, *Callitris pyramidalis*) (Appendix A). In addition, 90 non-native species (weed species) were recorded.

The number of additional taxa recorded for each quadrat was small, except in the case of AIQ06, 07 and 08. These three quadrats formed the species depauperate dampland unit ‘MrMtSl’. In Autumn 2022 numerous young, newly germinated plants were present, a large number of them annual weeds.

No Threatened Flora were recorded in either the Additional EISA or the EISA Phase 2 surveys.

One new Priority flora record, *Isopogon panduratus* subsp. *palustris*, was recorded in an EISA quadrat during the EISA Phase 2 survey (quadrat AIQ01).

Four Priority taxa were recorded in the Additional EISA corridors: *Acacia benthamii* (Priority 2), *Chordifex reseminans* (Priority 2), *Conospermum scaposum* (Priority 3) and *Isopogon panduratus* subsp. *palustris* (Priority 3).

The *Acacia benthamii* record (1 plant) is a small range extension.

No Weeds of National Significance (WONS) (Weeds Australia, 2021) were recorded in the Additional EISA and EISA Phase 2 quadrats.

Four (4) vegetation units were mapped in the Additional EISA corridors. All 4 were based on previous vegetation unit descriptions for the Atlas Project report. *Banksia* woodlands accounted for more than 50% of the vegetation in the Additional EISA corridors.

Most of the Bushland in the Additional EISA corridors was in the ‘Excellent’ or ‘Very Good to Excellent’ condition.

The *Banksia* woodlands in the Additional EISA met the criteria to be assessed as ‘Banksia woodlands of the Swan Coastal Plain’ TEC.

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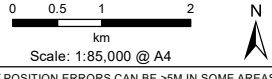
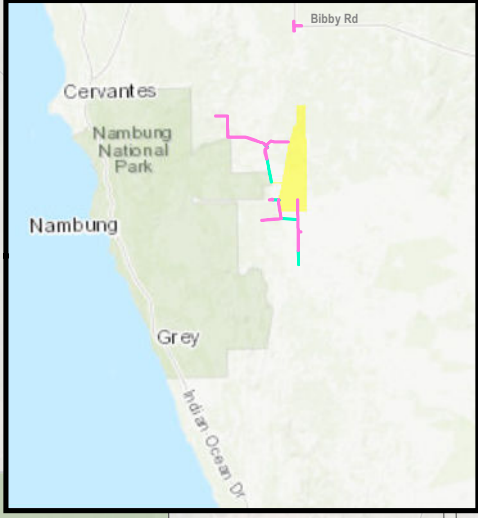
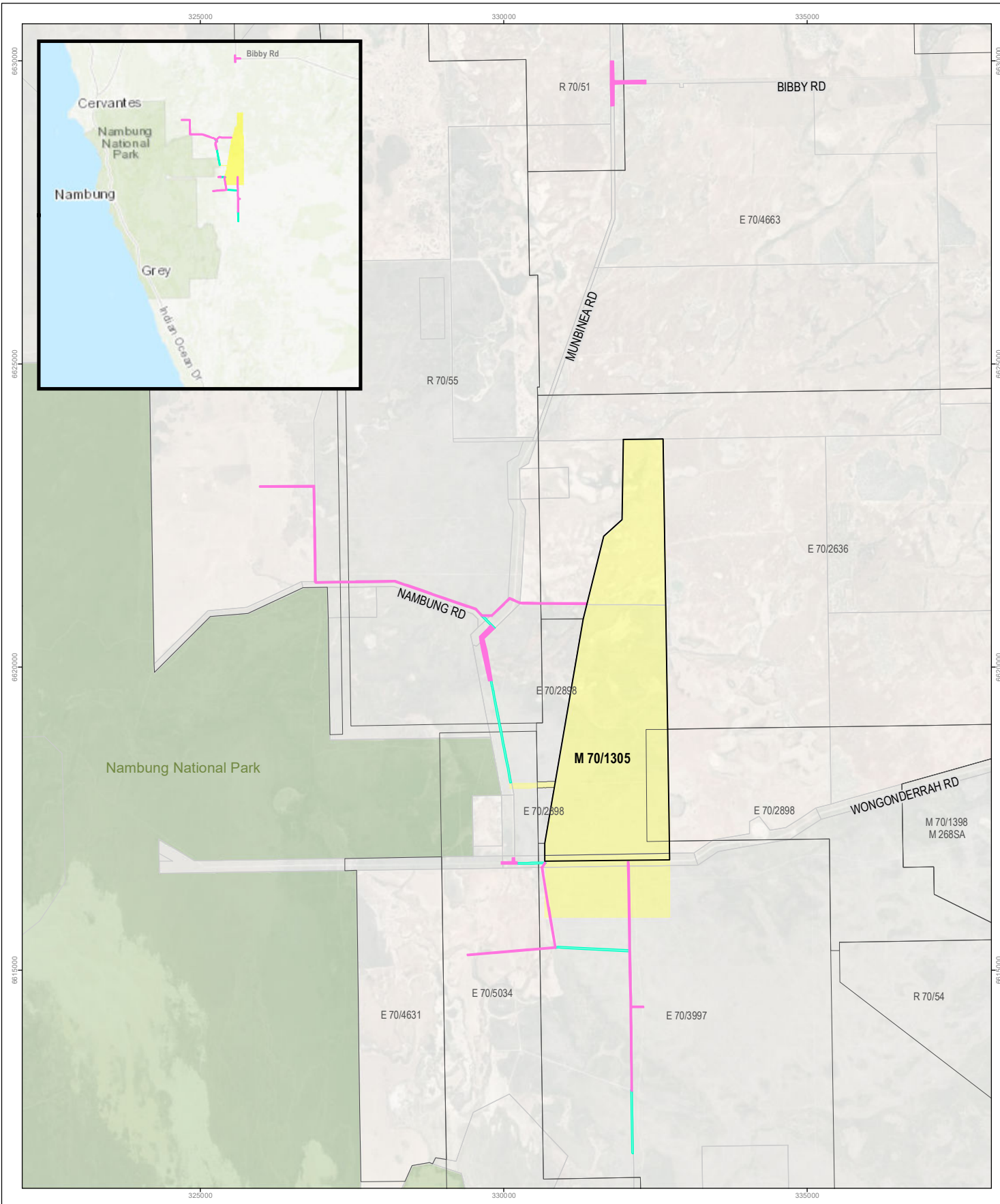
## **1.0 INTRODUCTION**

### **1.1 Background**

Image Resources is proposing to seek approval for the Atlas Project in the Nambung region under Part IV of the *Environmental Protection Act 1986* (EP Act) (Figure 1). In 2019 Image Resources requested Preston Consulting identify and commission ecological studies and surveys that needed to be completed to provide the necessary documents for the environmental impact assessment process. Consequently, a detailed flora and vegetation survey was conducted over a number of years for the Atlas project (hereafter ‘Atlas Project’) for Image Resources NL (Morgan, 2022). The Atlas Project surveys included the ‘Mine Envelope study area’ (MESA) and the ‘External Infrastructure study area’ (EISA) (Figure 1). While the MESA survey was a two phase survey, the EISA survey was a single phase survey undertaken in Spring 2021.

### **1.2 Aim of this study**

More recently, in order to comply with the EPA’s Technical Guidance for flora and vegetation surveys (EPA, 2016), Preston Consulting commissioned a Phase 2 survey of the original EISA (hereafter ‘EISA Phase 2’). Furthermore, due to minor changes during project development, Image Resources had identified additional infrastructure corridors which required a flora and vegetation survey (hereafter ‘Additional EISA’). The Additional EISA corridors are also shown in Figure 1. The Additional EISA corridors had a total length of 4.8 km and were between 25 and 30 metres wide, with a total area of 13.98 ha.



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Study Area
- M 70/1306
- Tenement
- Cadastre
- Nambung National Park

CREATED	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	19/10/2022	0

**Image Resources**

**Figure 1. Locality Map of the Atlas EISA flora and vegetation survey areas.**

## **2.0 BACKGROUND INFORMATION FOR THE ATLAS PROJECT AREA**

Background information for the Atlas Project locality, including the physical environment, previously recorded flora of conservation significance and Threatened Ecological Communities (TECs)/Priority Ecological Communities on (PECs), Environmentally Sensitive Areas (ESAs) and Wetlands and their status, can be found in the Atlas Project flora and vegetation survey report (Morgan, 2022).



## **3.0 METHODS AND LIMITATIONS**

### **3.1 Survey timing**

The EISA Phase 2 and Additional EISA surveys were carried out in Autumn between the 19<sup>th</sup> and 21<sup>st</sup> May 2022.

### **3.2 Survey methodology**

#### **3.2.1 EISA Phase 2 survey**

The EISA Phase 2 survey consisted of revisiting 16 of the 17 quadrats recorded in the EISA in 2021 and some opportunistic records while walking between sites. One site, AIQ15, was not revisited because it was inaccessible at the time, being located within a broad flooded paddock on a farm (originally recorded as ‘Good to Degraded’ condition). The resampled quadrats were re-photographed, searched for species not previously recorded and species covers were reviewed and revised where necessary. Quadrats were searched with particular emphasis on plants that might be flowering or newly emergent, with plant species observed in the quadrats compared with a list of species recorded in the first phase sampling.

Collected plant specimens were pressed, dried and subsequently identified. Identifications were made by comparison to specimens in the reference and research collections of the Western Australian Herbarium, by the use of keys in various papers and books and by relevant experts on various groups of flora that occur on the Swan Coastal Plain. The DBCA FloraBase website was consulted as required to confirm the conservation category status of plant species in the survey area.

#### **3.2.2 Additional EISA survey**

The Additional EISA survey was a single phase survey. The Additional EISA corridors were walked by a botanist for their full length, searching for flora of conservation significance, flora not previously recorded in the Atlas Project area and mapping the vegetation units in the corridors and the vegetation condition.

When flora of conservation significance were observed, location coordinates were recorded and numbers of plants counted at that point and in the surrounding area (up to about 20 metres for the larger species). Where there was some uncertainty as to the identity of a particular plant of interest, it was collected and processed as outlined in section 3.2.1. Other plant species thought to not have been previously recorded in the Atlas project area were recorded and collected as required.

Vegetation units were described and sampled as required. Because the Additional EISA were within the same overall area as the Atlas Project, vegetation units previously described for the Atlas Project were assigned to areas of vegetation in the Additional EISA if the structure, dominant species and floristics appeared to be very similar. Where vegetation appeared to vary in structure, dominants or floristics, the vegetation was described and sampled within the methods outlined in Morgan (2022). This occurred for one small area in the Additional EISA corridors, where a releve was recorded to describe the vegetation.

Relevé descriptions are made for an ‘open’ area (not a measured 10 x 10m area) and sampling is generally less detailed, recording only the location (coordinates), the dominant and subdominant species, a vegetation description (NVIS) and a short list of associated plant species. A photograph was also taken of the vegetation at the releve location.

### **3.3 Analysis of vegetation data**

The MESA and EISA quadrat data were analysed in detail for the Atlas Project report (Morgan, 2022). The updated EISA quadrat lists after the phase 2 survey were not re-analysed.

### **3.4 Limitations**

Limitations for the Atlas MESA and EISA surveys were set out in detail by Morgan (2022). No additional limitations applied to the EISA Phase 2 survey.

Particular limitations for the Additional EISA survey included:

- It was a single phase survey
- The survey was undertaken in Autumn season. However, this was mitigated by the previous (2019-2021) MESA and EISA extensive and detailed surveys in the surrounding/adjoining areas, including extensive targeted searches for flora of conservation significance (high level of contextual information). Furthermore, the Additional EISA survey was detailed in that the full extent of the Additional EISA corridors were traversed and searched for significant flora and other flora not previously recorded.

## 4.0 FLORA

### 4.1 Flora list

The EISA Phase 2 site revisits and the Additional EISA corridor survey resulted in twelve species being added to the overall Atlas MESA and EISA survey area species list – 9 native taxa and 3 weed taxa. Three new native taxa and 3 new weed taxa were recorded in the Phase 2 site revisits, while 6 new native taxa were recorded in the Additional EISA corridors.

This brings the total number of taxa recorded in the overall Atlas MESA and EISA survey areas to four hundred and ninety six (496) native plant taxa, consisting of 494 species of native flowering plants, one native cycad (the Zamia Palm, *Macrozamia fraseri*) and one native conifer (the Swamp Cypress, *Callitris pyramidalis*) (Appendix A). In addition, 90 non-native species (weed species) were recorded. An updated species list recorded in the Atlas survey areas is shown in Appendix A, with species marked according to the survey/survey area in which they were recorded. Species first recorded in the 2022 Autumn survey are shaded grey while species previously recorded in other Atlas survey areas, but first recorded in the EISA during the 2022 survey are shaded yellow.

The number of taxa recorded in each of the EISA quadrats in 2021 and updated with the EISA Phase 2 records, is shown in Table 1. Data is not shown for site AIQ15, which was inaccessible at the time of the Autumn revisit. It can be seen that the number of additional taxa recorded for each quadrat was small, except in the case of AIQ06, 07 and 08. These three quadrats formed the species depauperate dampland unit ‘MrMtSI’. In Autumn 2022 numerous young, newly germinated plants were present, a large number of them annual weeds (Table 1; Appendix C).

### 4.2 Flora of conservation significance

#### 4.2.1 Threatened Flora

No Threatened Flora were recorded in either the Additional EISA or the EISA Phase 2 surveys.

#### 4.2.2 Priority Flora

One new Priority flora record, *Isopogon panduratus* subsp. *palustris*, was recorded in an EISA quadrat during the EISA Phase 2 survey (quadrat AIQ01).

**Table 1. Numbers of native plant taxa recorded in EISA quadrats<sup>a</sup>.**

Quadrat	2021		2022 Including EISA Phase 2		Quadrat	2021		2022 Including EISA Phase 2	
	Total Nos taxa	Total Nos taxa	Nos Native taxa	Nos of Weed taxa		Total Nos taxa	Total Nos taxa	Nos Native taxa	Nos of Weed taxa
AIQ01	26	29	29	0	AIQ10	40	42	32	10
AIQ02	30	33	24	9	AIQ11	18	21	14	7
AIQ03	59	60	60	0	AIQ12	16	16	11	5
AIQ04	26	26	25	1	AIQ13	19	22	15	7
AIQ05	41	44	44	0	AIQ14	36	40	26	14
AIQ06	6	17	10	7	AIQ15 <sub>a</sub>	28			
AIQ07	4	10	7	3	AIQ16	74	77	67	10
AIQ08	7	18	12	6	AIQ17	57	62	56	6
AIQ09	22	22	18	4					

a AIQ15 was inaccessible and not revisited in May 2022

Four Priority taxa were recorded in the Additional EISA corridors (Table 2). The distribution and counts of these Priority species are shown in Figures 2a,b,c and are also listed in Appendix B.

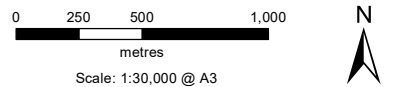
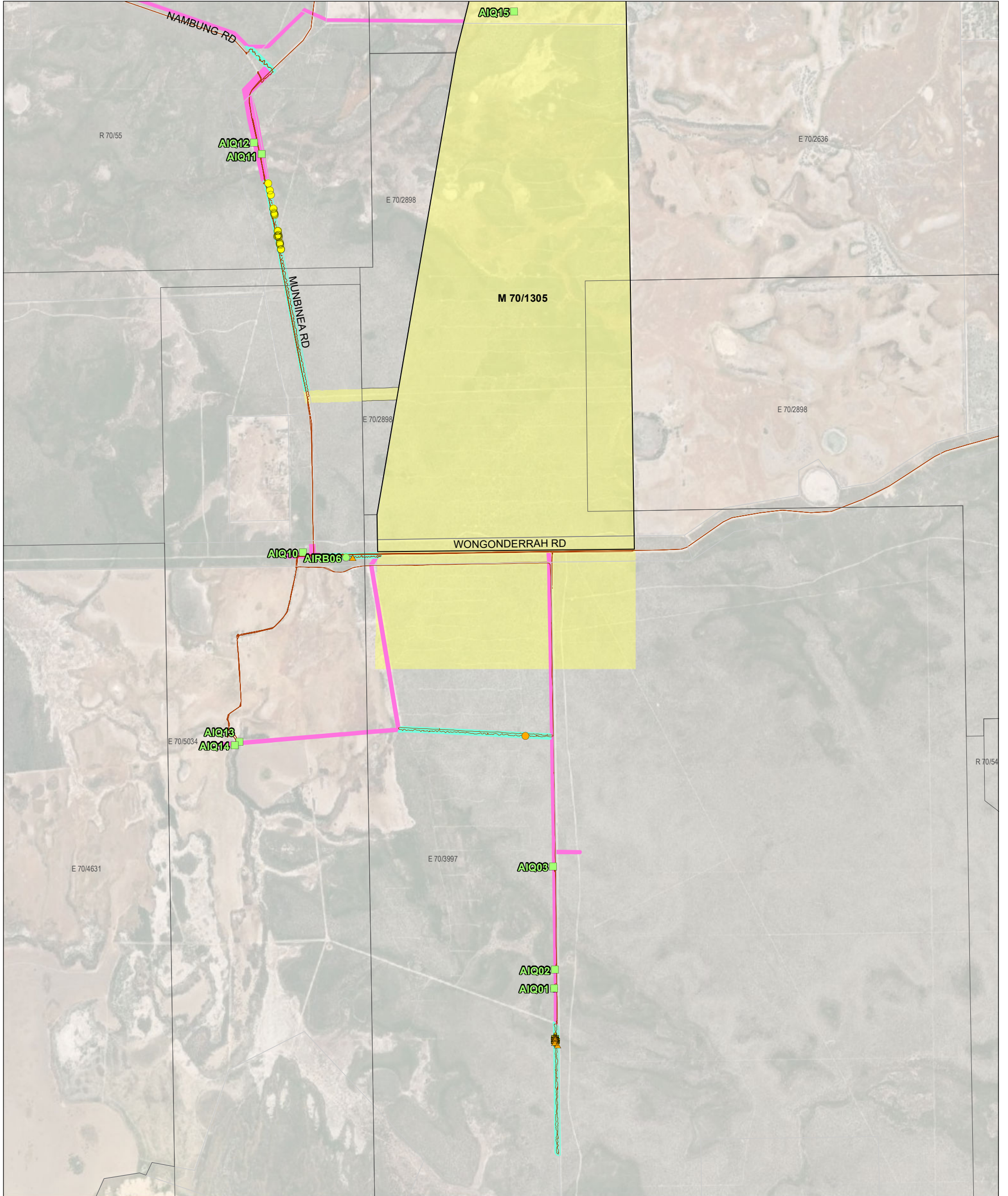
The four Priority taxa were:

Priority 2 taxa:

- *Acacia benthamii*
- *Chordifex reseminans*

Priority 3 taxa:

- *Conospermum scaposum*
- *Isopogon panduratus subsp. palustris*



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



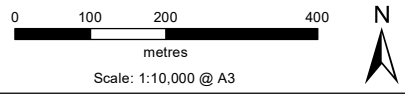
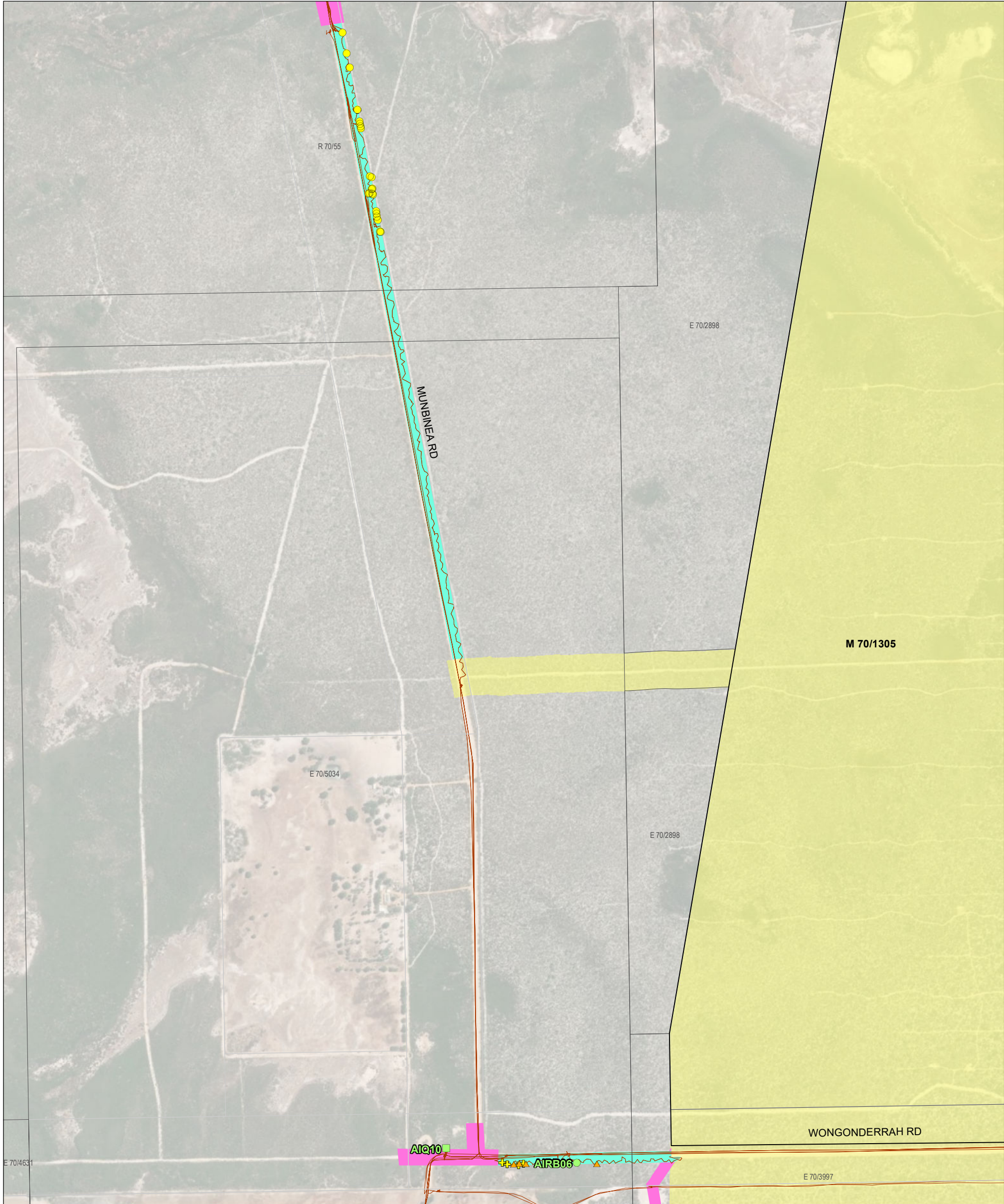
**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve
- Track Log
- Priority 2: *Acacia benthamii*
- Priority 2: *Chordifex reseminans*
- Priority 3: *Conospermum scaposum*
- Priority 3: *Isopogon panduratus subsp. palustris*

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	21/10/2022	0

**Image Resources**

**Figure 2a: Significant flora locations in the Atlas Additional EISA.**



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



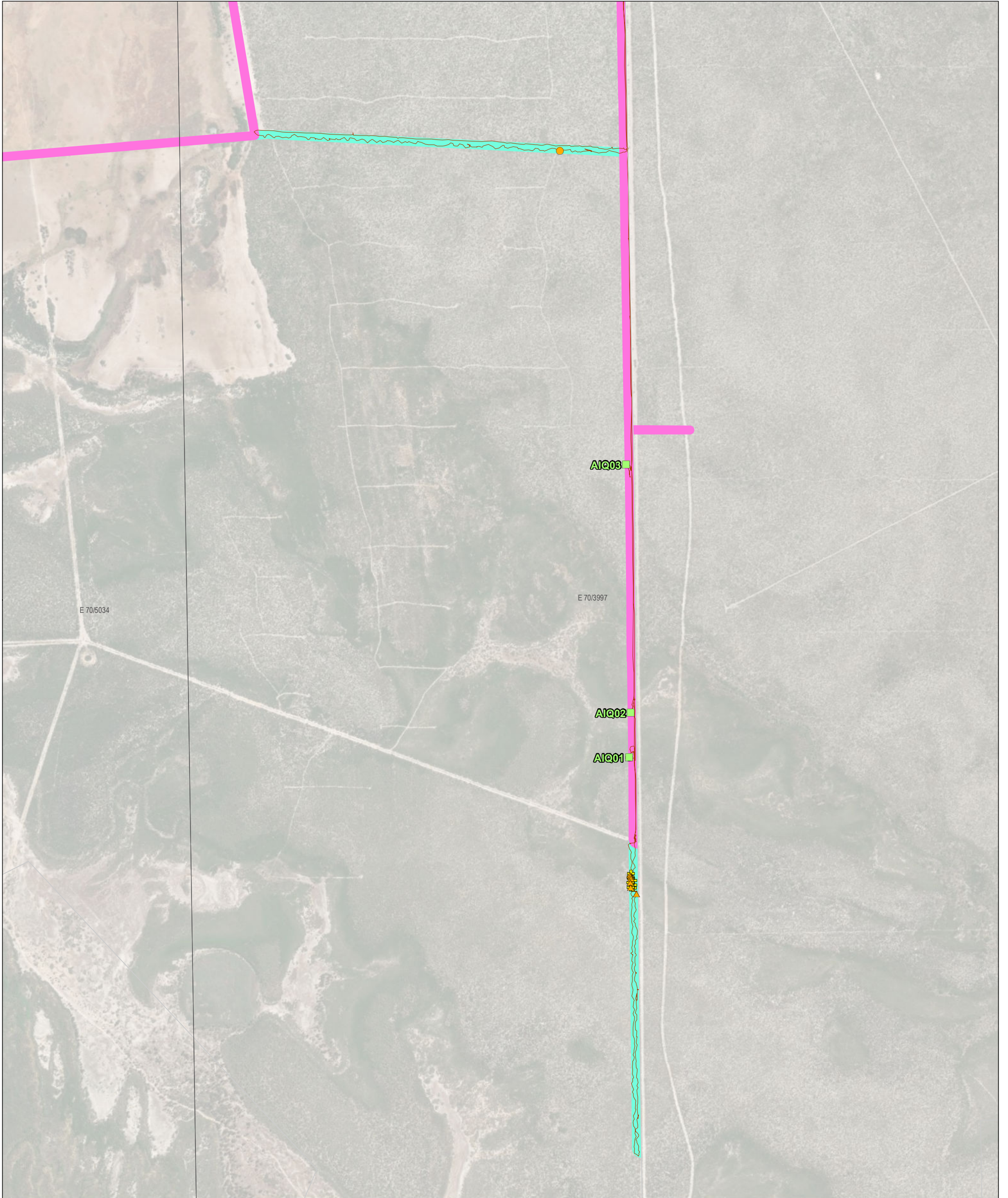
**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Relieve
- Track Log
- Flora of Conservation Significance**
- Priority 2: *Acacia benthamii*
- Priority 2: *Chordifex reseminans*
- Priority 3: *Conospermum scaposum*
- Priority 3: *Isopogon panduratus subsp. palustris*

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 2b: Significant flora locations in the Atlas Additional EISA.**

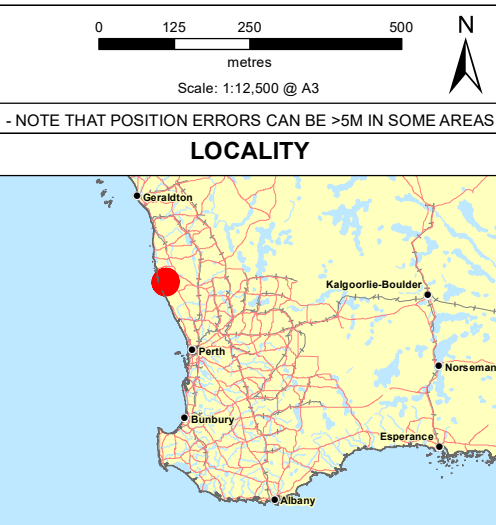


**Preston Consulting**

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	21/10/2022	0

**Image Resources**

**Figure 2c: Significant flora locations in the Atlas Additional EISA.**



**Legend**

<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Mine Envelope Study Area (MESA)</li> <li><span style="display: inline-block; width: 20px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> External Infrastructure Study Area (EISA)</li> <li><span style="display: inline-block; width: 20px; height: 10px; background-color: cyan; border: 1px solid black; margin-right: 5px;"></span> Additional External Infrastructure Survey Area</li> <li><span style="display: inline-block; width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> M 70/1306</li> <li><span style="display: inline-block; width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Tenement</li> <li><span style="display: inline-block; width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></span> Cadastre</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: lightgreen; border: 1px solid black; margin-right: 5px;"></span> 2021: Quadrat</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: lightgreen; border: 1px solid black; margin-right: 5px;"></span> 2021: Releve</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid red; margin-right: 5px;"></span> Track Log</li> </ul> <p><b>Flora of Conservation Significance</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: orange; border-radius: 50%; margin-right: 5px;"></span> Priority 2: <i>Acacia benthamii</i></li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Priority 2: <i>Chordifex reseminans</i></li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: yellow; border-radius: 50%; margin-right: 5px;"></span> Priority 3: <i>Conospermum scaposum</i></li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Priority 3: <i>Isopogon panduratus subsp. palustris</i></li> </ul>
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**Table 2. Counts of species of conservation significance in the Additional EISA corridors.**

Taxa	Consvtn Status	Number of count locations	Additional EISA Number of plants
<i>Acacia benthamii</i>	Priority 2	1	1
<i>Chordifex reseinans</i>	Priority 2	10	32
<i>Conospermum scaposum</i>	Priority 3	22	186
<i>Isopogon panduratus</i> subsp. <i>palustris</i>	Priority 3	13	32

#### 4.2.2.1 Priority Two (P2) taxa

##### *Acacia benthamii* (P2)

One *Acacia benthamii* (Priority 2) plant was recorded on the Additional EISA East-West corridor south of Wongonderrah Rd (Figure 2c). It was 140 cm high and was growing along an old fenceline.



**Plate 1: *Acacia benthamii* (Priority 2) (image from FloraBase, Western Australian Herbarium, 2022).**



*Acacia benthamii* has been mostly recorded between Mandurah and Guilderton, with the previous most northerly location being north-east of Cataby (DBCA Florabase website). The *Acacia benthamii* plant observed in the Additional EISA corridor would be the most northerly location and the specimen will be lodged at the Western Australian Herbarium.

#### ***Chordifex reseminans* (Priority 2)**

*Chordifex reseminans* is a tufted, erect plant (growing in a clump) with many densely packed, upright culms, or stems, and belongs to the Restionaceae family (sedge-like plants). It was growing to about 60 centimetres in the survey area. It was recorded in the *Banksia telmatiaea* heaths and related heath vegetation in the Additional EISA corridor along the Wongonderrah Rd verge (Figure 2b) and in the north-south corridor south of Wongonderrah Rd (Figure 2c).

Thirty two (32) plants were recorded at ten locations in the Additional EISA corridors (Table 2, Appendix B). Three hundred and twenty one *Chordifex reseminans* plants were recorded in the Atlas Project MESA and EISA areas up to the end of 2021, although it was noted that it “is likely to be far more abundant in the MESA survey area than the records reported here would suggest” (Morgan, 2022).

#### **4.2.2.3 Priority Three (P3) taxa**

##### ***Conospermum scaposum* (P3)**

*Conospermum scaposum* (Priority 3) is an erect shrub growing to approximately 50 to 60 cm, with upright basal leaves with a linear, flat blade on a long petiole (Plate 2 and Plate 3). It has small compound heads of small blue flowers (Plate 2). It occurs on the northern Swan Coastal Plain and inland from the Swan Coastal Plain.



**Plate 2. *Conospermum scaposum* (Priority 3)**



**Plate 3. *Conospermum scaposum* (Priority 3)**

It was recorded in the Additional EISA corridor along the Munbinia Rd verge, with many recorded along the firebreak (Figure 2b). It was noted in the Atlas MESA that *Conospermum scaposum* appeared to respond to disturbance, as it was found growing

in numerous locations along old drill lines tracks (Morgan, 2022). In all, 186 plants were recorded at 22 locations in the Additional EISA (Table 2).

***Isopogon panduratus* subsp. *palustris* (Priority 3)**

*Isopogon panduratus* subsp. *palustris* (Priority 3) (formerly *Ispopogon* sp. Badgingarra (A.S. George 14200)) is an erect shrub that grows to between 60 to 180 centimetres in the Atlas area. It has olive-green leaves that are incurved with a short, spiny tip (mucro) (Plate 4), with flowers borne in the leaf axils. It is restricted to the coastal plain from the Cooljarloo area, north-west of Cataby, to north-east of Cervantes (Hislop and Rye, 2010). It grows in winter-wet areas in heathland communities.

In the survey area, *Isopogon panduratus* subsp. *palustris* was conspicuous in the *Banksia telmatiaea* heaths. Thirty two (32) plants were recorded at 13 locations (Table 2) in the Additional EISA corridor along the Wongonderrah Rd verge (Figure 2b) and in the north-south corridor south of Wongonderrah Rd (Figure 2c). Previously, two thousand six hundred and sixty four (2664) plants were counted at 318 locations in the MESA and 54 plants were recorded at sixteen locations in the EISA (Phase 1) (Morgan, 2022).



**Plate 4. *Isopogon panduratus* subsp. *palustris* (Priority 3)**

#### **4.4 Weeds recorded in the survey area**

None of the weed species recorded in the Additional EISA and EISA quadrats are listed as Weeds of National Significance (WONS) (Weeds Australia, 2021).

\**Moraea flaccida* (one leaf Cape Tulip) was recorded in some wetter parts of the Additional EISA. It is a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act); Legal Status: Declared Pest S22(2); Keeping Category: Exempt.

## 5.0 VEGETATION OF THE SURVEY AREA

### 5.1 Vegetation Descriptions

#### 5.1.1 Introduction to the Vegetation Units of the Survey Area

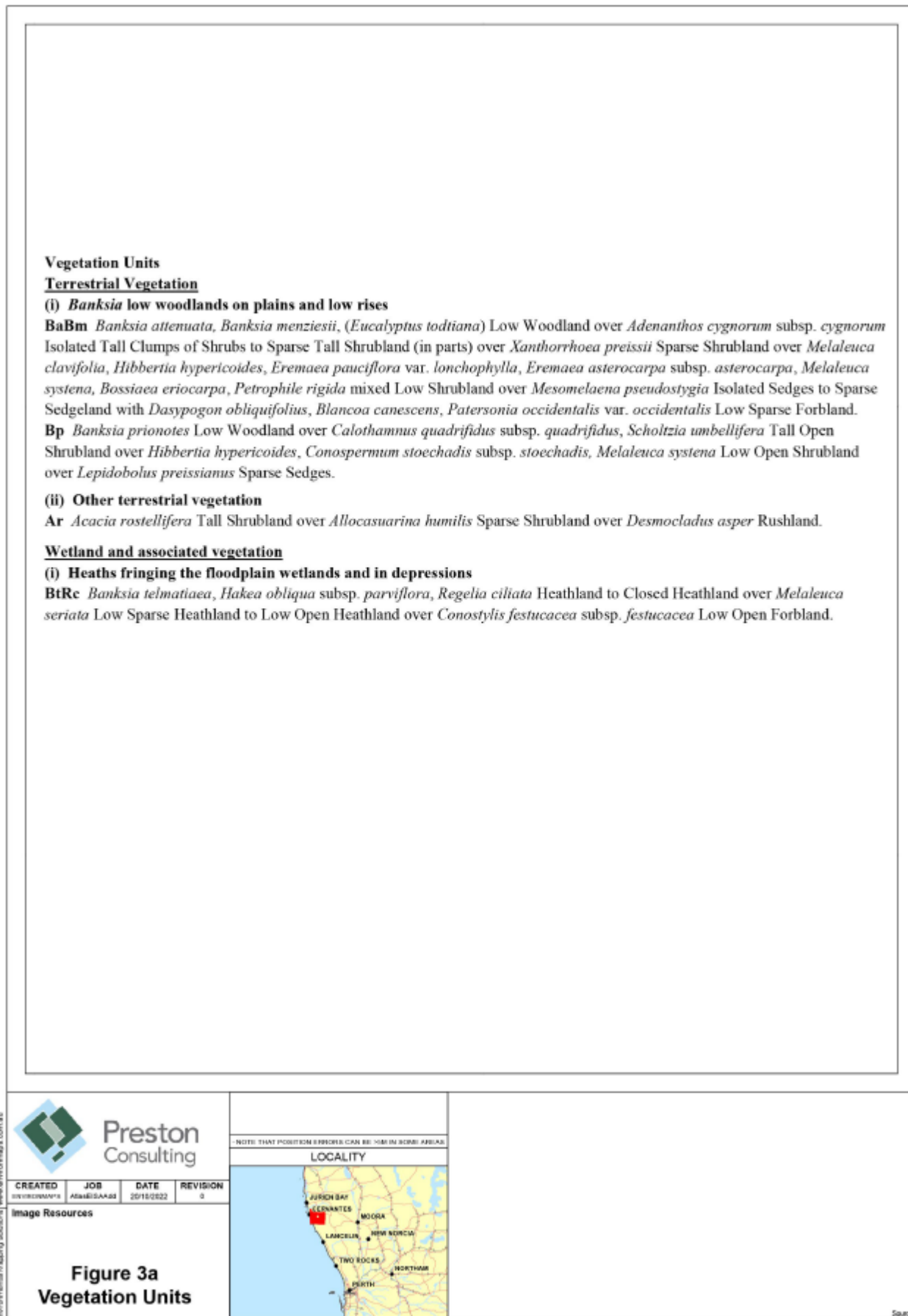
Four (4) vegetation units were mapped in the Additional EISA corridors (Figures 3a to f). All 4 vegetation units mapped in the Additional EISA corridors were based on vegetation units described for the Atlas Project report (Morgan, 2022). The original descriptions and vegetation codes are presented for 3 of these vegetation units ('BaBm', 'Bp' and 'BtRc'). The fourth vegetation unit, 'Ar', uses the same code as used in Morgan (2022), but has had the description updated to match a releve description recorded in the Additional EISA corridor. It replaced the original description which was based on a releve in 'Degraded' vegetation.

#### 5.1.2 Detailed Descriptions of the Vegetation Units

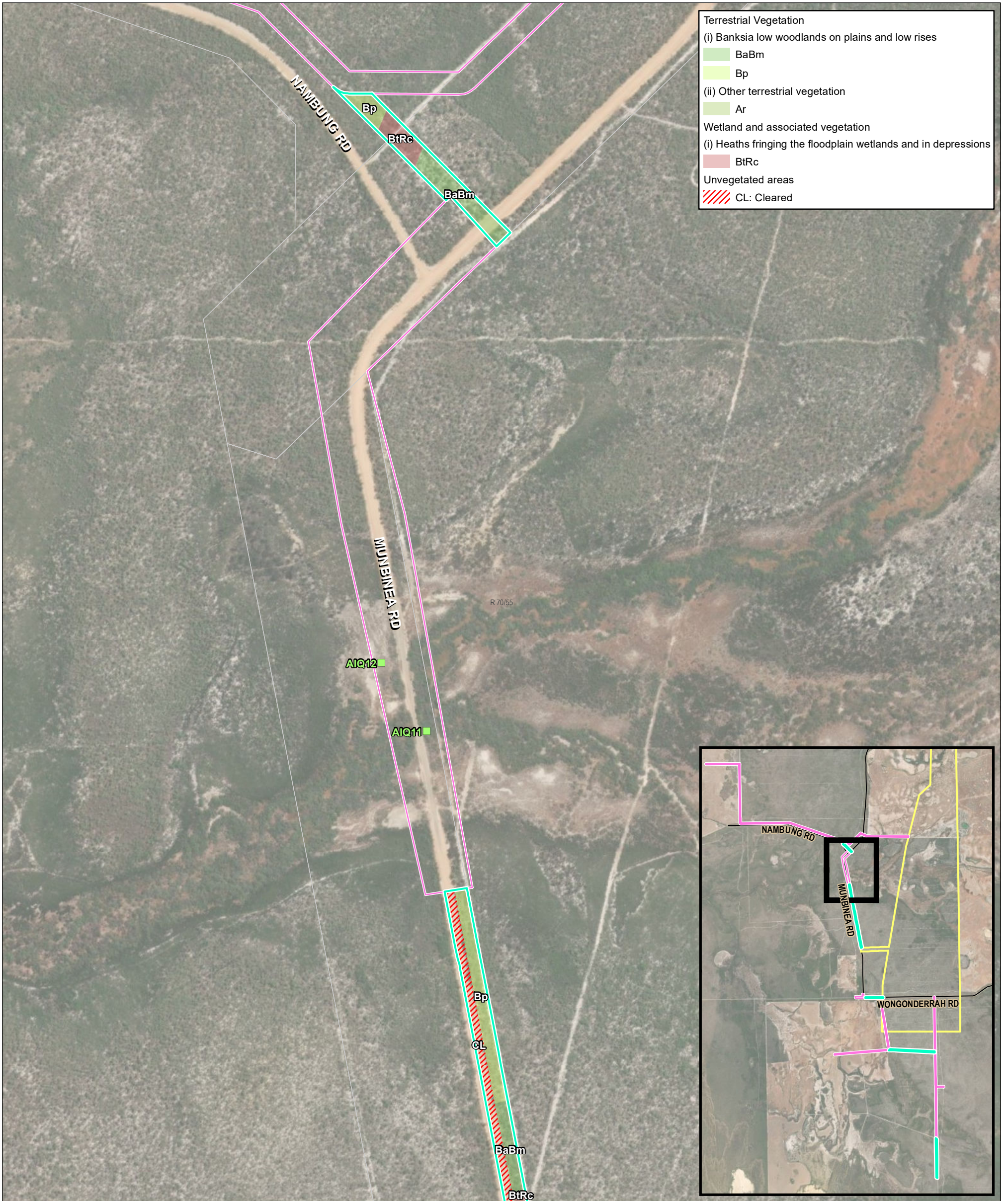
Detailed descriptions for the 4 vegetation units mapped in the Additional EISA corridors are listed below. Areas (hectares) of the vegetation units in the Additional EISA are listed in Table 3.

**Table 3. Area (ha) of mapped vegetation units in the Additional EISA.**

Vegetation unit	Additional EISA	
	Area (ha)	% of Area
Ar	0.18	1.3
BaBm	7.05	50.4
Bp	1.58	11.3
BtRc	1.24	8.9
Cleared	3.93	28.1
Total	13.98	100.0



**Figure 3a: Vegetation of the Additional EISA**



**Terrestrial Vegetation**

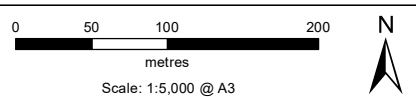
- (i) Banksia low woodlands on plains and low rises
  - BaBm
  - Bp
- (ii) Other terrestrial vegetation
  - Ar

**Wetland and associated vegetation**

- (i) Heaths fringing the floodplain wetlands and in depressions
  - BtRc

**Unvegetated areas**

- CL: Cleared



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



**Legend**

- External Infrastructure Study Area (EISA)
- Mine Envelope Study Area (MESA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

**CREATED BY**  
ENVIRONMAPS

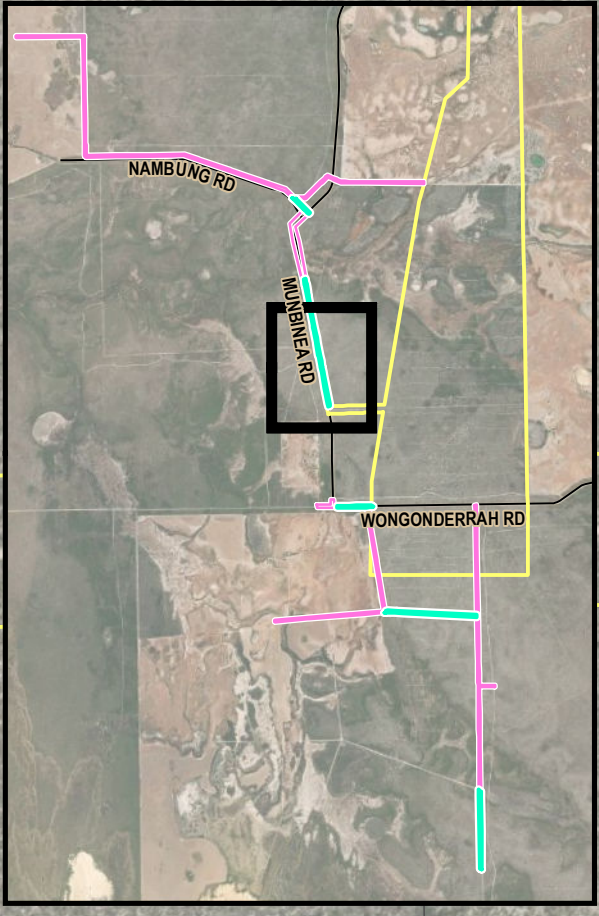
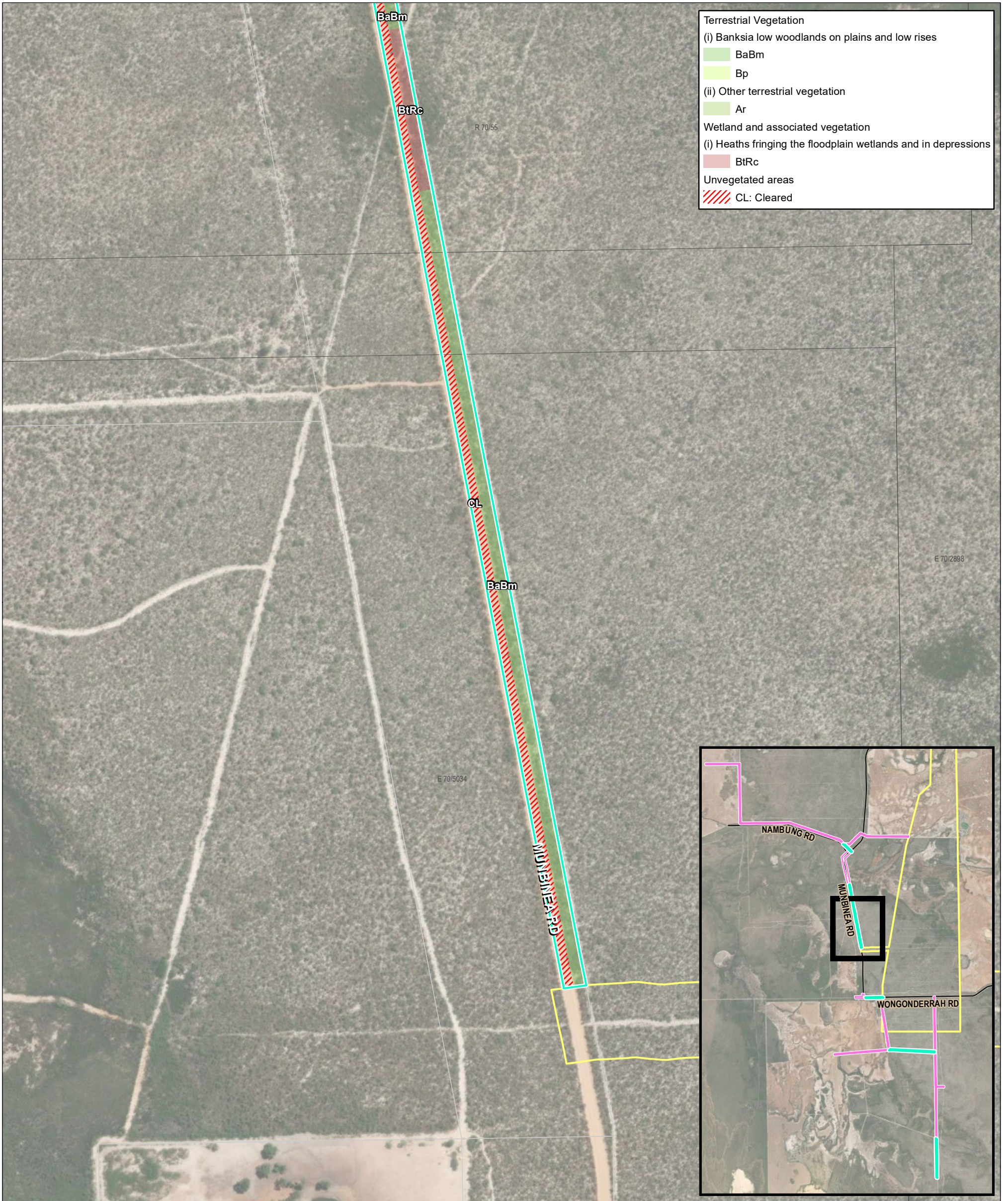
**JOB**  
AtlasEISAAdd

**DATE**  
20/10/2022

**REVISION**  
0

**Image Resources**

**Figure 3b:  
Vegetation of the  
Additional EISA**



**CREATED BY**  
ENVIRONMAPS

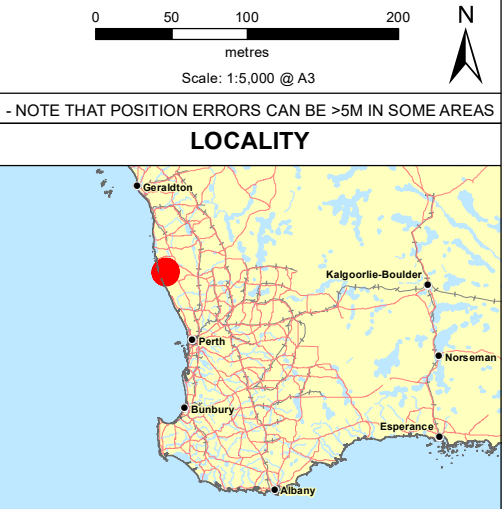
**JOB**  
AtlasEISAAdd

**DATE**  
20/10/2022

**REVISION**  
0

**Image Resources**

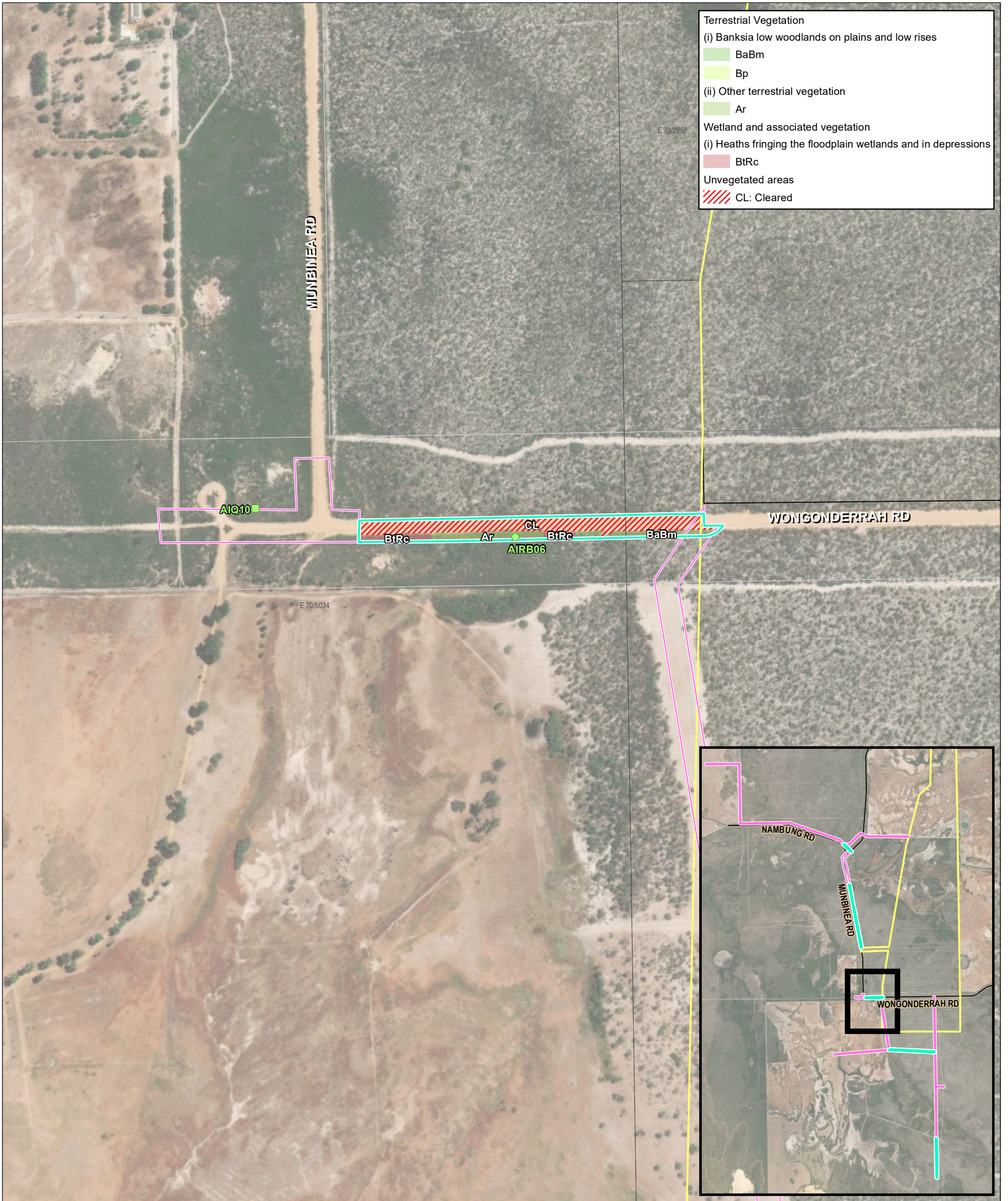
**Figure 3c:  
Vegetation of  
the Additional  
EISA**



**Legend**

- External Infrastructure Study Area (EISA)
- Mine Envelope Study Area (MESA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve





**Terrestrial Vegetation**

(i) Banksia low woodlands on plains and low rises

- BaBm
- Bp

(ii) Other terrestrial vegetation

- Ar

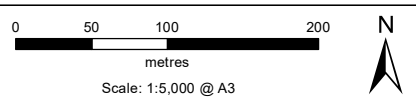
**Wetland and associated vegetation**

(i) Heaths fringing the floodplain wetlands and in depressions

- BtRc

**Unvegetated areas**

- CL: Cleared



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



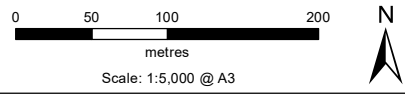
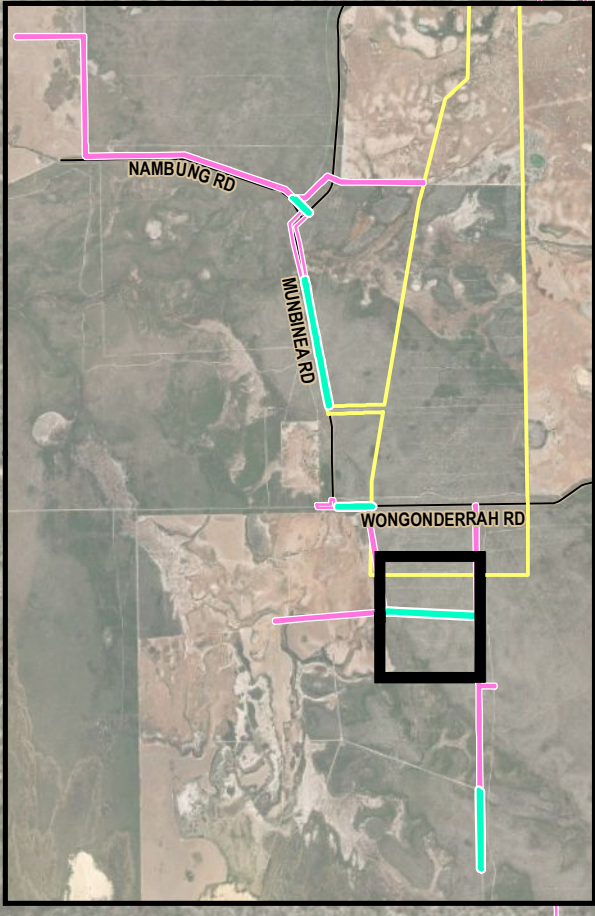
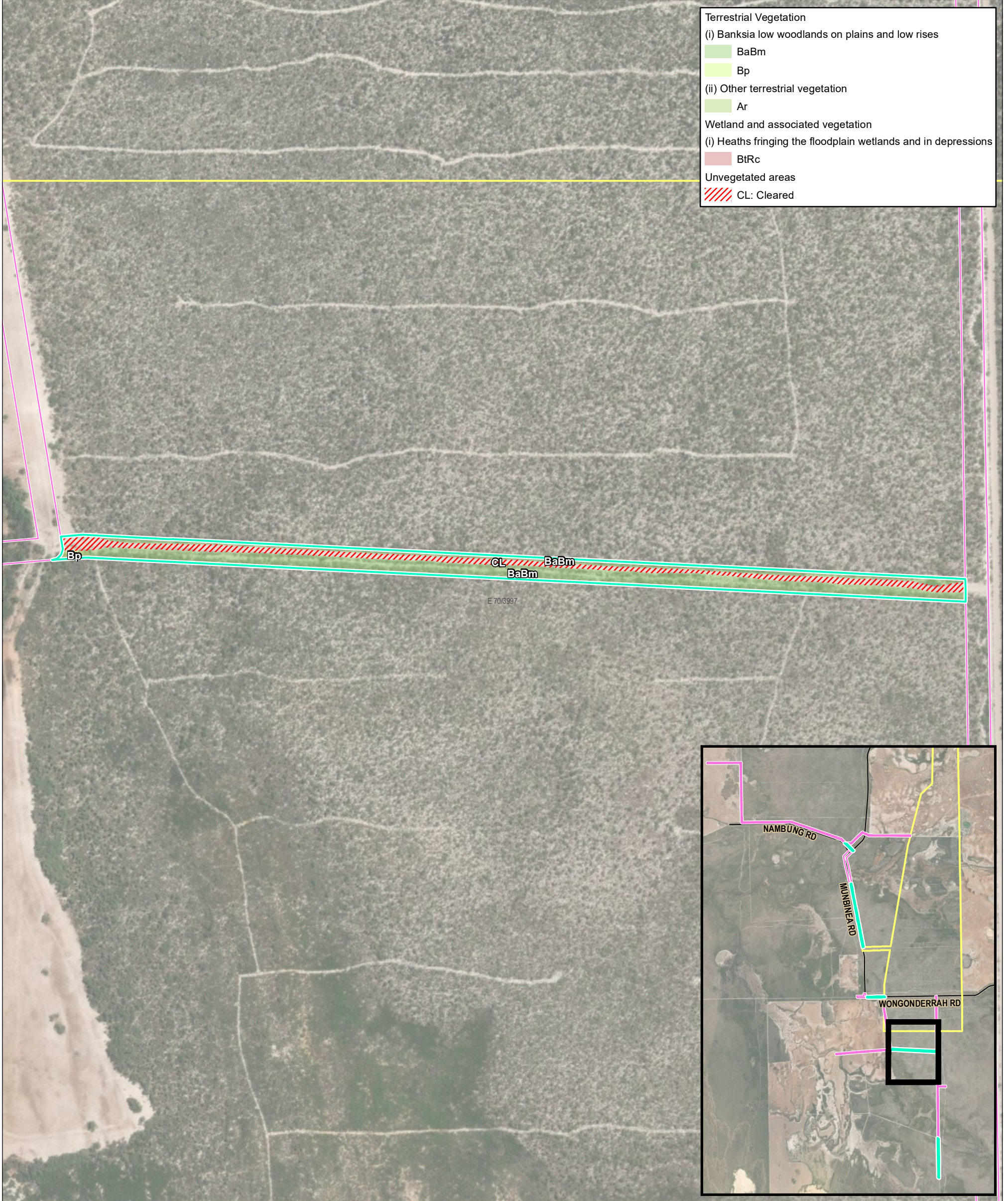
**Legend**

- External Infrastructure Study Area (EISA)
- Mine Envelope Study Area (MESA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

<b>CREATED BY</b> ENVIRONMAPS	<b>JOB</b> AtlasEISAAdd	<b>DATE</b> 20/10/2022	<b>REVISION</b> 0
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**Image Resources**

**Figure 3d:  
Vegetation of  
the Additional  
EISA**



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



**Legend**

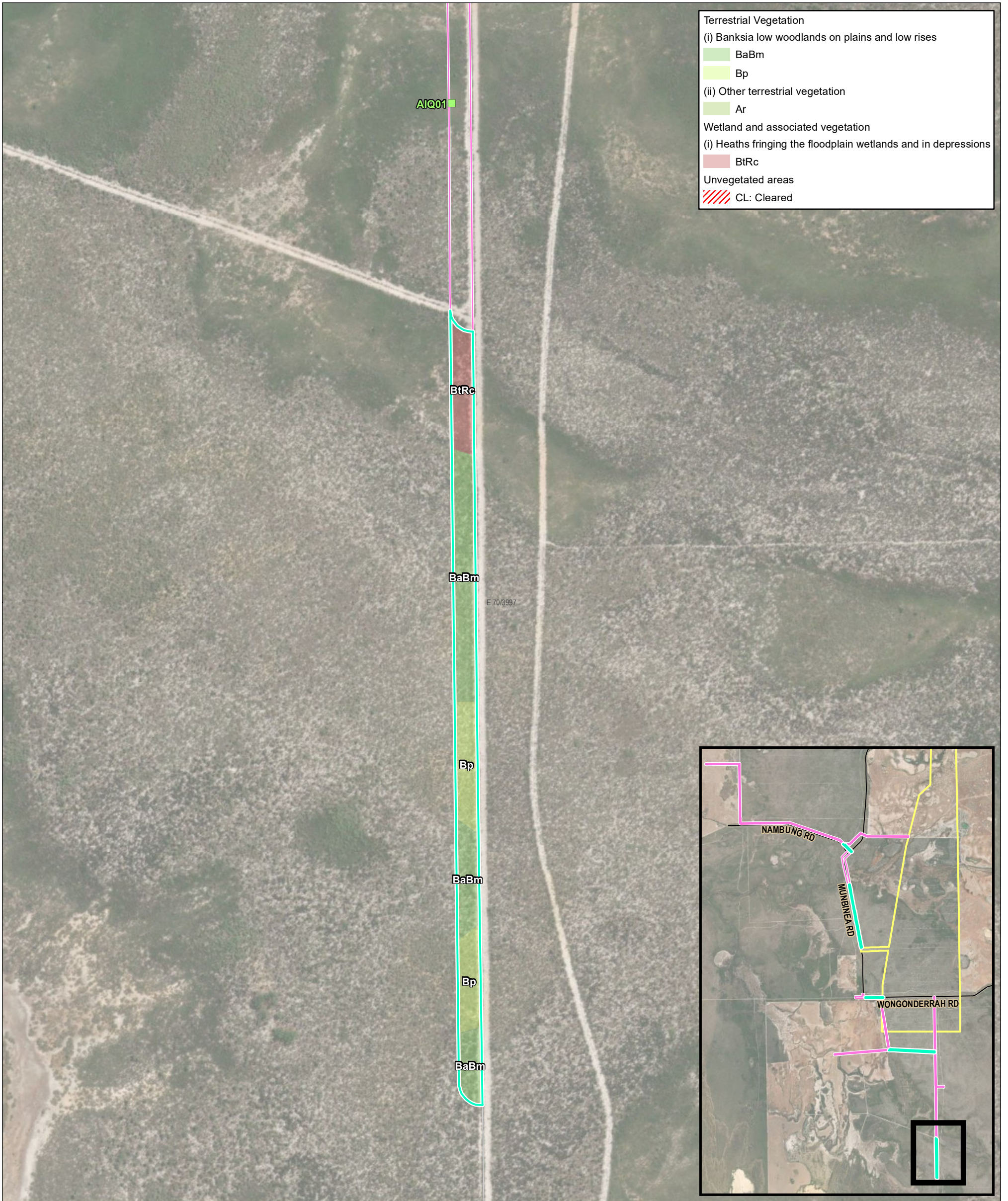
- External Infrastructure Study Area (EISA)
- Mine Envelope Study Area (MESA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve



CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 3e:  
Vegetation of  
the Additional  
EISA**



**Terrestrial Vegetation**

(i) Banksia low woodlands on plains and low rises

- BaBm
- Bp

(ii) Other terrestrial vegetation

- Ar

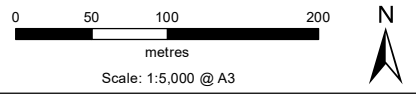
**Wetland and associated vegetation**

(i) Heaths fringing the floodplain wetlands and in depressions

- BtRc

**Unvegetated areas**

- CL: Cleared



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS



**Legend**

- External Infrastructure Study Area (EISA)
- Mine Envelope Study Area (MESA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 3f:  
Vegetation of  
the Additional  
EISA**

### 5.1.2.1 Terrestrial vegetation

#### (i) *Banksia* low woodlands on plains and low rises

##### **BaBm**

(Description from Morgan (2022))

*Banksia attenuata*, *Banksia menziesii*, (*Eucalyptus todtiana*) Low Woodland over *Adenanthos cygnorum* subsp. *cygnorum* Isolated Tall Clumps of Shrubs to Sparse Tall Shrubland (in some parts) over *Xanthorrhoea preissii* Sparse Shrubland over *Melaleuca clavifolia*, *Hibbertia hypericoides*, *Eremaea pauciflora* var. *lonchophylla*, *Eremaea asterocarpa* subsp. *asterocarpa*, *Melaleuca systema*, *Bossiaea eriocarpa*, *Petrophile rigida* mixed Low Shrubland over *Mesomelaena pseudostygia* Isolated Sedges to Sparse Sedgeland with *Dasyogon obliquifolius*, *Blancoa canescens*, *Patersonia occidentalis* var. *occidentalis* Low Sparse Forbland.

**Habitat and soil:** Plains and low rises. Grey sand.

**Associated species:** *Banksia illicifolia*, *Calytrix flavescens*, *Alexgeorgia nitens*, *Acacia pulchella* var. *glaberrima*, *Amphipogon turbinatus*, *Hypocalymma xanthopetalum*, *Jacksonia hakeoides*, *Jacksonia nutans*, *Conostylis teretifolia* subsp. *teretifolia*, *Conostylis juncea*

**Notes:** This vegetation unit occupied about 50% of the Additional EISA corridors (Table 3) and was the majority of the vegetation if the large element of ‘Cleared’ category (roads and cleared firebreaks) is excluded.

##### **Bp**

(Description from Morgan (2022))

*Banksia prionotes* Low Woodland over *Calothamnus quadrifidus* subsp. *quadrifidus*, *Scholtzia umbellifera* Tall Open Shrubland over *Hibbertia hypericoides*, *Conospermum stoechadis* subsp. *stoechadis*, *Melaleuca systema* Low Open Shrubland over *Lepidobolus preissianus* Sparse Sedges.

**Habitat and soil:** Flat plain and low rises. Yellow sand.

**Associated species:** *Acacia spathulifolia*, *Anigozanthos humilis* subsp. *chrysanthus*, *Actinotus leucocephalus*, *Conostylis candicans* subsp. *candicans*, *Eremaea pauciflora* var. *lonchophylla*, *Conostylis teretifolia* subsp. *teretifolia*

**Notes:** As in the general locality, this vegetation occupied a much smaller area than the unit ‘BaBm’.

**(ii) Other terrestrial vegetation**

**Ar**

*Acacia rostellifera* Tall Shrubland over *Allocasuarina humilis* Sparse Shrubland over *Desmocladius asper* Rushland.

**Habitat and soil:** Plain. Yellow-brown sand.

**Associated species:** *Eucalyptus decipiens*, *Banksia telmatiaea*, *Acacia cyclops*, *Olearia axillaris*, *Calothamnus quadrifidus* subsp. *quadrifidus*, *Podotheca gnaphalioides*, *Cassutha glabella*, *Clematis linearifolia*, *Xanthorrhoea preissii*, *Hakea prostrata*, *Tricoryne elatior*, *Cyathochaeta avenacea*..

**Notes:** This vegetation occurred in a small area of the Additional EISA corridor along the Wongonderrah Rd verge (Figure 3d). The nature of this vegetation would be affected by its location around the margins of a *Melaleuca* sp. Low Woodland wetland. The description for the unit ‘Ar’ has been based here on releve AIRB06 (Appendix D; Plate 5) and varies from the description used for ‘Ar’ in Morgan (2022), where it was based on a single occurrence of vegetation that was in ‘Degraded’ condition.



**Plate 5. Vegetation unit ‘Ar’ at releve AIRB06**

### 5.1.2.2 Wetland and associated vegetation

#### (i) Heaths fringing the floodplain and in depressions

##### **BtRc**

(Description from Morgan (2022))

*Banksia telmatiaea*, *Hakea obliqua* subsp. *parviflora*, *Regelia ciliata* Heathland to Closed Heathland over *Melaleuca seriata* Low Sparse Shrubland to Low Open Shrubland over *Conostylis festucacea* subsp. *festucacea* Low Open Forbland.

**Habitat and soil:** Very gentle slopes and elevated areas adjacent to floodplains and in depression areas on the sand plain. Grey sands.

**Associated species:** *Acacia stenoptera*, *Banksia platycarpa*, *Schoenus subfascicularis*, *Jacksonia hakeoides*, *Callitris pyramidalis*, *Banksia nivea* subsp. *nivea*, *Chordifex sinuosus*, *Conostylis aculeata* subsp. *breviflora*, *Hibbertia aurea*, *Isopogon panduratus* subsp. *palustris* (Priority 3).

**Notes:** This vegetation unit occurred in small depressions in the Additional EISA corridors.

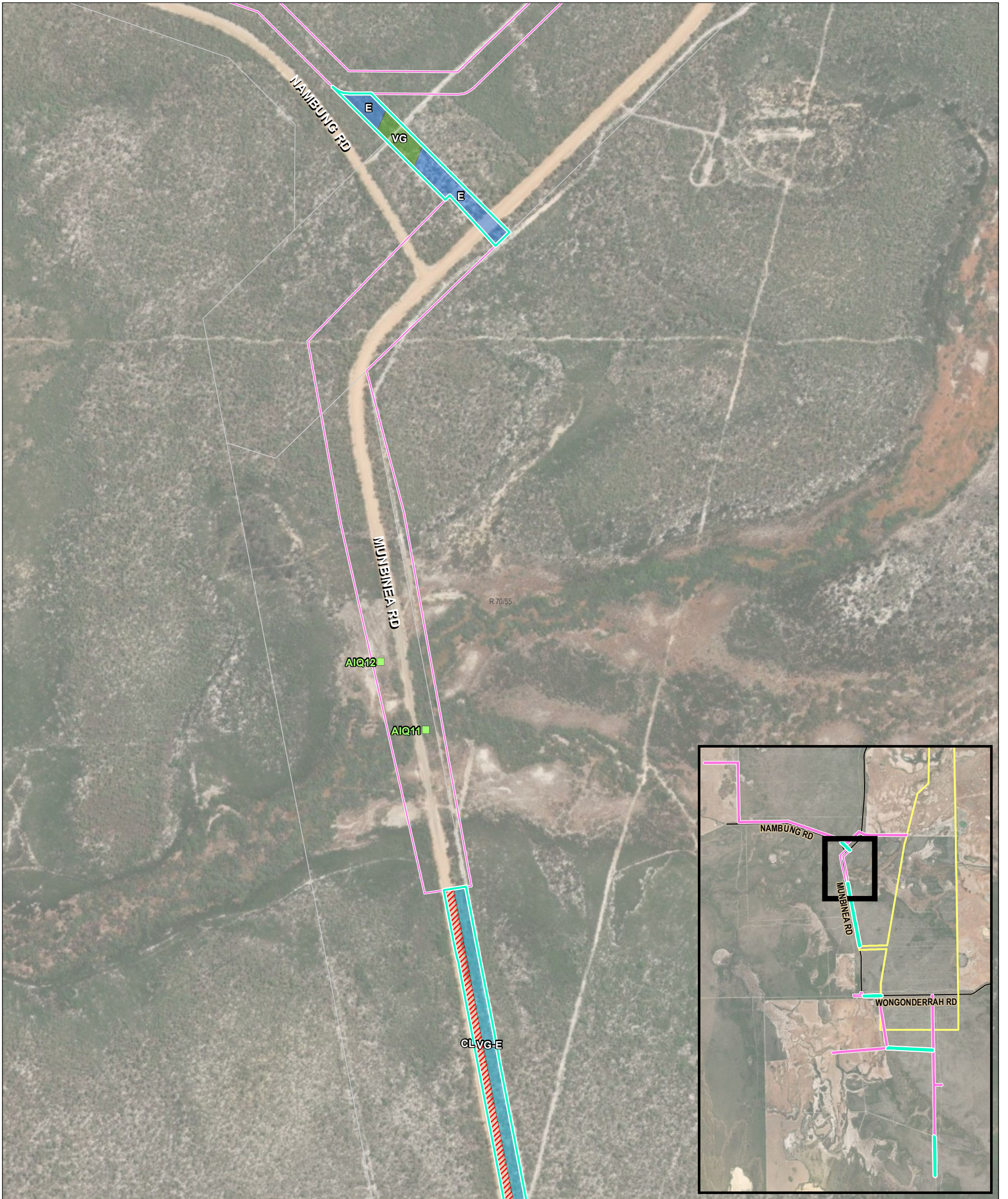
## 5.2 Vegetation condition

Most of the Bushland in the Additional EISA corridors was in the ‘Excellent’ or ‘Very Good to Excellent’ condition (see classification definitions in Appendix E; Table 4; Figures 4a-e). Disturbance relating to the proximity of road verge and firebreaks marked down the condition of the vegetation in the corridor along Munbinea Rd (‘Very Good to Excellent’; Figure 4a,b). Remnant and regrowth along an old fenceline in the east-west Additional EISA corridor south of Wongonderrah Rd (Figure 4d) was assessed as being in ‘Good’ condition.

The Additional EISA corridors generally had low weed cover.

**Table 4. Area (ha) of vegetation condition classes in the Additional EISA corridors.**

Vegetation Condition Class		Additional EISA	
		Area (ha)	%
P	Pristine	0	0
E	Excellent	5.82	41.63
VG-E	Very Good to Excellent	3.04	21.74
VG	Very Good	0.21	1.50
G	Good	0.98	7.01
D	Degraded	0	0
CD	Completely Degraded	0	0
CL	Cleared	3.93	28.11
Total		13.98	100.0

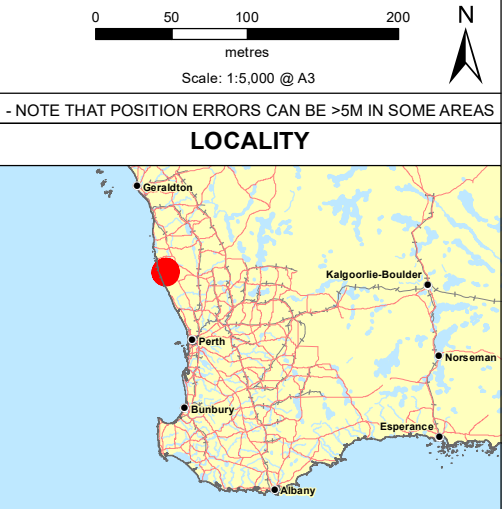


**Preston Consulting**

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 4a:  
Vegetation condition  
of the Additional  
EISA**



**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

**Vegetated Areas**

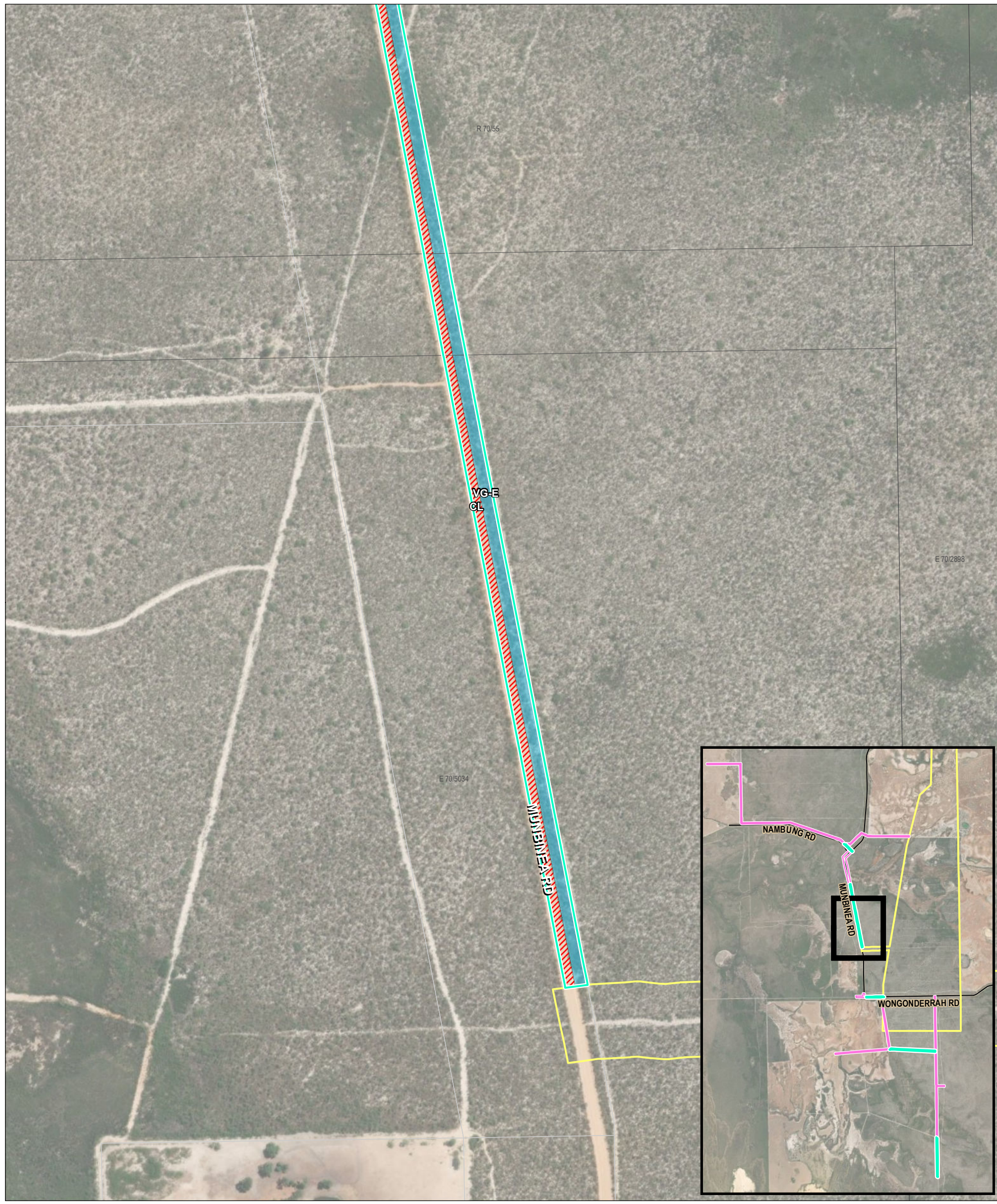

**Vegetation Condition**

- E: Excellent
- VG-E: Very Good to Excellent
- VG: Very Good
- G: Good

**Unvegetated areas**

- CL: Cleared



**Preston Consulting**

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0


**Image Resources**

**Figure 4b:  
Vegetation condition  
of the Additional  
EISA**

0 50 100 200 metres  
Scale: 1:5,000 @ A3

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

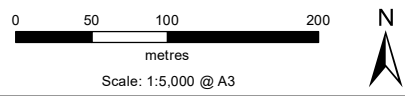
**Vegetated Areas**

**Vegetation Condition**

- E: Excellent
- VG-E: Very Good to Excellent
- VG: Very Good
- G: Good

**Unvegetated areas**

- CL: Cleared



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

**Vegetated Areas**

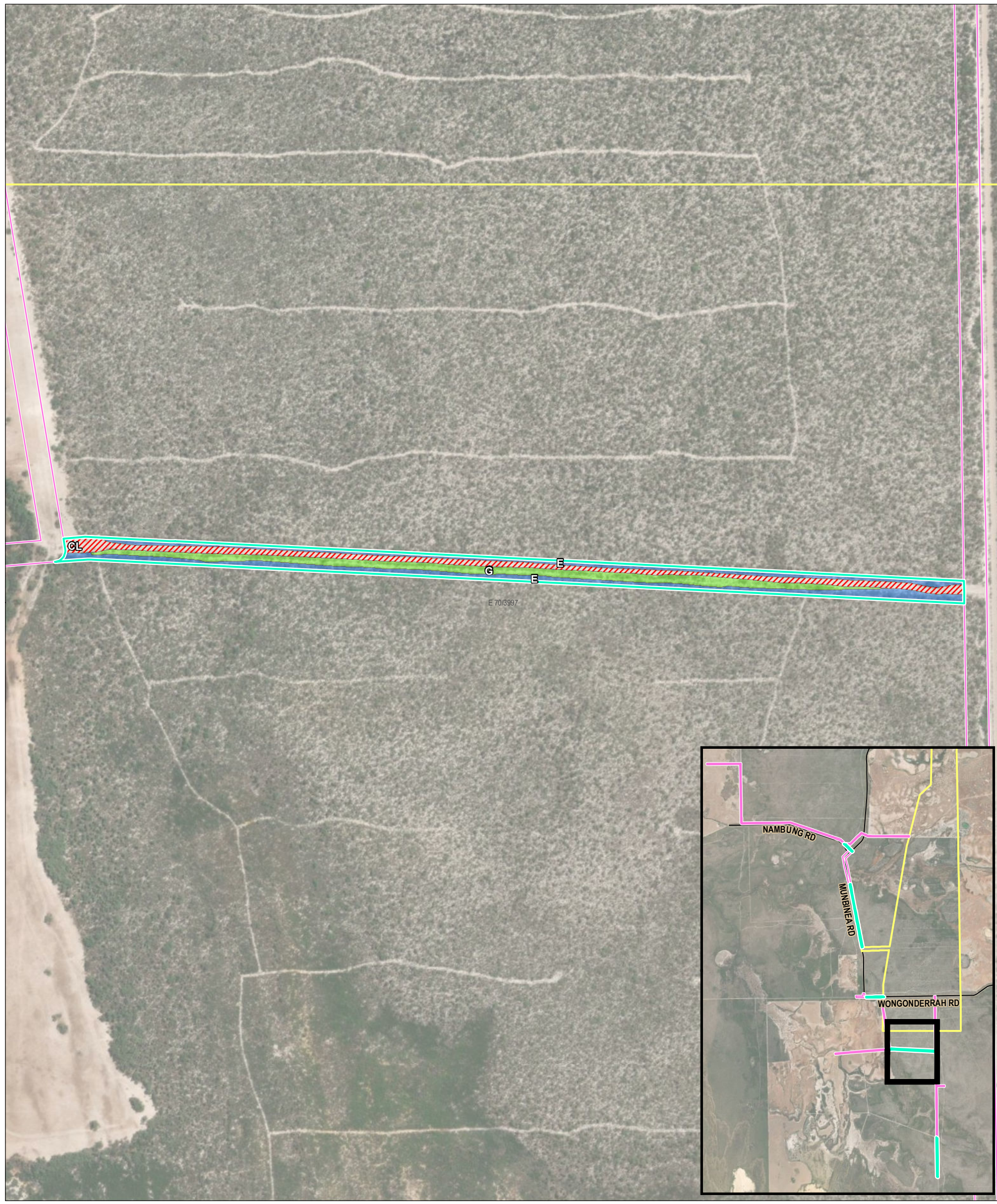
**Vegetation Condition**

- E: Excellent
- VG-E: Very Good to Excellent
- VG: Very Good
- G: Good
- Unvegetated areas**
- CL: Cleared

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 4c:  
Vegetation condition  
of the Additional  
EISA**

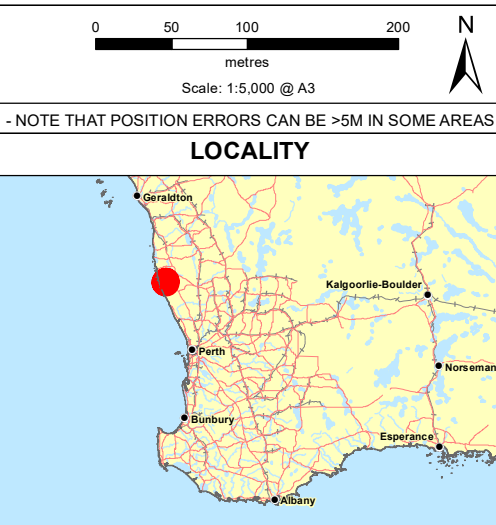


**Preston Consulting**

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

Figure 4d:  
Vegetation condition  
of the Additional  
EISA



**Legend**

- Mine Envelope Study Area (MESA)
- External Infrastructure Study Area (EISA)
- Additional External Infrastructure Survey Area
- M 70/1306
- Tenement
- Cadastre
- 2021: Quadrat
- 2021: Releve

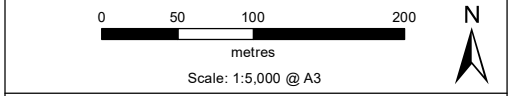
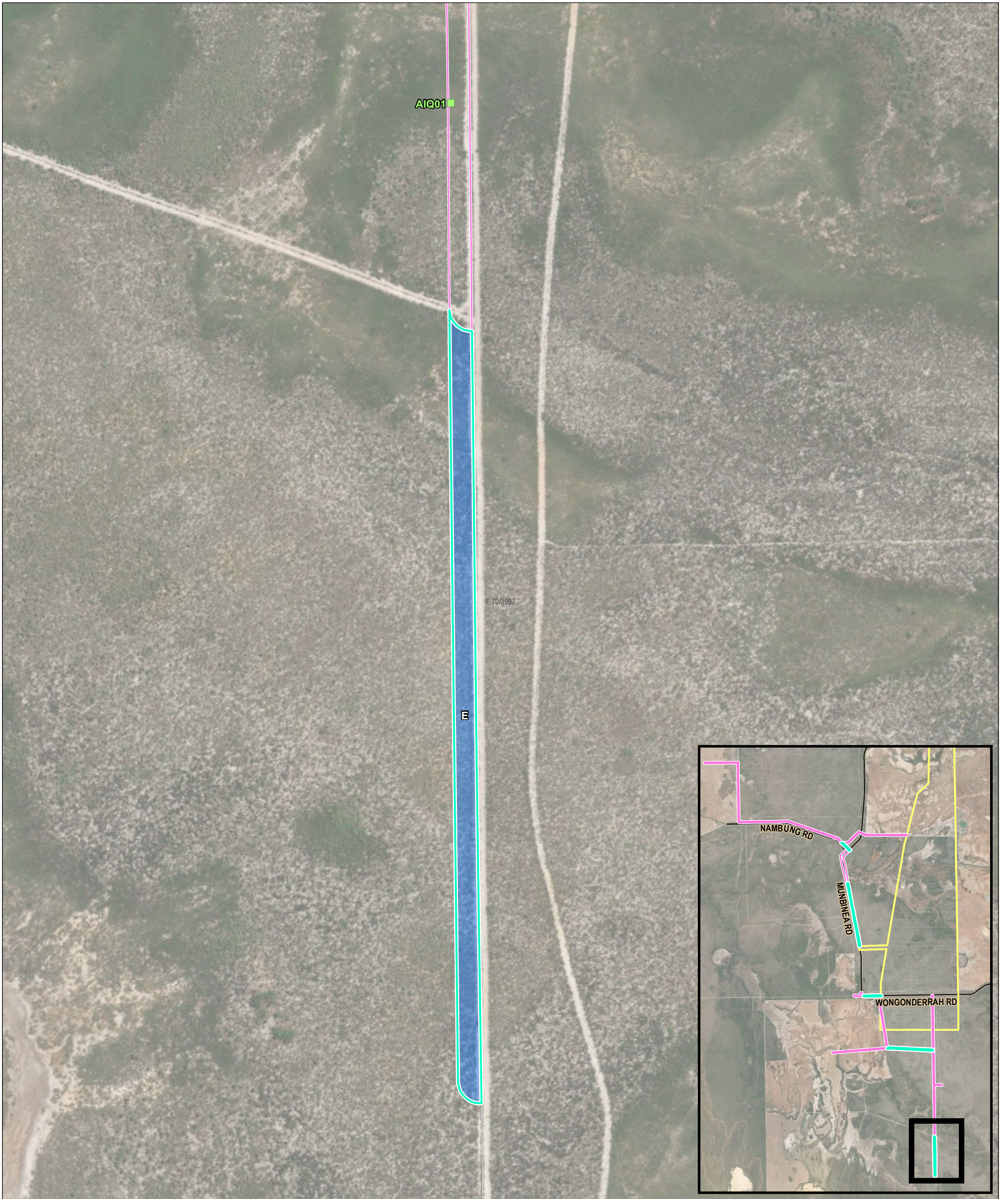
**Vegetated Areas**

**Vegetation Condition**

- E: Excellent
- VG-E: Very Good to Excellent
- VG: Very Good
- G: Good

**Unvegetated areas**

- CL: Cleared



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS



- Legend**
- Mine Envelope Study Area (MESA)
  - External Infrastructure Study Area (EISA)
  - Additional External Infrastructure Survey Area
  - M 70/1306
  - Tenement
  - Cadastre
  - 2021: Quadrat
  - 2021: Releve

- Vegetated Areas**
- Vegetation Condition**
- E: Excellent
  - VG-E: Very Good to Excellent
  - VG: Very Good
  - G: Good
- Unvegetated areas**
- CL: Cleared

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

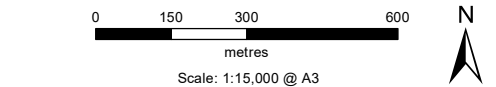
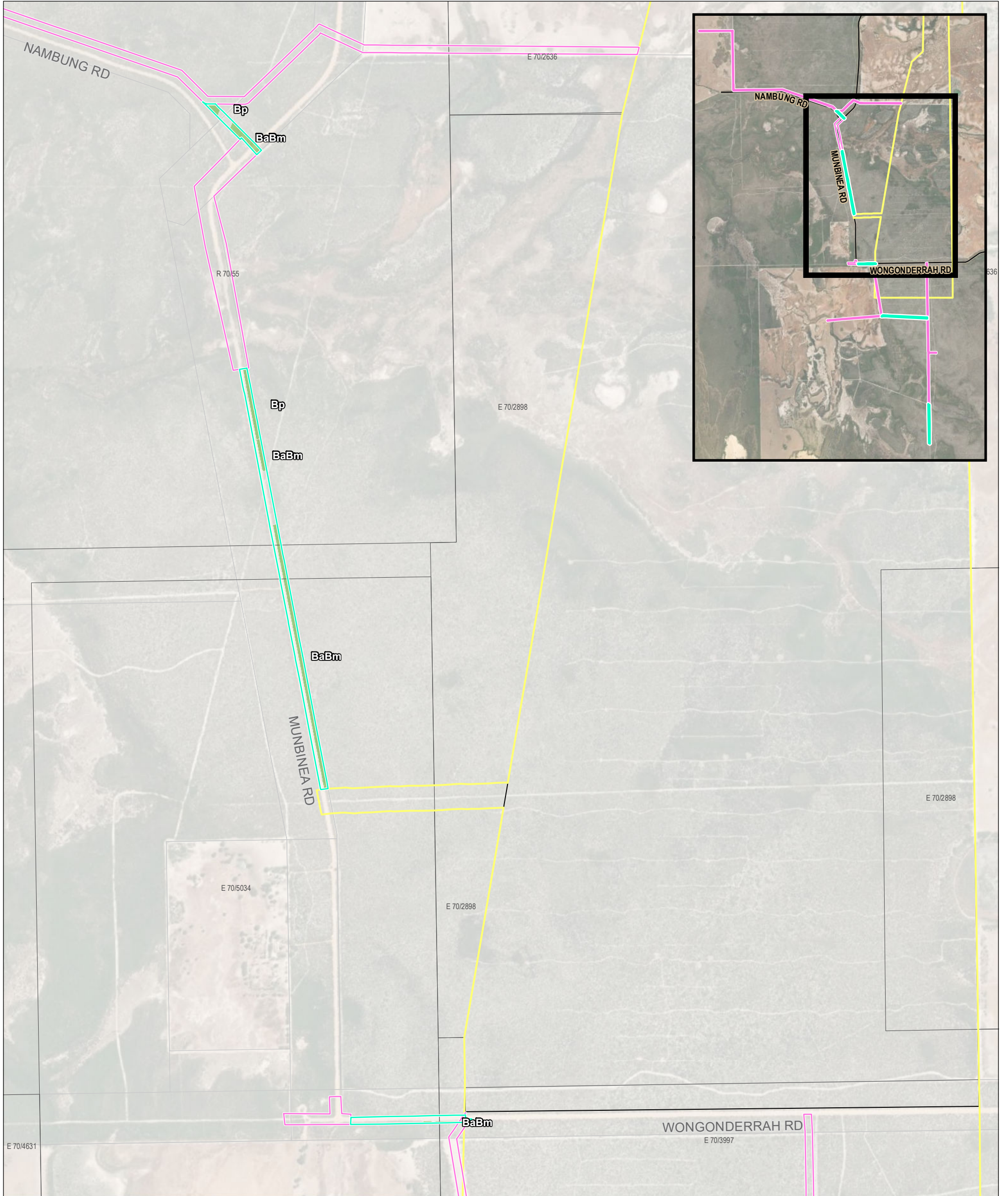
**Figure 4d:  
Vegetation condition  
of the Additional  
EISA**

### 5.3 Vegetation values and Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs)

Morgan (2022) identified one TEC and no PECs among the Atlas Project survey area vegetation units. The ‘Banksia woodlands of the Swan Coastal Plain’ TEC (DAWE, 2021c; DEE, 2019) was mapped in the area. It is recognised as a TEC (Endangered) at federal level and as a Priority 3 PEC by the Western Australian state government.

The *Banksia attenuata*, *Banksia menziesii* Low Woodlands (‘BaBm’) and the *Banksia prionotes* Low Woodlands (‘Bp’) in the Additional EISA met the criteria to be characterised as the federally listed TEC ‘Banksia woodlands of the Swan Coastal Plain’ (Endangered) (Morgan, 2022) and meet the condition thresholds for minimum ‘patch’ size that apply in assessing if an area of *Banksia* woodland qualifies as ‘Banksia woodlands of the Swan Coastal Plain’ TEC (DAWE, 2021c; DEE, 2019) (as they were contiguous with large areas of *Banksia* woodland outside the survey corridor).

The ‘Banksia woodlands of the Swan Coastal Plain’ TEC areas in the Additional EISA are shown in Figures 5a, b. They covered an area of 8.63 ha of the 13.98 ha total area.



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**

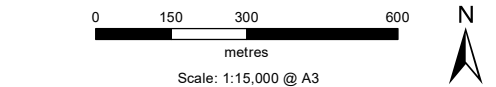
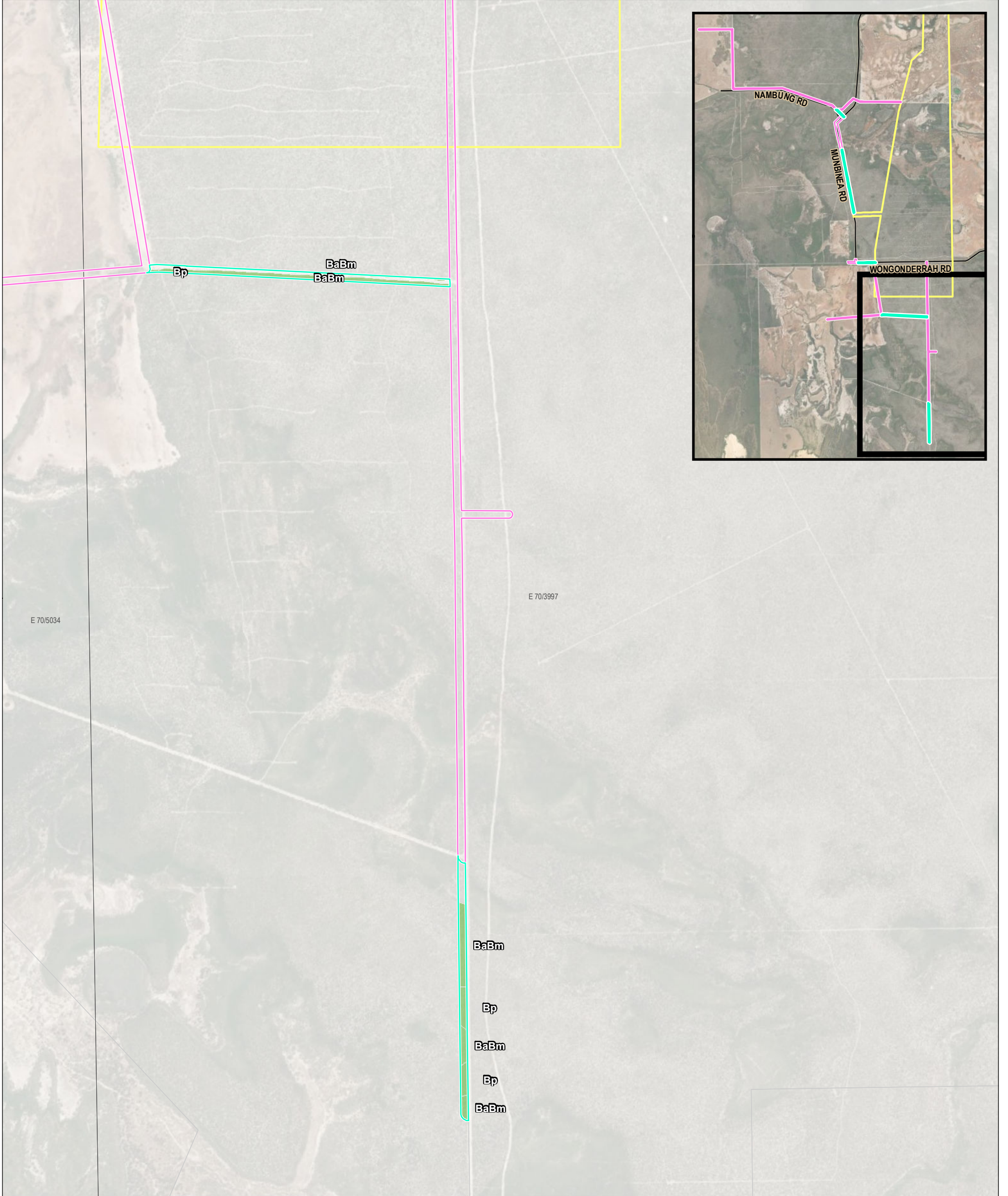


- Legend**
- Mine Envelope Study Area (MESA)
  - External Infrastructure Study Area (EISA)
  - Additional External Infrastructure Survey Area
  - M 70/1306
  - Tenement
  - Cadastre
  - Banksia Woodlands of the Swan Coastal Plain (Federal TEC (Endangered)) (State PEC (Priority 3))

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 5a**  
**Banksia Woodlands of the Swan Coastal Plain TEC**



- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS

**LOCALITY**



- Legend**
- Mine Envelope Study Area (MESA)
  - External Infrastructure Study Area (EISA)
  - Additional External Infrastructure Survey Area
  - M 70/1306
  - Tenement
  - Cadastre
  - Banksia Woodlands of the Swan Coastal Plain (Federal TEC (Endangered)) (State PEC (Priority 3))

CREATED BY	JOB	DATE	REVISION
ENVIRONMAPS	AtlasEISAAdd	20/10/2022	0

**Image Resources**

**Figure 5b**  
**Banksia Woodlands of the Swan Coastal Plain TEC**

## **6.0 ACKNOWLEDGEMENTS**

Annaliese Eastough (Preston Consulting) assisted with the field work.

The GIS mapping was undertaken by Simon Crofts (EnvironMaps).



## 7.0 REFERENCES

Department of Agriculture, Water and the Environment (DAWE). (2021c). Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) (s 266B) Approved Conservation Advice (incorporating listing advice) for the Banksia Woodlands of the Swan Coastal Plain ecological community. Available from <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/131-conservation-advice.pdf>.

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Hislop, M. & Rye, B.L. (2010). Two new, glaucous-leaved species of *Isopogon* (Proteaceae: Proteoideae: Leucadendreae) from south-western Australia. *Nuytsia* 20: 169–181.

Morgan, B, R. (2022). Flora and vegetation survey for the Atlas Project. A report prepared for Image Resources PL.

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Wilson, K. L. (1997). New species of Cyperaceae in Western Australia. *Nuytsia* 11(2), p270.

## **8.0 APPENDICES**

- APPENDIX A. Species List for the Atlas Survey Area – MESA and EISA**
- APPENDIX B. Records of flora of conservation significance from the Autumn 2022 surveys**
- APPENDIX C. Updated quadrat descriptions and species lists for the Atlas EISA**
- APPENDIX D. Releve descriptions for the Atlas Additional EISA corridors**
- APPENDIX E. Vegetation condition scale and descriptions: South-West and Interzone (EPA, 2016)**

## APPENDIX A. Species List for the Atlas Survey Area – MESA and EISA

### Notes:

1. Plant families are listed in alphabetical order within the main classification groups.
2. An asterisk (\*) beside the taxon name indicates an introduced species exotic to Western Australia (weed).
3. The 'status' column shows the conservation status of significant flora species on the list.

T = Threatened flora; P1 to P4 = Priority 1 to Priority 4 (see definitions in Appendix 2); RS = other regionally significant flora.

4. Survey: Atlas survey area

2011: Atlas single phase survey (360 Environmental, 2012).

MESA 2019/21: Atlas MESA survey area - Spring 2019; Spring 2020; Autumn 2021; Spring 2021 (MESA farmland)

EISA 2021/22: Atlas EISA survey area (Infrastructure corridors) - Spring 2021 and Autumn 2022 including the Additional EISA.

Highlighted grey : taxa first recorded in 2022;

Highlighted yellow : taxa first recorded in EISA area only in 2022.

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
<b>GYMNOSPERMAE</b>					
<b>Class CYCADOPSIDA (Cycads)</b>					
ZAMIACEAE					
Macrozamia fraseri			X	X	X
<b>Class PINOPSIDA (conifers)</b>					
CUPRESSACEAE					
Callitris pyramidalis			X	X	X
PINACEAE					
*Pinus pinaster					X
<b>ANGIOSPERMAE (flowering plants)</b>					
AIZOACEAE					
*Carpobrotus edulis			X	X	
Carpobrotus virescens			X	X	X
AMARANTHACEAE					
Ptilotus humilis subsp. humilis			X	X	
Ptilotus manglesii			X	X	
Ptilotus polystachyus			X	X	X
Ptilotus stirlingii subsp. stirlingii				X	
ANARTHRIACEAE					
Anarthria laevis			X	X	X
Lyginia barbata			X	X	X
Lyginia imberbis			X	X	X
APIACEAE					
Actinotus leucocephalus			X	X	
Apium prostratum subsp. prostratum var. filiforme			X	X	X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
APIACEAE (cont)					
Centella asiatica					X
Daucus glochidiatus			X	X	X
Eryngium pinnatifidum subsp. pinnatifidum ms			X	X	
Eryngium pinnatifidum subsp. Palustre (G. J. Keighery 13459)		<b>P3</b>	X	X	X
Platysace xerophila			X	X	
Xanthosia huegelii			X	X	X
ARALIACEAE					
Hydrocotyle alata			X	X	
Hydrocotyle diantha				X	X
Trachymene coerulea subsp. coerulea			X	X	
Trachymene pilosa			X	X	X
ASPARAGACEAE					
Acanthocarpus canaliculatus					X
Acanthocarpus preissii					X
Laxmannia ramosa subsp. ramosa			X	X	X
Lomandra caespitosa			X	X	X
Lomandra hermaphrodita			X	X	X
Lomandra micrantha subsp. micrantha				X	X
Lomandra preissii			X	X	X
Lomandra suaveolens				X	X
Thysanotus arbuscula				X	
Thysanotus arenarius				X	X
Thysanotus asper			X		
Thysanotus glaucus		<b>P4</b>		X	
Thysanotus manglesianus			X	X	X
Thysanotus multiflorus			X		
Thysanotus patersonii					X
Thysanotus sparteus			X	X	X
Thysanotus tenellus				X	
Thysanotus teretifolius				X	X
Thysanotus thyrsoides			X	X	X
Thysanotus triandrus					X
ASPHODELACEAE					
*Asphodelus fistulosus	(onion weed)		X		
Bulbine semibarbata				X	
ASTERACEAE					
Angianthus micropodioides		<b>P3</b>	X	X	X
Angianthus preissianus			X	X	X
*Arctotheca calendula	(Cape Weed)		X	X	X
Asteridea pulverulenta			X	X	X
Brachyscome bellidioides			X	X	X
Brachyscome iberidifolia			X	X	X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
ASTERACEAE (cont)					
*Cotula coronopifolia			X	X	X
Cotula cotuloides			X	X	X
*Dittrichia graveolens					X
Euchiton sphaericus			X	X	
Gnephosis drummondii			X	X	
*Hypochaeris glabra			X	X	X
*Hypochaeris radicata				X	
Lagenophora huegelii			X	X	X
*Leontodon rhagadioloides (Cretan Weed)					X
Millotia myosotidifolia				X	X
Millotia tenuifolia var. tenuifolia				X	X
Olearia axillaris			X	X	X
Olearia rudis			X	X	X
Olearia sp. Kennedy Range (G. Byrne 66)					X
Podolepis gracilis			X	X	X
Podolepis sp.				X	
Podotheca angustifolia			X	X	
Podotheca chrysantha			X	X	
Podotheca gnaphalioides			X	X	X
Pogonolepis stricta			X	X	
*Pseudognaphalium luteoalbum (Jersey Cudweed)					X
Pterochaeta paniculata			X	X	X
Quinetia urvillei			X	X	
Rhodanthe citrina					X
Senecio glossanthus				X	
Senecio pinnatifolius var. latilobus			X	X	X
Siemssenia capillaris (formerly Podolepis capillaris)			X	X	
Siloxerus filifolius				X	
Siloxerus humifusus			X	X	
*Sonchus asper			X		X
*Sonchus oleraceus			X	X	X
*Urospermum picroides				X	X
*Ursinia anthemoides subsp. anthemoides			X	X	X
*Vellereophyton dealbatum (White cudweed)			X	X	
Waitzia suaveolens var. suaveolens			X		X
BORAGINACEAE					
Heliotropium curassavicum					X
BRASSICACEAE					
*Brassica tournefortii (Wild turnip)			X	X	
*Heliophila pusilla			X	X	X
Stenopetalum pedicellare					X
Stenopetalum robustum			X		
BYBLIDACEAE					
Byblis lamellata			X		

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
CAMPANULACEAE					
Isotoma hypocrateriformis			X	X	
Isotoma scapigera			X	X	
Lobelia anceps					X
Lobelia heterophylla			X		
* Monopsis debilis var. depressa			X	X	X
* Wahlenbergia capensis			X	X	X
Wahlenbergia gracilentata				X	
Wahlenbergia preissii			X	X	
CARYOPHYLLACEAE					
* Cerastium glomeratum			X	X	X
* Petrorhagia dubia				X	X
* Polycarpon tetraphyllum			X	X	X
* Sagina apetala	(Annual Pearlwort)			X	
* Silene gallica				X	X
Spergularia brevifolia				X	X
* Stellaria media	(Chick weed)			X	
CASUARINACEAE					
Allocasuarina humilis			X	X	X
Allocasuarina lehmanniana subsp. lehmanniana			X	X	X
Allocasuarina microstachya					X
Casuarina obesa					X
CELASTRACEAE					
Stackhousia monogyna			X	X	
Tripterococcus brunonis			X	X	X
CENTROLEPIDACEAE					
Aphelia cyperoides			X	X	X
Aphelia nutans				X	
Centrolepis aristata			X	X	X
Centrolepis drummondiana			X	X	X
Centrolepis humillima				X	
Centrolepis mutica			X		
Centrolepis polygyna			X	X	X
CHENOPODIACEAE					
* Atriplex prostrata				X	X
Dysphania plantaginella			X		X
Dysphania pumilio				X	X
Rhagodia baccata subsp. baccata			X	X	
Salicornia blackiana				X	X
Tecticornia halocnemoides			X	X	
Tecticornia indica subsp. bidens			X	X	X
Tecticornia moniliformis			X	X	
Tecticornia syncarpa			X	X	

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
<b>COLCHICACEAE</b>					
Burchardia bairdiae			X	X	X
Burchardia congesta			X	X	X
Burchardia multiflora				X	X
Wurmbea dioica subsp. alba			X	X	
<b>CONVONVULACEAE</b>					
Wilsonia humilis			X	X	
<b>CRASSULACEAE</b>					
Crassula closiana				X	X
Crassula colorata var. acuminata			X	X	X
Crassula colorata var. colorata			X	X	X
Crassula decumbens var. decumbens			X	X	X
* Crassula glomerata			X	X	X
* Crassula natans var. minor			X	X	X
<b>CYPERACEAE</b>					
Ammothryon grandiflorum (formerly Schoenus grandiflorus)			X		X
Bolboschoenus caldwellii			X	X	
Caustis dioica			X	X	X
Chaetospora curvifolia (formerly Schoenus curvifolius)			X	X	X
Chorizandra enodis					X
Cyathochaeta equitans				X	
Cyathochaeta avenacea					X
Cyperaceae sp. 2				X	
Cyperus gymnocaulos			X	X	X
* Cyperus tenellus			X	X	X
Ficinia nodosa				X	X
Gahnia trifida			X	X	X
Isolepis cernua var. cernua					X
Isolepis cernua var. setiformis			X	X	X
Isolepis marginata			X	X	X
Lepidosperma calcicola			X	X	X
Lepidosperma squamatum					X
Lepidosperma longitudinale			X	X	X
Machaerina juncea (formerly Baumea juncea)			X	X	X
Mesomelaena graciliceps				X	
Mesomelaena pseudostygia			X	X	X
Mesomelaena tetragona					X
Schoenus andrewsii				X	X
Schoenus badius		<b>P2</b>	X		
Schoenus brevisetis			X	X	
Schoenus caespitius				X	
Schoenus clandestinus			X	X	X
Schoenus elegans					X
Schoenus griffinianus		<b>P4</b>		X	X
Schoenus laevigatus				X	X
Schoenus nitens					X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
CYPERACEAE (cont)					
Schoenus pennisetis		<b>P3</b>		X	
Schoenus pleiostemoneus			X	X	X
Schoenus plumosus			X	X	X
Schoenus rigens				X	X
Schoenus sculptus				X	
Schoenus sp.				X	
Schoenus subfascicularis			X	X	X
Schoenus unispiculatus					X
Tricostularia neesii			X	X	X
DASYPOGONACEAE					
Calectasia narragara				X	X
Calectasia palustris		<b>P2</b>			X
Dasypogon obliquifolius			X	X	X
Kingia australis			X	X	X
DILLENACEAE					
Hibbertia aurea			X	X	X
Hibbertia huegelii				X	X
Hibbertia hypericoides			X	X	X
Hibbertia racemosa				X	X
Hibbertia sericosepala	(formerly H. sp. Gnangara (J.R. Wheeler 2329))		X	X	X
Hibbertia stellaris			X	X	
Hibbertia subvaginata			X	X	X
DROSERACEAE					
Drosera closterostigma			X	X	X
Drosera drummondii	(formerly D. menziesii subsp. penicillaris)		X	X	X
Drosera gigantea			X	X	
Drosera glanduligera				X	X
Drosera heterophylla				X	
Drosera humilis			X	X	X
Drosera magna	(formerly D. erythrorrhiza subsp. magna)		X	X	X
Drosera menziesii	(formerly D. menziesii subsp. menziesii)			X	X
Drosera minutiflora				X	X
Drosera pallida				X	X
Drosera porrecta					X
Drosera ramellosa				X	X
Drosera thysanosepala	(formerly D. menziesii subsp. thysanosepala)		X	X	X
ERICACEAE					
Andersonia heterophylla			X	X	X
Andersonia lehmanniana subsp. lehmanniana				X	
Conostephium pendulum			X	X	X
Leucopogon sp. Coujinup (M.A. Burgman 1085)			X	X	X
Leucopogon sp. Yanchep (M. Hislop 1986)		<b>P3</b>		X	



FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
ERICACEAE(cont)					
Leucopogon sprengelioides			X	X	X
Leucopogon stenophyllus	(formerly L. sp. Lesueur (B. Evans 530))		X	X	
Lysinema pentapetalum			X	X	X
Styphelia conostephioides	(formerly Leucopogon conostephioides)		X	X	X
Styphelia planifolia	(formerly Leucopogon planifolius)		X	X	X
Styphelia propinqua	(formerly Leucopogon propinquus)		X	X	X
Styphelia tortifolia	(formerly Astroloma glaucescens)		X	X	
Styphelia xerophylla	(formerly Astroloma xerophyllum)			X	X
EUPHORBIACEAE					
Adriana quadripartita					X
*Euphorbia terracina					X
Ricinocarpos undulatus					X
FABACEAE					
Acacia benthamii		P2			X
Acacia cyclops			X	X	X
Acacia dilatata				X	
Acacia lasiocarpa var. lasiocarpa			X	X	X
Acacia pulchella var. glaberrima			X	X	X
Acacia rostellifera				X	X
Acacia saligna			X	X	X
Acacia sessilis			X	X	X
Acacia spathulifolia			X	X	X
Acacia stenoptera			X	X	X
Bossiaea eriocarpa			X	X	X
* Chamaecytisus palmensis	(Tagasaste)				X
Daviesia angulata					X
Daviesia decurrens subsp. decurrens			X	X	X
Daviesia divaricata subsp. divaricata			X	X	X
Daviesia incrassata subsp. incrassata			X	X	X
Daviesia nudiflora subsp. nudiflora					X
Daviesia physodes					X
Daviesia podophylla				X	X
Daviesia triflora					X
Gompholobium knightianum					X
Gompholobium tomentosum			X	X	X
Isotropis cuneifolia subsp. cuneifolia				X	X
Jacksonia carduacea		P3		X	X
Jacksonia floribunda			X	X	X
Jacksonia furcellata					X
Jacksonia hakeoides			X	X	X
Jacksonia nutans			X	X	X
Jacksonia sp.				X	X
Jacksonia sternbergiana			X	X	X
Kennedia prostrata					X
* Lotus subbiflorus			X	X	X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
FABACEAE (cont)					
	* <i>Lupinus cosentinii</i>			X	X
	* <i>Ornithopus compressus</i>			X	
	* <i>Ornithopus pinnatus</i>		X	X	
	* <i>Ornithopus sativus</i>				X
	* <i>Trifolium arvense</i> var. <i>arvense</i>		X	X	
	* <i>Trifolium campestre</i> var. <i>campestre</i>			X	X
	* <i>Trifolium cernuum</i>			X	
	* <i>Trifolium hirtum</i>				X
	* <i>Trifolium hybridum</i> var. <i>hybridum</i>			X	
	<i>Viminaria juncea</i>		X	X	X
FRANKENIACEAE					
	<i>Frankenia pauciflora</i> var. <i>pauciflora</i>		X	X	X
GENTIANACEAE					
	* <i>Centaurium tenuiflorum</i>		X	X	
GERANIACEAE					
	* <i>Erodium botrys</i>			X	X
	* <i>Erodium cicutarium</i>		X	X	
	<i>Erodium cygnorum</i>			X	
	<i>Geranium solanderi</i>		X	X	
	<i>Pelargonium littorale</i> subsp. <i>littorale</i>		X	X	X
GOODENIACEAE					
	<i>Dampiera coronata</i>			X	X
	<i>Dampiera linearis</i>		X	X	X
	<i>Goodenia coerulea</i>		X	X	
	<i>Goodenia micrantha</i>			X	
	<i>Goodenia pulchella</i> subsp. Coastal Plain A (M. Hislop 634)		X	X	
	<i>Goodenia pulchella</i> subsp. Coastal Plain B (L.W. Sage 2336)		X		
	<i>Goodenia trinervis</i> (formerly <i>Velleia trinervis</i> )		X	X	X
	<i>Lechenaultia floribunda</i>		X	X	X
	<i>Lechenaultia linearoides</i>				X
	<i>Lechenaultia stenosepala</i>		X	X	
	<i>Scaevola canescens</i>				X
	<i>Scaevola phlebopetala</i>		X	X	X
	<i>Scaevola repens</i> var. <i>repens</i>				X
	<i>Scaevola thesioides</i> subsp. <i>thesioides</i>				X
GYROSTEMONACEAE					
	<i>Gyrostemon ramulosus</i>			X	
	<i>Gyrostemon subnudus</i>		X	X	X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
<b>HAEMODORACEAE</b>					
<i>Anigozanthos humilis</i> subsp. <i>chrysanthus</i>		<b>P4</b>		X	X
<i>Anigozanthos humilis</i> subsp. <i>humilis</i>	Cat's Paw		X	X	X
<i>Anigozanthos pulcherrimus</i>	Yellow Kangaroo Paw		X	X	X
<i>Anigozanthos viridis</i> subsp. <i>Cataby</i> (S.D. Hopper 1786)					X
<i>Blancoa canescens</i>			X	X	X
<i>Conostylis aculeata</i> subsp. <i>breviflora</i>			X	X	
<i>Conostylis aurea</i>			X	X	X
<i>Conostylis candicans</i> subsp. <i>candicans</i>			X	X	X
<i>Conostylis festucacea</i> subsp. <i>festucacea</i>			X	X	X
<i>Conostylis juncea</i>			X	X	X
<i>Conostylis pauciflora</i> subsp. <i>euryrhipis</i>		<b>P4</b>		X	
<i>Conostylis setigera</i> subsp. <i>setigera</i>					X
<i>Conostylis teretifolia</i> subsp. <i>teretifolia</i>			X	X	X
<i>Haemodorum spicatum</i>			X	X	X
<i>Haemodorum venosum</i>					X
<i>Macropidia fuliginosa</i>	Black Kangaroo Paw				X
<i>Phlebocarya ciliata</i>			X	X	X
<i>Phlebocarya filifolia</i>			X	X	X
<i>Tribonanthes monantha</i>				X	
<i>Tribonanthes variabilis</i>				X	X
<i>Tribonanthes violacea</i>					X
<b>HEMEROCALLIDACEAE</b>					
<i>Arnocrinum preissii</i>			X	X	X
<i>Corynotheca micrantha</i> var. <i>micrantha</i>			X	X	X
<i>Dianella revoluta</i> var. <i>divaricata</i>				X	X
<i>Hensmania stoniella</i>		<b>P3</b>	X	X	X
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>					X
<i>Tricoryne elatior</i>			X		
<i>Tricoryne</i> sp. <i>Eneabba</i> (E.A. Griffin 1200)				X	X
<b>IRIDACEAE</b>					
* <i>Gladiolus caryophyllaceus</i>				X	X
* <i>Moraea flaccida</i>	One-leaf Cape Tulip				X
<i>Patersonia occidentalis</i> var. <i>latifolia</i>					X
<i>Patersonia occidentalis</i> var. <i>occidentalis</i>			X	X	X
* <i>Romulea rosea</i>				X	X
<b>JUNCACEAE</b>					
* <i>Juncus acutus</i> subsp. <i>acutus</i>				X	X
* <i>Juncus bufonius</i>			X	X	X
* <i>Juncus capitatus</i>			X	X	X
<i>Juncus kraussii</i> subsp. <i>australiensis</i>				X	
<i>Juncus pallidus</i>					X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
JUNCAGINACEAE					
	Cycnogeton lineare			X	X
	Triglochin calcitrapa			X	
	Triglochin centrocarpa		X	X	
	Triglochin minutissima		X	X	X
	Triglochin mucronata		X	X	X
	Triglochin nana		X	X	X
	Triglochin sp. A Flora of Australia (G.J. Keighery 2477)		X	X	X
LAMIACEAE					
	Hemiandra glabra				X
	Hemiandra linearis		X		
	Hemiandra pungens				X
	Hemiphora bartlingii		X	X	
	Hemiphora uncinata			X	
LAURACEAE					
	Cassytha flava		X	X	
	Cassytha glabella			X	X
	Cassytha racemosa forma racemosa		X	X	X
LENTIBULARIACEAE					
	Utricularia multifida		X	X	X
	Utricularia tenella		X		
LOGANIACEAE					
	Phyllangium divergens		X	X	X
LORANTHACEAE					
	Nuytsia floribunda		X	X	X
LYTHRACEAE					
	* Lythrum hyssopifolia		X	X	X
MALVACEAE					
	Lawrencia squamata		X	X	X
MENYANTHACEAE					
	Liparophyllum capitatum		X	X	
MOLLUGINACEAE					
	Macarthuria apetala		X	X	X
	Macarthuria australis		X	X	

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
MONTIACEAE (formerly Calandrinia spp. incl under PORTULACACEAE)					
Calandrinia corrigioloides			X	X	X
Calandrinia granulifera			X	X	X
Calandrinia liniflora			X	X	X
Calandrinia sp. Kenwick (G.J. Keighery 10905)			X	X	X
MYRTACEAE					
Babingtonia urbana	(formerly Baeckea sp. Perth Region)	<b>P3</b>		X	X
Beaufortia elegans					X
Beaufortia squarrosa				X	X
Calothamnus hirsutus				X	
Calothamnus quadrifidus subsp. quadrifidus			X	X	X
Calothamnus sanguineus				X	X
Calytrix aurea				X	X
Calytrix depressa			X	X	
Calytrix flavescens			X	X	
Calytrix aff. flavescens				X	X
Calytrix fraseri			X	X	
Calytrix leschenaultii			X	X	
Calytrix sapphirina			X	X	
Chamelaucium uncinatum					X
Darwinia pinifolia					X
Eremaea asterocarpa subsp. asterocarpa			X	X	X
Eremaea beaufortoides var. beaufortoides			X	X	
Eremaea pauciflora var. lonchophylla			X	X	X
Eucalyptus decipiens					X
Eucalyptus rudis subsp. rudis	(Flooded Gum)		X	X	X
Eucalyptus todtiana	(Prickly Bark)		X	X	X
Hypocalymma angustifolium subsp. Swan Coastal Plain (G.J.				X	X
Hypocalymma xanthopetalum			X	X	X
Kunzea glabrescens				X	
*Leptospermum laevigatum					X
Leptospermum spinescens			X	X	X
Melaleuca acutifolia	(formerly M. lateriflora subsp. acutifolia)		X	X	X
Melaleuca brevifolia			X	X	X
Melaleuca clavifolia			X	X	X
Melaleuca concreta			X	X	X
Melaleuca cuticularis	(Saltwater paperbark)		X	X	
Melaleuca leuropoma			X		
Melaleuca preissiana	(Moonah)		X		X
Melaleuca raphiophylla	(Swamp paperbark)		X	X	X
Melaleuca seriata			X	X	X
Melaleuca systema			X	X	X
Melaleuca teretifolia			X	X	X
Melaleuca viminea subsp. viminea	(Mohan)		X	X	X
Pericalymma ellipticum					X
Pileanthus filifolius					X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
MYRTACEAE (cont)					
Regelia ciliata			X	X	X
Scholtzia involucrata				X	X
Scholtzia sp. Wongonderrah (M.E. & M.R. Trudgen MET 12000)				X	X
Scholtzia umbellifera			X	X	X
Verticordia blepharophylla				X	
Verticordia lindleyi x V. blepharophylla				X	
Verticordia densiflora var. densiflora			X	X	X
Verticordia pennigera					X
Verticordia plumosa var. brachyphylla			X	X	X
OLACACEAE					
?Olx benthamiana				X	
ONAGRACEAE					
Epilobium hirtigerum			X		
ORCHIDACEAE					
Caladenia discoidea				X	X
Caladenia flava subsp. flava	(Cowslip orchid)		X	X	X
Caladenia latifolia					X
Caladenia longicauda subsp. albella				X	X
Caladenia longicauda subsp. borealis			X	X	X
Caladenia nobilis			X		
Caladenia varians				X	
Diuris laxiflora				X	
Diuris sp. (D. corymbosa complex)				X	
Elythranthera brunonis	(Purple enamel orchid)			X	X
Eriochilus dilatatus subsp. multiflorus	(White Bunny orchid)		X	X	X
Leptoceras menziesii					X
Microtis alboviridis			X		
Microtis media subsp. media			X		X
Prasophyllum gracile			X	X	
Pterostylis dilatata				X	
Pterostylis orbiculata				X	X
Pterostylis aff. vittata			X		
Pyrorchis nigricans			X	X	X
Thelymitra benthamiana				X	
Thelymitra campanulata				X	X
Thelymitra crinita				X	
OROBANCHACEAE					
* Orobanche minor			X		
* Parentucellia latifolia			X	X	
PHILYDRACEAE					
Philydrella pygmaea subsp. pygmaea			X	X	

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY	
			2011	2019/21 MESA
PHYLLANTHACEAE				
Phyllanthus calycinus			X	X
Poranthera ericoides				X
Poranthera microphylla			X	X
PITTOSPORACEAE				
Billardiera variifolia				X
PLANTAGINACEAE				
*Plantago coronopus subsp. commutata				X
POACEAE				
* Aira cupaniana			X	X
* Aira praecox				X
Amphipogon turbinatus			X	X
Aristida sp.				X
Austrostipa compressa			X	X
Austrostipa elegantissima			X	X
Austrostipa flavescens				X
Austrostipa macalpinei				X
* Avellinia michelii				X
* Briza maxima	(Blowfly grass)		X	X
* Briza minor			X	X
* Bromus diandrus	(Great Brome)		X	X
* Bromus hordeaceus			X	X
* Cynodon dactylon				X
* Ehrharta brevifolia var. cuspidate			X	X
* Ehrharta calycina	(Perennial veldt grass)		X	X
* Ehrharta longiflora	(Annual veldt grass)		X	X
* Eragrostis curvula				X
Eragrostis dielsii				X
* Hainardia cylindrical				X
* Holcus setiger				X
* Hordeum hystrix	(formerly H. geniculatum; Mediterranean barley grass)		X	X
Lachnagrostis filiformis				X
* Lolium multiflorum	(Italian ryegrass)			X
* Lolium perenne x rigidum	(Ryegrass)		X	X
* Lolium temulentum			X	
Microlaena stipoides var. stipoides			X	X
Neurachne alopecuroidea			X	X
* Parapholis incurva				X
* Pentameris airoides subsp. airoides				X
* Polypogon monspeliensis			X	X
* Poa annua				X
Poa drummondiana				X
*Polypogon monspeliensis				X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
POACEAE (cont)					
Polypogon tenellus				X	
Rytidosperma occidentale	(formerly Austrodanthonia occidentalis)			X	X
Sporobolus virginicus	(Marine couch)		X	X	X
* Vulpia bromoides			X	X	X
* Vulpia fasciculata				X	X
* Vulpia myuros forma myuros	(Silver grass)		X	X	X
POLYGALACEAE					
Comesperma calymega					X
Comesperma integerrimum			X	X	X
Comesperma virgatum				X	
Comesperma volubile			X		
POLYGONACEAE					
Muehlenbeckia adpressa					X
* Rumex crispus				X	X
PRIMULACEAE					
* Lysimachia arvensis	(formerly Anagallis arvensis)		X	X	X
Samolus junceus			X	X	X
Samolus repens var. paucifolius			X	X	X
PROTEACEAE					
Adenanthos cygnorum subsp. cygnorum			X	X	X
Banksia attenuata			X	X	X
Banksia dallanneyi subsp. dallanneyi var. dallanneyi	(formerly Dryandra lindleyana var. lindleyana)		X	X	X
Banksia ilicifolia			X	X	
Bankisa littoralis					X
Banksia menziesii			X	X	X
Banksia nivea subsp. nivea	(formerly Dryandra nivea subsp. nivea)		X	X	X
Banksia platycarpa	(formerly Dryandra platycarpa)		X	X	X
Banksia prionotes			X	X	X
Banksia sessilis var. cygnorum					X
Banksia telmatiaea	(Swamp Fox Banksia)		X	X	X
Conospermum crassinervium			X	X	X
Conospermum scaposum		<b>P3</b>	X	X	X
Conospermum stoechadis subsp. stoechadis			X	X	X
Conospermum triplinervium			X	X	X
Grevillea sp. Cooljarloo (B.J. Keighery 28 B)	(formerly G. thelemanniana subsp. Cooljarloo (B.J. Keighery 28 B))	<b>P1</b>	X	X	X
Hakea candolleana				X	X
Hakea costata			X	X	X
Hakea incrassata					X
Hakea obliqua subsp. parviflora			X	X	X
Hakea prostrata			X	X	X
Hakea psilorrhyncha					X



FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
PROTEACEAE (cont)					
Hakea ruscifolia			X	X	
Hakea trifurcata	(Two-leaf Hakea)		X	X	X
Hakea varia	(Variable-leaved Hakea)		X	X	X
Isopogon linearis					X
Isopogon panduratus subsp. palustris	(formerly I. sp. Badgingarra)	<b>P3</b>	X	X	X
Persoonia comata			X	X	
Petrophile brevifolia					X
Petrophile drummondii			X	X	X
Petrophile linearis			X	X	X
Petrophile macrostachya			X	X	X
Petrophile megalostegia			X		
Petrophile rigida			X	X	X
Petrophile seminuda			X	X	X
Stirlingia latifolia			X	X	X
Stirlingia simplex			X	X	X
Synaphea spinulosa subsp. spinulosa					X
RANUNCULACEAE					
Clematis linearifolia			X	X	X
Ranunculus pumilio					X
* Ranunculus trilobus					X
RESTIONACEAE					
Alexgeorgea nitens			X	X	X
Alexgeorgea subterranean					X
Chaetanthus aristatus			X	X	X
Chordifex reseminans		<b>P2</b>		X	X
Chordifex sinuosus			X	X	X
Desmocladius asper				X	X
Desmocladius flexuosus					X
Desmocladius lateriflorus				X	X
Desmocladius nodatus		<b>P3</b>		X	X
Desmocladius virgatus				X	X
Hypolaena exsulca			X	X	X
Hypolaena pubescens				X	
Lepidobolus preissianus			X	X	X
Leptocarpus canus	(formerly Meeboldina cana)		X	X	
Leptocarpus coangustatus	(formerly Meeboldina coangustata)		X	X	X
Lepyrodia curvescens		<b>P2</b>		X	
RHAMNACEAE					
Cryptandra arbutiflora					X
Cryptandra scoparia					X
Spyridium globulosum				X	X

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
RHAMNACEAE (cont)					
Stenanthemum notiale subsp. chamelum				X	X
Stenanthemum pomaderroides					X
RUBIACEAE					
* Galium murale				X	X
Opercularia vaginata			X	X	X
RUPPIACEAE					
Ruppia polycarpa				X	
RUTACEAE					
Cyanothamnus ramosus subsp. anethifolius	(formerly Boronia ramosa subsp. anethifolia)		X	X	X
Philotheca spicata			X	X	X
SANTALACEAE					
Exocarpos sparteus			X	X	X
Leptomeria empetriformis				X	
Leptomeria pauciflora				X	X
SCROPHULARIACEAE					
* Dischisma arenarium			X	X	X
* Dischisma capitatum					X
Myoporum insulare			X	X	
* Zaluzianskya divaricata					X
SOLANACEAE					
Anthocercis ilicifolia subsp. ilicifolia					X
* Solanum aviculare				X	
* Solanum nigrum					X
Solanum symonii					X
STYLIDIACEAE					
Levenhookia preissii		P1	X	X	
Levenhookia stipitata			X	X	X
Stylidium aceratum		P3	X	X	
Stylidium adpressum				X	
Stylidium araeophyllum			X	X	X
Stylidium bicolor			X	X	X
Stylidium calcaratum				X	X
Stylidium crossocephalum			X	X	X
Stylidium cygnorum			X	X	X
Stylidium dichotomum			X	X	
Stylidium diuroides subsp. diuroides				X	X
Stylidium ecorne				X	
Stylidium hymenocraspedum		P3		X	

FAMILY/TAXA	COMMON NAMES	CONS STATUS	SURVEY		
			2011	2019/21 MESA	2021/22 EISA
STYLIDIACEAE (cont)					
Stylidium kalbarriense				X	X
Stylidium longitubum		P4	X	X	X
Stylidium mimeticum			X		
Stylidium obtusatum				X	X
Stylidium purpureum				X	X
Stylidium repens				X	X
Stylidium rigidulum			X	X	X
Stylidium schoenoides				X	
THYMELAEACEAE					
Pimelea imbricata var. piligera			X	X	
Pimelea sulphurea			X	X	X
TYPHACEAE					
Typha ?orientalis	(Bulrush)		X	X	X
VIOLACEAE					
Hybanthus calycinus			X	X	X
XANTHORRHOEACEAE					
Xanthorrhoea preissii	(Grass tree)		X	X	X

## APPENDIX B. Records of flora of conservation significance from the Autumn 2022 surveys

Name	Status	Easting	Northing	Count	Site
Acacia benthamii	Priority 2	331867	6615321	1	
Chordifex reseminans	Priority 2	330264	6616747	11	
Chordifex reseminans	Priority 2	330279	6616749	4	
Chordifex reseminans	Priority 2	330296	6616749	2	
Chordifex reseminans	Priority 2	330485	6616748	4	
Chordifex reseminans	Priority 2	332101	6612907	4	
Chordifex reseminans	Priority 2	332103	6612901	2	
Chordifex reseminans	Priority 2	332104	6612896	2	
Chordifex reseminans	Priority 2	332102	6612881	1	
Chordifex reseminans	Priority 2	332104	6612865	1	
Chordifex reseminans	Priority 2	332122	6612843	1	
Conospermum scaposum	Priority 3	329810	6619749	7	
Conospermum scaposum	Priority 3	329821	6619694	1	
Conospermum scaposum	Priority 3	329829	6619656	6	
Conospermum scaposum	Priority 3	329849	6619545	2	
Conospermum scaposum	Priority 3	329855	6619514	30	
Conospermum scaposum	Priority 3	329856	6619506	20	
Conospermum scaposum	Priority 3	329858	6619501	10	
Conospermum scaposum	Priority 3	329858	6619495	10	
Conospermum scaposum	Priority 3	329882	6619368	5	
Conospermum scaposum	Priority 3	329887	6619365	1	
Conospermum scaposum	Priority 3	329889	6619336	5	
Conospermum scaposum	Priority 3	329887	6619334	20	
Conospermum scaposum	Priority 3	329879	6619322	2	
Conospermum scaposum	Priority 3	329881	6619324	12	
Conospermum scaposum	Priority 3	329891	6619320	5	
Conospermum scaposum	Priority 3	329889	6619322	5	
Conospermum scaposum	Priority 3	329900	6619269	1	
Conospermum scaposum	Priority 3	329899	6619276	5	
Conospermum scaposum	Priority 3	329901	6619261	2	
Conospermum scaposum	Priority 3	329903	6619253	20	
Conospermum scaposum	Priority 3	329911	6619220	12	
Conospermum scaposum	Priority 3	329909	6619222	5	
Isopogon panduratus subsp. palustris	Priority 3	329849	6619545	2	
Isopogon panduratus subsp. palustris	Priority 3	330234	6616751	1	
Isopogon panduratus subsp. palustris	Priority 3	330246	6616747	1	
Isopogon panduratus subsp. palustris	Priority 3	330277	6616745	1	
Isopogon panduratus subsp. palustris	Priority 3	330290	6616749	7	
Isopogon panduratus subsp. palustris	Priority 3	332104	6612911	2	
Isopogon panduratus subsp. palustris	Priority 3	332103	6612901	1	
Isopogon panduratus subsp. palustris	Priority 3	332104	6612896	1	
Isopogon panduratus subsp. palustris	Priority 3	332102	6612881	5	
Isopogon panduratus subsp. palustris	Priority 3	332104	6612865	2	
Isopogon panduratus subsp. palustris	Priority 3	332110	6612863	1	
Isopogon panduratus subsp. palustris	Priority 3	332111	6612873	7	
Isopogon panduratus subsp. palustris	Priority 3	332112	6612889	1	
Isopogon panduratus subsp. palustris	Priority 3	332098	6613299	1	AIQ01

## APPENDIX C. Updated quadrat descriptions and species lists for the Atlas EISA

(including Autumn 2022 Phase 2 survey records entered at end of species lists)

**Atlas 2020 Update**  
**Described by JM**  
**Season E**  
**Location** Bore corridor, Wongonderrah Sth  
**MGA Zone** 50 332098 mE 6613299 mN 115.248622 E -30.600987 S  
**Habitat** Dampland  
**Soil** Grey sand  
**Rock Type** n/a  
**Vegetation** Banksia telmatiaea, Regelia ciliata closed mid-shrubland over Chordifex reseminans, Lyginia imberbis Sparse Rushland  
**Veg Condition** Excellent (near firebreak and fenceline; weeds in adjacent areas)  
**Fire Age** More than 10 years since fire

### SPECIES LIST:

Name	Cover	C Class	Height	Specimen	Notes
Acacia pulchella var. glaberrima	+		60-120	AIQ01-13	Acacia pulchella
Banksia dallanneyi subsp. dallanneyi var. dallanneyi	+		20	AIQ01-23	Banksia dal dal
Banksia platycarpa	+		50	AIQ01-21	Banksia ?platycarpa
Banksia telmatiaea	40		110		Banksia telmatiaea
Caladenia flava subsp. flava	+		20		Caladenia flava subsp. flava
Cassytha glabella	+			AIQ01-03	Cassytha rac glab
Chordifex reseminans	0.5		40	AIQ01-01	Chordifx reseminans; Also AIQ01-20
Conospermum stoechadis subsp. stoechadis	+		60	AIQ01-08	Conospermum stoechadis
Conostylis festucacea subsp. festucacea	+		20	AIQ01-02	Conostylis ?festucaceae
Corynotheca micrantha var. micrantha	+		40	AIQ01-11	
Darwinia pinifolia	+		10	AIQ01-07	Darwinia
Daviesia decurrens subsp. decurrens	+		45	AIQ01-18	Daviesia ?decurrens
Desmocladius flexuosus	+		30	AIQ01-09	Desmo virg
Hibbertia hypericoides	+		25		Hibbertia hypericoides
Isolepis marginata	+		5	AIQ01-19	Isolepis
Jacksonia hakeoides	+		60	AIQ01-22	Jacksonia ?hakeoides
Leucopogon sp. Coujinup (M.A. Burgman 1085)	+		15	AIQ01-17	Styphelia ?cono
Leucopogon sprengelioides	+		30	AIQ01-04	Leucopogon ?spreng
Lyginia imberbis	0.25		80	AIQ01-10	Lyginia ?imberbis
Melaleuca seriata	+		30	AIQ01-16	Melaleuca seriata
Petrophile brevifolia	+		15	AIQ01-14	Petrophile white flwr, terete leaf
Pterostylis orbiculata	+		20	AIQ01-15	orchid greenhood Ptero
Regelia ciliata	60		90		Regelia ciliata
Stirlingia simplex	+		15		Stir sim
Stylidium repens	+		10		Styl repens
Trachymene pilosa	+		5		Trachy pil
Beaufortia squarrosa	+		140		
Isopogon panduratus subsp. panduratus	+		80		n=1
Lepidosperma calcicola	+		25		

**Atlas 2020 Update**  
**Described by JM**  
**Season E**  
**Location** Borefield Corridor Wongonderrah South  
**MGA Zone** 50 332103 mE 6613448 mN 115.248698 E -30.599644 S  
**Habitat** Broad, seasonally wet depression on plain; dampland.  
**Soil** Grey loamy sand; scattered pieces of laterite nearby on firebreak  
**Rock Type** n/a  
**Vegetation** Regelia ciliata, Banksia telmatiaea Mid-shrubland over Gahnia trifida Tall Sparse Sedgeland.  
**Veg Condition** Very Good  
**Fire Age** More than 10 years since last fire  
**Notes** Grevillea sp. Cooljarloo: 2 individuals in quadrat

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Acacia pulchella var. glaberrima	+		70	(=AIQ01-13 Aca pul	
Acacia spathulifolia	+		80	AIQ02-15	Acacia spathulifolia
Aira cupaniana	+		10		Aira cupaniana
Banksia telmatiaea	15		140		
Brachyscome iberidifolia	+		10	AIQ02-09	Brachyscome white
Caladenia longicauda	+		30	AIQ02-08b	Caladenia longicauda
Centrolepis aristata	+		10		Centrolepis aristata
Cerastium glomeratum	+		10	AIQ02-02	Cerastium glomeratum caryo weed
Crassula colorata var. acuminata	+		1	AIQ02-11	Crassula colorata
Crassula decumbens var. decumbens	+		5	AIQ02-04	?Crassula
Darwinia pinifolia	+		20	(=AIQ01-07	Darwinia
Drosera menziesii	+		10	AIQ02-14	Drosera
Drosera ramellosa	+		2	AIQ02-13	Drosera sterile green
Gahnia trifida	0.5		110		
Grevillea sp. Cooljarloo (B.J. Keighery 28 B)	1		60		n=2
Heliophila pusilla	+		10	AIQ02-01	Heliophila pusilla
Hydrocotyle diantha	+		1	AIQ02-06	Hydrocotyle
Hypochaeris glabra	+		1		
Isolepis marginata	+		6		isolepis marg; also AIQ02-10
Lysimachia arvensis	+		5		
Machaerina juncea	+		40	AIQ02-03	Baumea ?juncea
Moraea flaccida	+		60		Cape Tulip single leaf; also AIQ02-07
Pterostylis orbiculata	+		25	(=AIQ01-15	Pterostylis sang
Regelia ciliata	35		120	AIQ02-08	Regelia ?ciliata
Romulea rosea	+		10		Rom ros orange flower
Schoenus plumosus	+		5	AIQ02-12	Schoenus ?plumosus (annual)
Senecio pinnatifolius var. latilobus	+		20	AIQ02-05	Senecio ?glossanthus
Thysanotus manglesianus	+				
Trachymene pilosa	+		1		
Ursinia anthemoides subsp. anthemoides	+		10		
Eriochilus dilatatus	+		25	AIQ02R-02	Bunny Orchid
Juncus capitatus	+		10	AIQ02R-01	
Tricoryne elatior	+		60	AIQ02R-03	

**Atlas 2020 Update**

Described by JM	Date	Site	AIQ03	Type	Q	Uniformity
Season E	20/09/2021					10 m x 10 m
Location	Borefield Corridor	Wongonderrah South				
MGA Zone	50	332087 mE	6614275 mN	115.248665 E		-30.592183 S
Habitat	Dune crest					
Soil	Grey-brown sand					
Rock Type	n/a					
Vegetation	Banksia attenuata, Banksia menziesii Low Woodland over Adenanthos cygnorum subsp. cygnorum Tall Sparse Shrubland over Eremaea pauciflora var. lonchophylla, Jacksonia nutans Mid Open Shrubland over Hibbertia hypericoides, Hypocalymma xanthopetalum, Acacia pulchella var. glaberrima Low Open Shrubland over Dasypogon obliquifolius, Blancoa canescens Low Sparse Forbland.					

**Veg Condition** Pristine

**Fire Age** More than 10 years since last fire

**Notes**

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Acacia pulchella var. glaberrima	1		30	(=AIQ01-13 Aca pul	glab
Acacia sessilis	+		70		
Adenanthos cygnorum subsp. cygnorum	2.5		300		
Alexgeorgea nitens	+		10		
Amphipogon turbinatus	+		15		
Anigozanthos humilis subsp. humilis	+		25		
Arnocrinum preissii	+		40		
Austrostipa compressa	+		5	AIQ03-15	Austrostipa compressa
Banksia attenuata	22		380		
Banksia menziesii	4		280		

Blancoa canescens	4	20		
Brachyscome bellidioides	+	15	AIQ03-07	Brachyscome white
Caladenia flava subsp. flava	+	20		
Calandrinia corrigioloides	+	1	AIQ03-06	Calandrinia
Cassytha glabella	+		(=AIQ01-03)	Cassytha
Centrolepis drummondiana	+	5		
Chaetospora curvifolia	+	30		
Conostephium pendulum	+	60		
Conostylis candicans subsp. candicans	+	40		
Conostylis teretifolia subsp. teretifolia	+	15		
Crassula colorata var. acuminata	+	2	AIQ03-08	Crassula colorata
Cryptandra arbutiflora	+	20	AIQ03-12	Cryptandra
Dasyogon obliquifolius	4	30		
Daviesia triflora	+	12		
Desmocladus virgatus	+	20	AIQ03-03	Desmocladus ?virgatus
Drosera closterostigma	+	1	AIQ03-09	Drosera pygmaea
Drosera drummondii	+	20	AIQ03-14	Drosera climber
Drosera humilis	+	10		
Drosera magna	+	1		
Eremaea asterocarpa subsp. asterocarpa	1	40		
Eremaea pauciflora var. lonchophylla	11	70-110		
Gompholobium tomentosum	+	40		
Hibbertia hypericoides	21	60		
Hypocalymma xanthopetalum	1	30		
Isolepis marginata	+	4		
Jacksonia nutans	2.5	140		
Lepidosperma calcicola	+	40	AIQ03-04	Lepidosp flat, rhizomes
Lomandra hermaphrodita	+	20		
Lyginia barbata	+	60		
Macrozamia fraseri	+	30		Mac fra juvenile
Mesomelaena pseudostygia	+	30		
Opercularia vaginata	+	20		
Patersonia occidentalis var. occidentalis	+	50		
Petrophile linearis	+	50		
Petrophile macrostachya	+	80		
Phyllangium divergens	+	10	AIQ03-05	Phyllangium
Pimelea sulphurea	+	40	AIQ03-13	Pimelia
Pyrorchis nigricans	+	1		
Rytidosperma occidentale	+	20		
Schoenus clandestinus	+	1		
Scholtzia involucreta	+	40		
Scholtzia umbellifera	+	80	AIQ03-11	?Calytrix
Stylidium araeophyllum	+	10		
Stylidium cygnorum	+	10	AIQ03-10	Stylidium stilts
Styphelia conostephioides	+	20		
Styphelia xerophylla	+	20	AIQ03-02	Astroloma ?sera(now Styphelia)
Thysanotus manglesianus	+			
Trachymene pilosa	+	5		
Xanthosia huegelii	+	12		
Tricoryne elatior	+	40	AIQ03R01	Tricoryne

#### Atlas 2020 Update

Described by BRM

Season E

Location Nambung Road

MGA Zone 50 327508 mE

Habitat Depression on plain

Soil Grey-brown sand

Rock Type n/a

Vegetation Banksia telmatiaea, Hakea obliqua subsp. parviflora, Callitris pyramidalis Heathland over Regelia ciliata Sparse Heathland over Conostylis festucacea subsp. festucacea Sparse Forbland

Veg Condition Excellent

Fire Age More than 10 years since fire.

Notes elevation = 33 m; Regelia ciliata: about 3% of cover was dead, not included in %cover

Site AIQ04  
Date 23/09/2021 Type Q  
Uniformity 10 m x 10 m

6621414 mN 115.202114 E -30.527142 S

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Acacia pulchella var. glaberrima	+		60	AIQ04-01	Aca ?pul
Acacia rostellifera	+		60		
Banksia telmatiaea	40		110		
Caladenia flava subsp. flava	+		15	AIQ04-03	Caladenia flava
Callitris pyramidalis	1.5		190		
Conospermum stoechadis subsp. stoechadis	+		45		
Conostylis festucacea subsp. festucacea	1		20	AIQ04-07	Conostylis near
Crassula colorata	+		5		
Gompholobium tomentosum	+		50		
Hakea obliqua subsp. parviflora	8		140		
Hibbertia aurea	+		20	AIQ04-10	Hibbertia
Hibbertia hypericoides	+		20		
Hypochaeris glabra	+		1		
Isolepis marginata	+		5	AIQ04-04	Isolepis ?marginata
Lomandra hermaphrodita	+		15		
Lomandra suaveolens	+		10	AIQ04-08	Lomandra ?suaveolens
Lyginia imberbis	+		10	AIQ04-05	Restio bit curly, ?Lygimb
Melaleuca seriata	+		80	AIQ04-09	Mela ?seriata, pink
Opercularia vaginata	+		10		
Petrophile brevifolia	+		40	AIQ04-02	Petrophile
Regelia ciliata	2		90		
Stirlingia latifolia	+		40		
Stylidium repens	+		10		
Trachymene pilosa	+		10		
Tricostularia neesii	+		20	AIQ04-06	Mesomelaena ?graciliceps
Ursinia anthemoides subsp. anthemoides	+		10		

**Atlas 2020 Update**
**Described by** BRM

**Season** E

**Location** Nambung Road - north side

**MGA Zone** 50 327128 mE 6621412 mN 115.198154 E -30.527106 S

**Habitat** Crest of low dune

**Soil** Yellow-brown sand

**Rock Type** n/a

**Vegetation** Banksia prionotes Low Woodland over Acacia spathulifolia Sparse Tall Shrubland over Scholtzia umbellifera, Eremaea pauciflora var. lonchophylla Open Shrubland over Hibbertia hypericoides Sparse Low Shrubland over Mesomelaena pseudostygia, Lepidobolus preissianus Sparse Sedgeland/Rushland.

**Veg Condition** Excellent to Pristine

**Fire Age** More than 10 years since last fire

**Notes** Elevation: 42 m

NB: numerous dead Banksia prionotes trees.

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Acacia pulchella var. glaberrima	+		130		
Acacia spathulifolia	5		280		
Ammothryon grandiflorum	+		70	AIQ05-11	Schoenus grandiflorus
Amphipogon turbinatus	+		35		
Anigozanthos humilis subsp. humilis	+		30		
Austrostipa compressa	+		20		?Aus com, just forming inflorescence
Banksia prionotes	11		400		
Brachyscome bellidioides	+		15	AIQ05-18	Brachyscome
Burchardia congesta	+		45		
Centrolepis drummondiana	+		3	AIQ05-10	Centrolepis ?drummond
Conostylis candicans subsp. candicans	+		30		
Crassula colorata var. colorata	+		3	AIQ05-04	Cassula colorata
Daucus glochidiatus	+		2	AIQ05-09	herb
Desmocladus asper	+		12	AIQ05-03	Desmocladus
Drosera drummondii	+		150	AIQ05-08	Drosera climber
Drosera humilis	+		15		
Eremaea pauciflora var. lonchophylla	8		120 (180)	AIQ05-06	Eremaea ?beaufort



Gompholobium tomentosum	+	30		
Gyrostemon subnudus	+	40	AIQ05-16	Gyrostemon
Hakea prostrata	+	45		
Hibbertia huegelii	+	30		
Hibbertia hypericoides	7	70		
Hypocalymma xanthopetalum	+	30		
Hypochaeris glabra	+	3+		
Isolepis marginata	+	5		
Isotropis cuneifolia subsp. cuneifolia	+	5		
Lepidobolus preissianus	0.5	50	AIQ05-02	Lepidobolus ?preissii
Melaleuca sp.	6	120	AIQ05-05	Melaleuca ?systema
Mesomelaena pseudostygia	1.5	60		
Opercularia vaginata	+	25		
Petrophile macrostachya	+	30		
Poa drummondiana	+	50	AIQ05-17	grass
Podotheca gnaphalioides	+	20		
Scaevola canescens	+	10		
Schoenus clandestinus	+	4		
Scholtzia umbellifera	12	160	AIQ05-07	Scholtzia umbellifera
Styphelia planifolia	+	45	AIQ05-12	Epacrid grey
Thysanotus manglesianus	+	50	AIQ05-15	Thysanotus mang
Thysanotus patersonii	+	20	AIQ05-01	Thysanotus climber
Trachymene pilosa	+	3		
Tricoryne sp. Eneabba (E.A. Griffin 1200)	+	25-40	AIQ05-14	Tricoryne or Amocrinum
Chordifex sinuosus	+	30	AIQ05R-01	Chordi sin
Melaleuca clavifolia	6	105	AIQ05R-02	Melaleuca not flowering
Stenanthemum notiale subsp. chamelum	+	25	AIQ05R-03	Stenanthemum

#### Atlas 2020 Update

<b>Described by</b>	JM	<b>Date</b>	22/09/2021	<b>Site</b>	AIQ06	<b>Type</b>	Q	<b>Uniformity</b>	10 m x 10 m
<b>Season</b>	E								
<b>Location</b>	Nambung Road / Farm								
<b>MGA Zone</b>	50	326804	<b>mE</b>	6622641	<b>mN</b>	115.194984	<b>E</b>	-30.515974	<b>S</b>
<b>Habitat</b>	Wetland								
<b>Soil</b>	Grey sand at surface								
<b>Rock Type</b>	n/a								
<b>Vegetation</b>	Melaleuca raphiophylla Tall Open Shrubland over Verticordia densiflora Shrubland over Schoenus laevigatus, (Lepidosperma longitundinale) Open Sedgeland.								
<b>Veg Condition</b>	Excellent								
<b>Fire Age</b>	??Less than 2 years since fire								
<b>Notes</b>	Quadrat displaced to East, outside corridor, due to wetland being inundated; area used by cattle; dead annual grass covering 8%								

#### SPECIES LIST:

Name	Cover	C Class	Height	Specimen	Notes
Acacia saligna	0.1		110		
Lepidosperma longitundinale	+		30		
Melaleuca raphiophylla	25		210		
Melaleuca teretifolia	+		30	AIQ06-02	Mela ?rhap juvenile
Schoenus laevigatus	14		35	AIQ06-03	sedge?
Verticordia densiflora	40		130	AIQ06-04	Verticordia white;
Arcotheca calendula	+		10		juvenile
Dysphania plantaginella	+		3	AIQ06R-02	Dysphania
Dysphania pumilio	+		25	AIQ06R-03	?Chenopodium
Eragrostis dielsii	+		3	(=AIQ07R-01)	Eragrostis
Ehrharta longiflora	1.5		30		juvenile
Heliotropium curassavicum	+		4	AIQ06R-01	herb
Hypochaeris glabra	+		2		
Lupinus cosentinii	+		20		
Solanum nigrum	+		30		juvenile
Sonchus oleraceus	+		10		juvenile
Ursinia anthemoides subsp. anthemoides	+		10		juvenile

**Atlas 2020 Update**  
**Described by** BRM  
**Season** E  
**Location** Nambung Road / Farm  
**MGA Zone** 50 326860 mE 6622892 mN 115.195609 E -30.513718 S  
**Habitat** Seasonally inundated depression  
**Soil** Grey sand (light gery on surface, dark grey below 5 cm depth)  
**Rock Type** n/a  
**Vegetation** Melaleuca raphiophylla Open Shrubland over Verticordia densiflora Low open Shrubland over Schoenus laevigatus Isolated Sedges and Conostylis festucacea subsp. festucacea Low Open Forbland.  
**Veg Condition** Very Good (no weeds; Conostylis tussocks dying suggests a change in conditions)  
**Fire Age** More than 5 years since last fire  
**Notes** Ground is bare, no dead annual grass, as in AIQ06; short log in quadrat; evidence of cattle trampling

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Conostylis festucacea subsp. festucacea	6		30	AIQ07-02	Conostylis (affected by waterlogging?)
Melaleuca raphiophylla	4		170		
Schoenus laevigatus	0.1		35	AIQ07-01	sedge, long rhizome shiny base
Verticordia densiflora	8		90	(=AIQ06-04)	Verticordia
Arcotheca calendula	+		3		juvenile
Eragrostis dielsii	+		5	AIQ07R-01	Eragrostis
Podotheca gnaphalioides	+		3		juvenile
Senecio pinnatifolius var. latilobus	+		25	AIQ07R-03	?Senecio
Sonchus oleraceus	+		15		juvenile
Ursinia anthemoides	+		10		juvenile

**Atlas 2020 Update**  
**Described by** BRM  
**Season** E  
**Location** Nambung Road  
**MGA Zone** 50 327269 mE 6621417 mN 115.199624 E -30.527081 S  
**Habitat** Depression on plain - dampland (spring-fed, surface water present)  
**Soil** Dark grey sand (wet)  
**Rock Type** n/a  
**Vegetation** Melaleuca raphiophylla Tall Shrubland over Melaleuca teretifolia Open Shrubland over Schoenus laevigatus Sedgeland.  
**Veg Condition** Excellent  
**Fire Age** More than 10 years since last fire  
**Notes** Several dead shrubs, possibly due to changing hydrological conditions/salinity or other water factor; no cattle pads.

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Conostylis festucacea subsp. festucacea	+		15	(=AIBopp58)	dead Conostylis tussock
Lechenaultia floribunda	+		60	AIQ08-06	Lech florib
Lepidosperma longitudinale	+		30		
Melaleuca raphiophylla	35		350	AIQ08-03	Mela raph
Melaleuca teretifolia	5		150	AIQ08-04	Mela terete
Schoenus laevigatus	65		90	AIQ08-02	?Schoenus
Solanum symonii	0.5		160	AIQ08-01	shrub (odd) Solanum ?symonii
Calandrinia sp.	+		2	AIQ08R-03	Calandrinia
Comesperma integerrimum	+		40		
Dysphania plantaginella	+		5	AIQ08R-08	Dysphania
Dysphania pumilio	+		3	AIQ08R-04	?Chenopod prostrate
Hypochaeris glabra	+		3		
Kennedia prostrata	+		5	AIQ08R-06	?Kennedia prostrata juv.
Polycarpon tetraphyllum	+		4	AIQ08R-02	green herb
Pseudognaphalium luteoalbum	+		25	AIQ08R-11	daisy luteo

Sonchus asper	+	30	AIQ08R-05 spiny green leaf
Sonchus oleraceus	+	25	AIQ08R-01 Sonchus
Ursinia anthemoides	+	5	

**Atlas 2020 Update**  
**Described by** BRM  
**Season** E  
**Location** Nambung Road (East - West Corridor)  
**MGA Zone** 50 327603 mE 6621419 mN 115.203104 E -30.527111 S  
**Habitat** Low flat on plain  
**Soil** Yellow sand  
**Rock Type** n/a  
**Vegetation** Allocasuarina lehmanniana subsp. lehmanniana Tall Open Shrubland over Banksia telmatiaea, Hakea obliqua subsp. parviflora, Regelia ciliata Closed Heathland over Opercularia vaginata, Trachymene pilosa Sparse Forbland.  
**Veg Condition** Excellent  
**Fire Age** More than 10 years since last fire (long unburnt)  
**Notes** Numerous dead Regelia ciliata, not included in %cover

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Allocasuarina lehmanniana subsp. lehmanniana	25		350	AIQ09-01	Allocasuarina lehmann
Arctotheca calendula	+		10		
Austrostipa macalpinei	+		50	AIQ09-11	tall grass
Banksia telmatiaea	75		180-220		
Caladenia flava subsp. flava	+		10		
Caladenia longicauda	+		25	AIQ09-05	Caladenia ?longicauda
Cassytha flava	+		40	AIQ09-07	Cassytha hairy
Conostylis festucacea subsp. festucacea	+		15	AIQ09-12	Conostylis ?festucacea
Daucus glochidiatus	+		10	AIQ09-03	Daucus glochidiatus
Dianella revoluta var. divaricata	+		30		
Drosera menziesii	+		10	AIQ09-10	Drosera
Ehrharta longiflora	+		10	AIQ09-08	Erharta long
Hakea obliqua subsp. parviflora	1		230	AIQ09-02	Hakea obliqua
Hypochaeris glabra	+		20		
Isopogon panduratus subsp. palustris	+		70		Iso pan, n=1
Melaleuca seriata	+		70	AIQ09-06	Melaleuca ?seriata
Opercularia vaginata	3		30		
Podotheca gnaphalioides	+		10	AIQ09-09	Podotheca
Regelia ciliata	5		180		
Rytidosperma occidentale	+		30	AIQ09-04	shiny leaf grass
Sonchus oleraceus	+		5		
Trachymene pilosa	0.5		15		

**Atlas 2020 Update**  
**Described by** BRM  
**Season** E  
**Location** Wongonderrah / Munbinea upgrade  
**MGA Zone** 50 330085 mE 6616789 mN 115.228205 E -30.569225 S  
**Habitat** Low-lying flat on plain  
**Soil** Grey sand  
**Rock Type** n/a  
**Vegetation** Callitris pyramidalis Shrubland over Banksia telmatiaea, Melaleuca seriata, Melaleuca brevifolia, Grevillea sp. Cooljarloo (B.J. Keighery 28 B), Banksia nivea subsp. nivea Low Open Shrubland over Conostylis festucacea subsp. festucacea Isolated Herbs.  
**Veg Condition** Excellent  
**Fire Age** More than 10 years since last fire

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Aira cupaniana	+		10	AIQ10-11	Aira
Avellinia festucoides	+		15	AIQ10-29	Vulpia brom (formerly A. michelii)
Banksia nivea subsp. nivea	5		90		
Banksia telmatiaea	7		90		
Briza minor	+		20		
Caladenia longicauda	+		20	AIQ10-07	Caladenia long
Calandrinia granulifera	+		1	AIQ10-32	Calandrinia
Callitris pyramidalis	50		120		
Cassytha sp.	+		40	AIQ10-27	Cassytha
Centrolepis aristata	+		3		
Centrolepis polygyna	+		2	AIQ10-19	also AIQ10-24
Chaetanthus aristatus	+		25	AIQ10-12	Chaeto
Chordifex reseminans	+		20	AIQ10-10	curly restio Chordifex
Conostylis festucea subsp. festucea	0.5		20	AIQ10-01	Conostylis; also AIQ10-36
Cotula coronopifolia	+		5	AIQ10-23	button; AIQ10-28
Crassula colorata var. colorata	+		10	AIQ10-30	Crassula colorata
Crassula decumbens var. decumbens	+		5	AIQ10-03	Crassula
Desmocladus lateriflorus	+		10	AIQ10-17	?Desmocladus lat
Desmocladus nodatus	+		10	AIQ10-09	Desmocladus nod, n=1
Drosera menziesii	+		10	AIQ10-06	Drosera
Drosera minutiflora	+		1	AIQ10-33	Drosera pygmy
Grevillea sp. Cooljarloo (B.J. Keighery 28 B)	3		20		n = 16
Haemodorum spicatum	+			AIQ10-22	?Haemodorum
Heliophila pusilla	+		15		
Hypochaeris glabra	+		2		
Isolepis marginata	+		2	AIQ10-05	Isolepis marginata; also AIQ10-26
Juncus bufonius	+		15	AIQ10-21	Junbuf?
Juncus capitatus	+		5	AIQ10-25	Juncus ?capitatus
Lyginia imberbis	+		20		
Lysimachia arvensis	+		10		
Melaleuca brevifolia	3		90		
Melaleuca seriata	5		80	AIQ10-02	Mela seriata
Phyllangium divergens	+		10	AIQ10-31	Phyllangium
Romulea rosea	+		10		
Thysanotus manglesianus	+		50		Thysanotus, 3 long 3 short, climbing
Trachymene pilosa	+		5		
Triglochin minutissima	+		5	AIQ10-13	fruiting herb
Triglochin nana	+		5	AIQ10-35	Triglochin ?centrocarpa
Ursinia anthemoides subsp. anthemoides	+		15		
Wahlenbergia capensis	+		15	AIQ10-16	?Wahlenbergia capensis, sterile
Chaetanthus aristatus	+		30	AIQ10R-01	
Machaerina juncea	+		40	AIQ10R-03	Baumea

**Atlas 2020 Update**

Described by	BRM	Date	27/09/2021	Site	AIQ11	Type	Q	Uniformity	10 m x 10 m
<b>Season</b>	E								
<b>Location</b>	Nambung River Crossing Road Upgrade								
<b>MGA Zone</b>	50	329754	mE	6619984	mN	115.225280	E	-30.540361	S
<b>Habitat</b>	Drainage flats (Nambung River)								
<b>Soil</b>	Grey sandy clay								
<b>Rock Type</b>	n/a								
<b>Vegetation</b>	Melaleuca viminea, Melaleuca concreta, Acacia saligna Tall Shrubland to Tall Closed Shrubland over Tecticornia indica subsp. bidens Low Sparse Shrubland over Gahnia trifida, Leptocarpus coangustatus Sparse Sedgeland/Rushland with Samolus repens var. paucifolius, *Cotula coronopifolia, *Crassula natans var. minor Open Forbland.								
<b>Veg Condition</b>	Very Good								
<b>Fire Age</b>	More than 10 years since last fire								
<b>Notes</b>	Quadrat located between fire break (east side) and road (west side)								

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Acacia saligna	6		350		
Callitris pyramidalis	+		160		
Cotula coronopifolia	1.5		10-20		
Crassula natans var. minor	0.25		3	AIQ11-06	herb
Cynogeton lineare	+		20	AIQ11-08	?Triglochin lineare
Ehrharta longiflora	+		60		
Eryngium pinnatifidum subsp. Palustre (G. J. Keighery 13459)	+		40	AIQ11-10	Eryngium pinn pinn
Gahnia trifida	0.5		150		
Isolepis cernua var. setiformis	+		10	AIQ11-07	Isolepis cernua
Leptocarpus coangustatus	+		70	AIQ11-13	sedge terete; also AIQ11-15
Melaleuca concreta	9		260	AIQ11-01	Melaleuca ?concreta
Melaleuca viminea subsp. viminea	60		250	AIQ11-04	Melaleuca viminea
Rumex crispus	+		10	AIQ11-11	Rumex
Samolus junceus	+		70	AIQ11-14	Samolus
Samolus repens var. paucifolius	0.5		50	AIQ11-02	Samolus; also AIQ11-12
Sporobolus virginicus	+		30		
Tecticornia indica subsp. bidens	8		50	AIQ11-05	Tecticornia indica
Triglochin sp. A Flora of Australia (G.J. Keighery 2477)	+		15	AIQ11-09	Triglochin?calcitrapa
Atriplex prostrata	+		40	AIQ11R-01	Atriplex straggler
Melaleuca brevifolia	3		190		
Sonchus oleraceus	+		5		

**Atlas 2020 Update**

Described by	BRM	Date	27/09/2021	Site	AIQ12	Type	Q	Uniformity	10 m x 10 m
Season	E								
Location	Nambung River Crossing								
MGA Zone	50	329694	mE	6620075	mN	115.224669	E	-30.539532	S
Habitat	Broad, shallow flow area (Nambung River)								
Soil	Grey clayey sand								
Rock Type	n/a								
Vegetation	Tecticornia indica subsp. bidens, Lawrenzia squamata Low Open Shrubland over *Crassula natans var. minor, *Cotula coronopifolia Open Forbland.								
Veg Condition	Very Good								
Fire Age	More than 10 years since last fire								

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Angianthus micropodioides	+		2	AIQ12-17	Angianthus
Atriplex prostrata	+		10	AIQ12-05	Also AIQ12-14
Bromus hordeaceus	+		25	AIQ12-09B	grass bluish
Cotula coronopifolia	4		10	AIQ12-03	Cotula coronop
Crassula natans var. minor	11		2	AIQ12-07	Crassula low flat
Hydrocotyle diantha	+		1	AIQ12-12	Hydrocotyle
Isolepis cernua var. setiformis	+		5	AIQ12-06	Isolepis
Juncus bufonius	+		5	AIQ12-10	?Juncus small
Lawrenzia squamata	0.5		30		
Lysimachia arvensis	+		1		
Salicornia blackiana	+		20	AIQ12-18	Tecticornia stiff upright
Samolus repens var. paucifolius	+		30	AIQ12-02	Samolus
Spergularia brevifolia	+		2	AIQ12-11	low herb
Tecticornia indica subsp. bidens	15		40	AIQ12-01	Tecticornia ?indica (coarse)
Triglochin minutissima	+		3	AIQ12-13	?Triglochin small; also AIQ12-16
Triglochin sp. A Flora of Australia (G.J. Keighery 2477)	+		10	AIQ12-04	Triglochin ?sp,A; also AIQ12-08

**Atlas 2020 Update** **Site** AIQ13  
**Described by** BRM **Date** 28/09/2021 **Type** Q 10 m x 10 m  
**Season** E **Uniformity**  
**Location** Fredrick Smith Creek, Nambung Station (western end of corridor)  
**MGA Zone** 50 329578 mE 6615272 mN 115.222671 E -30.582836 S  
**Habitat** Gentle, west-facing floodbanks of creek (?seepage area)  
**Soil** Grey sand  
**Rock Type** n/a  
**Vegetation** Melaleuca raphiophylla, Melaleuca viminea subsp. viminea Tall Shrubland to Tall Closed Shrubland over Gahnia trifida Tall Open Sedgeland over Machaerina juncea, Schoenus nitens Sparse Low Sedgeland with Centella asiatica Open Forbland and Sporobolus virginicus Open Grassland.  
**Veg Condition** Very Good. General area in Good to Very Good condition.  
**Fire Age** More than 10 years since last fire  
**Notes** NW corner left pegged, remaining 3 pegs removed.

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Cassytha racemosa forma racemosa	+		230	AIQ13-01	Cassytha
Centella asiatica	15		20	AIQ13-02	round leaf
Ehrharta longiflora	1		30		
Gahnia trifida	25		160		
Holcus setiger	+		20	AIQ13-13	?Phalaris grass
Isolepis cernua var. cernua	+		2	AIQ13-07	Isolepis ?cernua
Lobelia anceps	+		60	AIQ13-15	narrow long dentate
Lolium perenne x rigidum	+		30	AIQ13-14	Lolium
Lysimachia arvensis	+		10		
Lythrum hyssopifolia	+		15	AIQ13-06	Lythrum
Machaerina juncea	5		40	AIQ13-03	Baumea. Also AIQ13-10; glauc sedge
Melaleuca raphiophylla	80		550		
Melaleuca viminea subsp. viminea	8		450		
Microtis media subsp. media	+		40	AIQ13-05	?Microtis
Romulea rosea	+		20		
Samolus junceus	+		45	AIQ13-11	Samolus
Schoenus nitens	0.5		20	AIQ13-12	fine terete sedge
Sonchus asper	+		30	AIQ13-16	Sonchus asper
Sporobolus virginicus	6		10		?Cynodon dactylon
Centella asiatica	+		15	AIQ13R-01	Centella
Muehlenbeckia adpressa	+		60-350		Muehlenbeckia
Sporobolus virginicus	+		15	AIQ13R-02	?couch

**Atlas 2020 Update** **Site** AIQ14  
**Described by** JM **Date** 28/09/2021 **Type** Q 10 m x 10 m  
**Season** E **Uniformity**  
**Location** Fredrick Smith Creek, Nambung Station (western end of corridor)  
**MGA Zone** 50 329538 mE 6615245 mN 115.222250 E -30.583074 S  
**Habitat** Floodbank of Fredrick Smith Creek  
**Soil** Grey sandy clay  
**Rock Type** n/a  
**Vegetation** Melaleuca brevifolia Open Shrubland over Gahnia trifida Isolated Tall Sedges over Machaerina juncea Low Sedgeland with \*Romulea rosea, Samolus repens var. paucifolius, Triglochin mucronata, Triglochin sp. A Flora of Australia (G.J. Keighery 2477) Forbland and Sporobolus virginicus Sparse Grassland.  
**Veg Condition** Very Good. General area in Very Good to Degraded condition (in paddock; significant weeds present; open to grazing; vegetation appears to be modified over time).;  
**Fire Age** More than 10 years since last fire  
**Notes** 3 pegs in place; sheep grazing in unfenced lupin paddock adjacent.

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Angianthus preissianus	+		5	AIQ14-23	tiny herb
Apium prostratum subsp. prostratum var. filiforme	+		5	AIQ14-21	?Hom hom
Briza minor	+		15		
Bromus hordeaceus	+		20	AIQ14-29	Bromus / Hordeum
Calandrinia sp. Kenwick (G.J. Keighery 10905)	+		5	AIQ14-11	Calandrinia
Centella asiatica	+		30	(=AIQ13-02	round leaf herb
Chaetanthes aristatus	+		30	AIQ14-18	rush
Comesperma integerrimum	+		45	AIQ14-05	straggler
Cotula coronopifolia	+		15		
Cotula cotuloides	+		15	AIQ14-03	Cotula ?cotuloides
Cycnogeton lineare	+		25	AIQ14-20	Cycnogeton lineare
Eragrostis dielsii	+		10	AIQ14-16	?Eragrostis
Eryngium pinnatifidum subsp. Palustre (G. J. Keighery 13459)	+		20	AIQ14-10	Eryngium
Gahnia trifida	0.5		170		
Goodenia trinervis	+		15	AIQ14-06	Brght grn, linear dentate spdg arm
Hypochaeris glabra	+		30		
Isolepis cernua var. setiformis	+		10	AIQ14-12	Isolepis
Juncus bufonius	+		15	AIQ14-28	Juncus ?bufonius
Lawrenzia squamata	+		30		
Lolium perenne x rigidum	+		45	AIQ14-02	Lolium; also AIQ14-08
Lysimachia arvensis	+		2		
Machaerina juncea	40		40	(=AIQ13-10	glaucous segde
Melaleuca brevifolia	25		150		mel bre flowering
Microtis media subsp. media	+		30	(=AIQ13-05?	Mor fla / Mic?; also AIQ14-13
Plantago coronopus subsp. commutata	+		15	AIQ14-24	?Plumbago/Plantago
Romulea rosea	12		15		
Samolus repens var. paucifolius	0.3		30	(=AIQ11-02	Samolus
Schoenus plumosus	+		15	AIQ14-04	Schoenus annual red stem
Sonchus oleraceus	+		20		
Spergularia brevifolia	+		15	AIQ14-22	herb pendulous head
Sporobolus virginicus	1		5	AIQ14-17	?Cyn dact; Also AIQ14-25
Tecticornia indica subsp. bidens	+		40	AIQ14-26	Tecticornia
Triglochin minutissima	+		10	AIQ14-15	Triglochin minutissima
Triglochin mucronata	0.3		10	AIQ14-01	Trigloch ?muc; also AIQ14-14
Triglochin sp. A Flora of Australia (G.J. Keighery 2477)	0.2		10	AIQ14-07	Triglochin narrow
Utricularia multifida	+		15	AIQ14-09	Utricularia
Dittrichia graveolens	+		35	AIQ14R-01	?Conyza
Hordeum sp.	+		15	AIQ14R-02	Hordeum
Lupinus cosentinii	+		20		Lupin
Polypogon monspeliensis	+		30	AIQ14R-05	??Holcus

**Atlas 2020 Update**

Described by	BRM	Date	29/09/2021	Site	AIQ15	Type	Q	Uniformity	10 m x 10 m
Season	E								
Location	Cockram's farm								
MGA Zone	50	331776 mE	6621123 mN			115.246534 E			-30.530373 S
Habitat	Very low rise on broad plain (adjacent to wetland)								
Soil	Grey sand								
Rock Type	n/a								
Vegetation	Regelia ciliata Shrubland over Jacksonia nutans Low Sparse Shrubs over Schoenus subfascicularis Sparse Sedgeland and Dasypogon obliquifolius, Conostylis festucacea subsp. festucacea,, *Hypochaeris glabra Sparse Forbland with *Ehrharta calycina Sparse Grassland.								

**Veg Condition** Good to Degraded

**Fire Age** More than 10 years since last fire

**Notes:** site not revisited in Phase 2 survey because of difficult access across very wet paddocks

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Anigozanthos humilis subsp. humilis	+		25		
Banksia dallanneyi subsp. dallanneyi var. dallanneyi	+		15	AIQ15-11	Banksia dal dal
Caladenia flava subsp. flava	+		15		
Calandrinia corrigioloides	+		1	AIQ15-10	Calandrinia
Chordifex sinuosus	+		25	AIQ15-08	Desmocladus /

Conostylis festucacea subsp. festucacea	1	40	AIQ15-03	Con ?aculeata; also AIQ15-07
Crassula colorata var. colorata	+	3	AIQ15-13	Crassula colorata
Cyperus tenellus	+	5	(=AIMB06-02)	Isolepis
Dasypogon obliquifolius	0.5	40		
Dischisma arenarium	+	5		
Ehrharta calycina	1.5	120		Ehrca is grazed; AIQ15-05
Hibbertia sericosepala	+	40		
Hypochaeris glabra	0.3	20		
Isolepis marginata	+	3		
Jacksonia hakeoides	+	30		
Jacksonia nutans	3	70		
Lolium perenne x rigidum	+	30	AIQ15-12	Lolium
Lomandra caespitosa	+	45		
Lotus subbiflorus	+	10		
Machaerina juncea	+	40	AIQ15-04	?Baumea
Patersonia occidentalis var. occidentalis	+	20		grazed
Podotheca gnaphalioides	+	15		
Regelia ciliata	40	140	AIQ15-01	Regelia ciliata
Schoenus subfascicularis	0.5	40	AIQ15-02	Schoenus; Also AIQ15-06
Trachymene pilosa	+	5		
Ursinia anthemoides subsp. anthemoides	+	30		
Vulpia myuros forma myuros	+	25	AIQ15-09	Vulpia brom
Wahlenbergia capensis	+	40		

### Atlas 2020 Update

Described by KM

Season E

Location Bibby Rd; just east of Bibby Rd - Munbinea Road intersection

MGA Zone 50 331913 mE 6629632 mN 115.249337 E -30.453644 S

Habitat Plain

Soil Grey clayey sand with localised clay pockets / pans

Rock Type n/a

Vegetation Allocasuarina humilis, Adenanthos cygnorum subsp. cygnorum, Daviesia incrassata subsp. incrassata, Melaleuca seriata Open Shrubland over Hibbertia hypericoides, Hakea incrassata, Xanthorrhoea preissii, Stirlingia latifolia, Conospermum stoechadis subsp. stoechadis, Daviesia nudiflora subsp. nudiflora, Daviesia triflora Low Open Shrubland over Mesomelaena pseudostygia, Chordifex sinuosus, Mesomelaena tetragona Open Sedgeland/Rushland with Neurachne alopecuroidea Low Sparse Grassland.

Veg Condition Very Good to Excellent (weeds 1%)

Fire Age More than 10 years since last fire

Notes Elevation: 63 m

### SPECIES LIST:

Name	Cover	C Class	Height	Specimen	Notes
Acacia stenoptera	1		30		
Adenanthos cygnorum subsp. cygnorum	2		190		
Allocasuarina humilis	7		130		
Anigozanthos humilis subsp. humilis	0.5		30		
Aphelia cyperoides	0.1		3	AIQ16-23	Aphelia cyperoides
Arctotheca calendula	0.1		15		
Austrostipa macalpinei	0.1		20		also AIQ16-21
Burchardia congesta	0.1		40		
Caladenia flava subsp. flava	0.1		10		Calfla grazed, no
Calectasia narragara	0.1		40	AIQ16-04	Calectasia ?narragara
Calothamnus sanguineus	0.1		40	AIQ16-20	Calothamnus sang / hirs
Cassytha flava	0.1		cr	AIQ16-18	Cassytha hairy
Cassytha glabella	0.2		cr	AIQ16-17	Cassytha glabrous
Caustis dioica	0.3		40	AIQ16-11	Caustis dioica
Centrolepis aristata	0.1		5	AIQ16-30	Centrolepis
Centrolepis drummondiana	0.1		3		
Chordifex sinuosus	3		20	AIQ16-14	Cordifex sinuosus
Conospermum stoechadis subsp. stoechadis	1		90	AIQ16-06	Conospermum stoe
Conostylis setigera subsp. setigera	0.1		15		
Crassula closiana	0.1		2	AIQ16-16	Crassula red
Crassula colorata var. acuminata	0.3		3	AIQ16-22	Crassula colorata
Crassula decumbens var. decumbens	0.1		3	AIQ16-31	Crassula 3



<i>Daviesia incrassata</i> subsp. <i>incrassata</i>	4	120	AIQ16-05	<i>Daviesia</i> ? <i>decurrens</i>
<i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>	1	40		
<i>Daviesia triflora</i>	1	70	AIQ16-03	<i>Daviesia triflora</i>
<i>Drosera glanduligera</i>	0.1	3	AIQ16-15	<i>Drosera</i> ? <i>glanduligera</i>
<i>Drosera magna</i>	1	1		
<i>Ehrharta longiflora</i>	0.1	35		
<i>Elythranthera brunonis</i>	0.1	20		
<i>Eremaea pauciflora</i> var. <i>lonchophylla</i>	0.1	20	AIQ16-35	<i>Eremaea</i> ? <i>beaufort</i>
<i>Haemodorum venosum</i>	0.2	70	AIQ16-24	<i>Haemodorum</i> ? <i>loratum</i> 10 plants
<i>Hakea costata</i>	0.1	120		
<i>Hakea incrassata</i>	3	90		
<i>Hibbertia hypericoides</i>	3	70		
<i>Hypocalymma xanthopetalum</i>	0.1	35	AIQ16-34	<i>Hypocalymma xantho</i> type
<i>Hypochaeris glabra</i>	0.2	20		
<i>Isolepis marginata</i>	0.1	3		
<i>Isopogon linearis</i>	0.1	70	AIQ16-03B	<i>Isopogon</i>
<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	0.1	10		
<i>Jacksonia hakeoides</i>	1	130	AIQ16-01	<i>Jacksonia</i>
<i>Johnsonia pubescens</i> subsp. <i>pubescens</i>	0.1	20	AIQ16-19	<i>Johnsonia fine</i>
<i>Lepidosperma calcicola</i>	0.1	50	AIQ16-37	<i>Lepidosperma flat narrow</i>
<i>Leucopogon</i> sp. <i>Coujinup</i> (M.A. Burgman 1085)	1	35	AIQ16-07	<i>Styphelia fine</i>
<i>Levenhookia stipitata</i>	0.1	3		
<i>Lolium perenne</i> x <i>rigidum</i>	0.1	30		
<i>Lomandra hermaphrodita</i>	0.1	25		
<i>Lomandra preissii</i>	0.1	40	AIQ16-36	<i>Lomandra preissii</i>
<i>Macropidia fuliginosa</i>	0.1	10	AIQ16-33	<i>Macropidia fuliginosa</i>
<i>Melaleuca seriata</i>	1	130	AIQ16-02	<i>Melaleuca pink</i>
<i>Mesomelaena pseudostygia</i>	7	20		
<i>Mesomelaena tetragona</i>	2	50		
<i>Neurachne alopecuroidea</i>	3	50		
<i>Opercularia vaginata</i>	0.1	30		
<i>Ornithopus compressus</i>	0.1	10	AIQ16-27	Pea
<i>Podotheca gnaphalioides</i>	0.1	15		
<i>Pterochaeta paniculata</i>	0.1	10		
<i>Scaevola repens</i> var. <i>repens</i>	0.3	10	AIQ16-10	<i>Scaevola repens</i>
<i>Schoenus andrewsii</i>	0.1	20	AIQ16-28	<i>Schoenus</i>
<i>Schoenus clandestinus</i>	0.1	10	AIQ16-25	<i>Schoenus clandestinus</i>
<i>Schoenus elegans</i>	0.1	10	AIQ16-12	<i>Juncus</i>
<i>Silene gallica</i>	0.1	20		
<i>Sonchus oleraceus</i>	0.1	10		
<i>Stenanthemum pomaderroides</i>	0.1	20	AIQ16-26	Rhamnaceae
<i>Stirlingia latifolia</i>	2	40		
<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>	0.1	40	AIQ16-09	<i>Synaphea spinul</i>
<i>Thysanotus sparteus</i>	0.5	120	AIQ16-29	<i>Thysanotus sparteus</i>
<i>Trachymene pilosa</i>	0.2	10		
<i>Tricoryne</i> sp. <i>Eneabba</i> (E.A. Griffin 1200)	0.1	40	AIQ16-13	<i>Tricoryne giant</i>
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	0.1	20		
<i>Verticordia densiflora</i>	0.1	40	AIQ16-08	? <i>Babbingtonia</i>
<i>Vulpia bromoides</i>	0.1	30	AIQ16-32	<i>Vulpia</i>
<i>Wahlenbergia capensis</i>	0.1	30		
<i>Xanthorrhoea preissii</i>	2	90		
<i>Xanthosia huegelii</i>	0.1	15		
<i>Daviesia angulata</i>	3	120	AIQ16R-03	<i>Daviesia</i>
<i>Stylidium repens</i>	0.1	20	AIQ16R-02	<i>Stylid</i>
<i>Jacksonia nutans</i>	0.1	40	AIQ16R-06	<i>Jacksonia</i>

**Atlas 2020 Update**  
**Described by** BRM  
**Season** E  
**Location** Bibby Rd - Munbinea Rd intgersection  
**MGA Zone** 50 332145 mE 6629639 mN 115.251753 E -30.453613 S  
**Habitat** Plain  
**Soil** Grey sand.  
**Rock Type** n/a  
**Vegetation** Banksia menziesii, Banksia attenuata Low Woodland over Tall Sparse Shrubland over Melaleuca clavifolia, Eremaea pauciflora var. lonchophylla, Jacksonia furcellata Open Shrubland over Hibbertia hypericoides, Stirlingia latifolia Low Open Shrubland over Mesomelaena pseudostygia, Lepidosperma calcicola, Lyginia barbata, Alexgeorgea subterranea Sparse Sedgeland/Rushland with Dasypogon obliquifolius, Laxmannia ramosa subsp. ramosa Open Forbland.  
**Veg Condition** Excellent (lots of species, intact structure, but some weeds).  
**Fire Age** More than 10 years since last fire  
**Notes** Euc todtiana scattered in general area.

**SPECIES LIST:**

Name	Cover	C Class	Height	Specimen	Notes
Adenanthos cygnorum subsp. cygnorum	9		280		
Alexgeorgea nitens	+		20		
Alexgeorgea subterranea	0.5		20	AIQ17-10	rush
Amphipogon turbinatus	+		60		
Anigozanthos humilis subsp. humilis	+		40		
Austrostipa compressa	+		20		
Banksia attenuata	6		500		
Banksia menziesii	23		450		
Blancoa canescens	+		30		
Bossiaea eriocarpa	+		40	AIQ17-23	Bossiaea eriocarpa
Briza maxima	+		30		
Caladenia flava subsp. flava	+		15		
Chaetospora curvifolia	+		30		
Conostephium pendulum	+		30	AIQ17-27	Conostephium pendulum
Conostylis aurea	+		40	AIQ17-03	Conostylis festucacea
Conostylis juncea	+		40		Also ; also AIQ16-21
Conostylis teretifolia subsp. teretifolia	+		15	AIQ17-15	Conostylis teretifolia
Crassula closiana	+		3	AIQ17-06	Crassula
Dampiera linearis	+		30		
Dasypogon obliquifolius	3		60	AIQ17-28	Dasypogon obliquifolius
Desmocladus flexuosus	+		45	AIQ17-13	Desmocladus
Drosera drummondii	+		40	AIQ17-19	Drosera climber
Drosera magna	+		1		
Drosera porrecta	+		30	AIQ17-16	Drosera ?porrecta
Ehrharta calycina	+		90		
Eremaea asterocarpa subsp. asterocarpa	+		40		
Eremaea pauciflora var. lonchophylla	4		50-120	AIQ17-08	Eremaea pauciflora
Gompholobium tomentosum	+		80		
Haemodorum spicatum	+		70		
Hibbertia hypericoides	4		70		
Hibbertia sericosepala	+		30		
Hypochaeris glabra	+		1		
Isotropis cuneifolia subsp. cuneifolia	+		25		
Jacksonia furcellata	1		120-170	AIQ17-22	Jacksonia
Laxmannia ramosa subsp. ramosa	8		20	AIQ17-07	Laxmannia
Lepidosperma calcicola	1		60	AIQ17-09	Lepidosperma flat
Leucopogon sp. Coujinup (M.A. Burgman 1085)	+		60	AIQ17-20	Leucopogon
Lomandra caespitosa	+		30	AIQ17-14	Lomandra caespitosa
Lomandra preissii	+		45		
Lyginia barbata	0.5		50	AIQ17-02	Lyginia barbata
Melaleuca clavifolia	7		130-260	AIQ17-18	Melaleuca
Mesomelaena pseudostygia	5		60		
Opercularia vaginata	+		20		
Petrophile linearis	+		50		
Pileanthus filifolius	+		50	AIQ17-24	?Pileanthus filifolius
Podotheca angustifolia	+		6		
Pterostylis orbiculata	+		25	AIQ17-12	Pterostylis ?sang
Scaevola repens var. repens	+		20		
Stirlingia latifolia	1		60	AIQ17-26	

<i>Stylidium crossocephalum</i>	+	15	AIQ17-21	?Stylidium
<i>Stylidium rigidulum</i>	+	20	AIQ17-04	Stylidium
<i>Thysanotus thyrsoides</i>	+	50	AIQ17-11	Thysanotus
<i>Thysanotus triandrus</i>	+	30	AIQ17-01	Thysanotus
<i>Trachymene pilosa</i>	+	10		
<i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	+	30		
<i>Vulpia bromoides</i>	+	20	AIQ17-05	Vulpia
<i>Wahlenbergia capensis</i>	+	30		
<i>Acacia cyclops</i>	+	40		
<i>Conospermum crassinervium</i>	+	45	AIQ17R-03	Conospermum cras
<i>Lepidosperma squamatum</i>	+	60	AIQ17R-01	
<i>Lomandra hermaphrodita</i>	+	30	AIQ17-21	?Stylidium
<i>Patersonia occidentalis</i>	+	40		

## APPENDIX D. Releve descriptions for the Atlas Additional EISA corridors

Note: these site descriptions do not have a complete species list, but list representative species under 'Associated species'.

### RELEVES

**Atlas Infrastructure - Site** AIRB06

**Described by** BM **Date** 21/05/2022

**Location:** Wongonderrah Rd verge

**Photo:** BM109:7-10

**AMG: Zone**50J 330431mE, 6616751mN (GDA94)

**Habitat:** Plain

**Soil:** Yellow brown sand

**Rock Type:** n/a

**Vegetation:** (*Eucalyptus decipiens* Sparse Trees) over *Acacia rostellifera* Tall Shrubland to Tall Closed Shrubland over *Allocasuarina humilis* Sparse Shrubland over *Desmocladius asper* Low Closed Rushland and *Lepidosperma longitudinale*, *Mesomelaena pseudostygia* Open Sedgeland.

**Assoc. species:** *Banksia telmatiaea*, *Acacia cyclops*, *Olearia axillaris*, *Calothamnus quadrifidus* subsp. *quadrifidus*, *Podotheca gnaphalioides*, *Cassytha glabella*, *Clematis linearifolia*, *Xanthorrhoea preissii*, *Hakea prostrata*, *Tricoryne elatior*, *Cyathochaeta avenacea*.

**Veg Condition** (BF): Excellent

**Note:** This vegetation was located around the margins of a *Melaleuca* sp. Low Woodland dampland.

**Fire Age:** More than 10 years since last fire

## **APPENDIX E. Vegetation condition scale and descriptions: South-West and Interzone (EPA, 2016)**

**Pristine :** Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.

**Excellent :** Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.

**Very Good :** Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

**Good :** Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds, partial clearing, dieback and grazing.

**Degraded :** Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.

**Completely Degraded :** The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.