

Our ref: EEL18167.002

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Date: 05 April 2019

Department of Water and Environment Regulation
Locked Bag 33 Cloisters Square
PERTH WA 6850

Dear Sir / Madam,

Clearing permit application: Waddi Wind Farm

Please find attached a purpose permit clearing application to clear approximately 1.358 hectares (ha) of native vegetation. The native vegetation proposed to be cleared is primarily situated within an overhead transmission line alignment extending west of the Waddi Wind Farm to facilitate the connection of the wind farm to the Cataby substation. Minor clearing works are also required to create internal access tracks within the wind farm site.

Background

The Waddi Wind Farm is located approximately 15 kilometres (km) north-west of the Dandaragan town site, 150 km north of Perth, in the Shire of Dandaragan (Figure A). The Waddi Wind Farm is comprised of the following general infrastructure elements:

- Wind turbines
- Overhead transmission lines
- Access tracks
- On-site substation.

EPA determination and public advice

Environmental Statement, Proposed Dandaragan Wind Farms, Central Midlands, Western Australia (Wind Prospect 2011)¹ was prepared for the Dandaragan Wind Farms proposal and submitted to the Shire of Dandaragan (SoD) to accompany an application for planning approval on 16 February 2011. The Dandaragan Wind Farms proposal included the Waddi Wind Farm and the Yandin Wind Farm (which is not part of this clearing application).

¹ Wind Prospect. 2011. Environmental Statement, Proposed Dandaragan Wind Farms, Central Midlands, Western Australia. Christies Beach: South Australia.

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In consideration of the environmental issues outlined in Wind Prospect (2011), the Dandaragan Wind Farms proposal was referred to the Environmental Protection Authority (EPA) for assessment under Section 38 of the *Environmental Protection Act 1986* (EP Act).

The EPA considered that the likely environmental impacts of the Dandaragan Wind Farms proposal were not so significant as to warrant formal environmental assessment and subsequently determined that the proposal should be treated as “Not Assessed – Public Advice Given” (Appendix B). The public advice issued by the Office of the EPA in October 2011, identified that the key environmental factors requiring management are limited to clearing of vegetation, fauna and noise (Appendix B).

Shire of Dandaragan planning approval

Council of SoD subsequently resolved to grant conditional planning approval for the Dandaragan Wind Farms proposal for a period of four years on 11 January 2011 (Appendix C). Council of SoD has extended the time frame of the planning approval for the Waddi Wind Farm to 10 January 2020, prior to which the development of the site must be “substantially commenced” (Appendix C).

The Waddi Wind Farm was previously proposed to be connected to the electricity network via 19 km route to the south of the wind farm. An 8 km overhead transmission line connection extending west of the Waddi Wind Farm to the Cataby substation was approved by the Shire in September 2016, along with additional access tracks and a revised onsite substation location (Appendix C).

A recent proposal to increase the tip height of the wind turbines, hub heights and wind monitoring towers within the Waddi Wind Farm was approved by the SoD in March 2019 (Appendix C).

Previous clearing permit (CPS 4608/02)

Clearing permit (CPS 4608/2) was previously granted for the Waddi Wind Farm. However, CPS 4608/2 included the previous 19 km southern grid connection within its approved clearing area and the duration of CPS 4608/2 elapsed on 13 February 2017 (Appendix D). CPS 4608/2 also included areas within the Waddi Wind Farm site that have subsequently been avoided through further detailed planning.

Requirement for clearing permit

Most of the wind farm site has been historically cleared for agricultural purposes, however minor clearing works are required to facilitate the installation of an overhead transmission line alignment to the west of the wind farm site and internal access tracks.

To comply with the provisions of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, and Condition 19 of the SoD’s planning approval, a clearing permit is required to facilitate the removal of native vegetation. As CPS 4608/02 is no longer active it cannot be amended, subsequently a new clearing permit application is required to ensure the project’s State-based clearing requirements are appropriately regulated.

The following flora and vegetation investigations, undertaken for Waddi Wind Farm and the overhead transmission line alignment, have informed the preparation of this clearing permit application:

- Targeted Level 1 Vegetation and Flora Assessment (Outback Ecology 2010; Appendix E)
 - Undertook a two visit Level 1 flora and vegetation survey between November and January for the wind farm site
 - Included a targeted declared rare and priority flora search within the wind farm site
 - Methods adopted were consistent with state guidance
- Waddi Wind Farm, Spring Flora and Vegetation Survey and Black Cockatoo Habitat Survey (Outback Ecology 2014; Appendix F)

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- Undertook a Level 1 spring flora and vegetation survey for the overhead transmission line alignment extending west of the wind farm to the Cataby substation and alternative substation options
- Included a targeted spring flora search to fulfil Condition 8 of CPS 4608/2 within the wind farm site (Appendix D) and within the overhead transmission line alignment
- Undertook a black cockatoo habitat assessment within the overhead transmission line alignment
- Methods adopted were consistent with State and Commonwealth guidance
- Waddi Wind Farm Project – Cataby, Supplementary Flora, Vegetation and Fauna Survey (Ecologia Environment 2016; Appendix G)
 - Undertook a spring flora and vegetation survey for additional portions of the overhead transmission line alignment not covered by Outback Ecology (2014)
 - Included a targeted spring flora search within the additional areas of the overhead transmission line alignment
 - Undertook a black cockatoo habitat assessment within the additional areas of the overhead transmission line alignment
 - Methods adopted were consistent with state and Commonwealth guidance.

Figure B shows the spatial extent of the flora and vegetation surveys undertaken for the Waddi Wind Farm, with the exception of the targeted spring flora search within the wind farm site. The extent of this survey area is presented in Outback Ecology (2014) in Appendix F.

The proposed infrastructure layout for the wind farm and overhead transmission line alignment has been underpinned by the findings of the Outback Ecology (2010), Outback Ecology (2014) and Ecologia Environment (2016). Specifically, the clearing requirements have been avoided and minimised through:

- Siting most of the infrastructure (i.e. wind turbines, access tracks and onsite substation) within cleared farm land to avoid the *Banksia attenuata* Woodland over species rich dense shrubland Threatened Ecological Community (TEC) (recorded by Outback Ecology 2010) and priority flora individuals (recorded by Outback Ecology 2010 and 2014)
- Minimising clearing footprint of infrastructure associated with the transmission line alignment and avoidance of the Banksia Woodland of the Swan Coastal Plain TEC (recorded by Ecologia Environment 2016) and priority flora individuals (recorded by Outback Ecology 2014 and Ecologia Environment 2016)
- Minimising clearing by using Western Power's existing track to provide access the transmission line alignment thus avoiding the need for additional clearing to facilitate access requirements during construction.

Supporting the above purpose permit clearing application, the following figures and documents have been provided:

- Figures A to D
- Appendix A: Application for a Clearing Permit (Purpose Permit) and Form C3
- Appendix B: EPA Determination and Public Advice
- Appendix C: Shire of Dandaragan Planning Approvals
- Appendix D: Clearing Permit CPS 4608/2
- Appendix E: Targeted Level 1 Vegetation and Flora Assessment (Outback Ecology 2010)
- Appendix F: Spring Flora and Vegetation Survey and Black Cockatoo Habitat Survey (Outback Ecology 2014)

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- Appendix G: Waddi Wind Farm Project – Cataby, Supplementary Flora, Vegetation and Fauna Survey (Ecologia Environment 2016)
- Appendix H: Landholder Consent
- Appendix I: Licence to Occupy Crown Land
- Appendix J: Fauna Assessment (RPS 2014)
- Appendix K: Hygiene protocol
- shapefile data.

Landholder context

Table 1 identifies the landholdings and the ownership status within which native vegetation clearing is proposed to be undertaken. The Department of Biodiversity Conservation and Attractions (DBCA), SoD and private landholder have been consulted regarding the proposed clearing of native vegetation within their landholdings, which has resulted in Waddi Wind Farm Pty Ltd obtaining landholder consent to clear native vegetation (Appendix H).

Licence to occupy Crown land

A licence to occupy Crown Land (Lic 02804/1991_A9222973) under the state *Land Administration Act 1997* has been obtained by Waddi Wind Farm Pty Ltd (Appendix I). The Licence Area includes the portion of the overhead transmission line within Lot 4134, PR 3608624 (Brand Highway) and Lot 3901. The approval of the licence confirms land access and use, however does not exempt Waddi Wind Farm Pty Ltd from the requirement to obtain a clearing permit to facilitate the installation of the overhead transmission lines.

Specifically, Condition 2a) of Annexure B – Additional Conditions requires that a native vegetation clearing permit is obtained and a hygiene protocol is prepared and implemented to prevent the introduction of pathogens and weeds within Crown Reserve 41986.

The requirement for a hygiene protocol has been addressed with the DBCA separately to this clearing permit application. The DBCA has advised that the proposed hygiene protocols (as stated in the letter *Hygiene protocol for Crown Reserve 41986: Waddi Wind Farm* dated 04 February 2019) are adequate (Appendix K).

The DBCA's main concern is that the area surrounding Conservation Park 41986 has a history of soil borne pathogen occurrences, mainly due to the historic mineral sand mining activities in the area. The Waddi Wind Farm proposal is adjacent to Tronox's current mining area on the western side of the park. DBCA is concerned that soil borne pathogens could be spread into the park.

DBCA has recommended that mapping for soil borne pathogens is undertaken by Waddi Wind Farm to better understand the risk of spread and inform the proposed hygiene protocols.

This outcome has been agreed to by Waddi Wind Farm Pty Ltd with the updated letter *Hygiene protocol for Crown Reserve 41986: Waddi Wind Farm* dated 03 April 2019 being supplied to the DBCA (Appendix K).

Native vegetation context

Table 1 identifies the vegetation units described by the three flora and vegetation surveys (i.e. Outback Ecology 2010, Outback Ecology 2014 and Ecologia Environment 2016), the condition of the vegetation units and the extent of the various units proposed to be cleared. Where vegetation has been proposed to be cleared and has not been surveyed the vegetation unit has been inferred using the closest extent of surveyed vegetation and a comparison of aerial imagery.

To simplify the assessment of the proposed clearing across the vegetation units described for the three flora and vegetation surveys, RPS has condensed the various vegetation units described by the surveys (Table 1) into abridged vegetation units (Table 2).

Table 1: Landholder context and clearing extents

Lot number	Project area	Zoning/reservation status	Ownership status	Clearing extent (ha)	Vegetation description (survey)	Condition	Area (ha)	Figure reference
Lot 4134 (Volume: LR3089; Folio: 642)	Overhead Transmission Line Alignment	Public purposes: Camping and conservation of flora / Crown Reserve 41986	Conservation Park; DBCA managed	0.318	Low Open Woodland of <i>Eucalyptus tottiana</i> with Mixed Banksia Woodland over Tall Shrubland of Adenanthos (Outback Ecology 2014)	Very Good	0.020	C-1
					Banksia Low Open Woodland (Ecologia Environment 2016)	Excellent	0.059	
					Low Woodland of Banksia spp. over Shrubland of Proteaceae spp. and Myrtaceae spp. on flat (Outback Ecology 2010)	Excellent	0.040	
					Banksia Low Open Woodland (Inferred from Ecologia Environment 2016)	Excellent	0.016	
					Proteaceous Heath (2) (Outback Ecology 2014)	Good to Excellent	0.183	
PR 3608624 (Brand Highway; 11579146)	Local Road		Shire of Dandaragan managed	0.097	Low Woodland of Banksia spp. over Shrubland of Proteaceae spp. and Myrtaceae spp. on flat (Outback Ecology 2010)	Excellent	0.001	C-1
					Proteaceous Heath (2) (Outback Ecology 2014)	Good to Very Good	0.092	C-1/C-2
					Proteaceous Heath (2) (Inferred from Outback Ecology 2014)	Excellent	0.004	
Lot 3901 (Volume: LR3141; Folio: 872)	Rural; Crown Reserve 27216		Shire of Dandaragan managed	0.390	Low Open Woodland of <i>Eucalyptus tottiana</i> with Mixed Banksia Woodland over mixed Myrtaceous/Proteaceous Heathland (Outback Ecology 2014)	Good to Excellent	0.236	C2-C6
					Proteaceous Heath (1) (Outback Ecology 2014)	Good to Excellent	0.074	C-3-C4
					Proteaceous Heath (2) (Outback Ecology 2014)	Good to Excellent	0.043	C-2
					Proteaceous Heath (2) (Inferred from Outback Ecology 2014)	Good	0.013	
					Low Open Woodland of Melaleuca with Thryptomene Scrub (Outback Ecology 2014)	Degraded to Good	0.018	C-6
					Low Open Woodland of Melaleuca with Thryptomene Scrub (Inferred from Outback Ecology 2014)	Degraded to Good	0.006	

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Lot number	Project area	Zoning/reservation status	Ownership status	Clearing extent (ha)	Vegetation description (survey)	Condition	Area (ha)	Figure reference
Lot 105 (Volume: 2685; Folio: 985)		Rural	Private; J Dermer	0.450	Corymbia mid open woodland (Inferred from Ecologia Environment 2016)	Completely Degraded to Degraded	0.450	C-7
PR 312207 (Waddi Road; 1353722)	Wind farm site	Local Road	Shire of Dandaragan managed	0.103	Heath Mosaic of variable Proteaceae spp. and Myrtaceae spp. and <i>Xanthorrhoea preissii</i> with occasional emergent Eucalyptus spp. and <i>Nuytsia floribunda</i> on mid to upper slope (Inferred from Outback Ecology 2010)	Excellent	0.103	C-8
Total							1.358	

Table 2: Abridged vegetation units

Lot number	Project area	Vegetation unit	Condition	Area (ha)
Lot 4134 (Volume: LR3089; Folio: 642)	Overhead Transmission Line Alignment	Banksia Low Open Woodland	Very Good to Excellent	0.135
		Proteaceous Heath	Good to Excellent	0.183
PR 3608624 (Brand Highway; 11579146)		Banksia Low Open Woodland	Excellent	0.001
		Proteaceous Heath	Good to Excellent	0.096
Lot 3901 (Volume: LR3141; Folio: 872)		Banksia Low Open Woodland	Excellent	0.236
		Proteaceous Heath	Good to Excellent	0.130
		Melaleuca Low Open Woodland	Degraded to Good	0.024
Lot 105 (Volume: 2685; Folio: 985)		<i>Corymbia calophylla</i> Woodland	Degraded to Completely Degraded	0.450
PR 312207 (Waddi Road; 1353722)	Wind farm site	Heath Mosaic	Excellent	0.103
Total				1.358

Proposed clearing area

Figures C-1 to C-8 show the spatial extent of the 1.358 ha of native vegetation proposed to be cleared and details the vegetation units identified by the three surveys (i.e. Outback Ecology 2010, Outback Ecology 2014 and Ecologia Environment 2016). A summary of the purpose permit clearing application is provided below in Table 3.

Table 3: Clearing proposal summary

Location	Portions of Lot 4134, PR 3608624 (Brand Highway), Lot 3901, Lot 105 and PR 312207 (Waddi Road).
Clearing area	1.358 ha
Timing	Clearing will occur as one action between the 2020 and 2025 calendar years.
Clearing method	The native vegetation will be cleared mechanically.
Purpose of clearing	To facilitate the connection of the Waddi Wind Farm to the Cataby substation and the creation of internal access tracks within the windfarm site.
Vegetation proposed to be cleared	Approximately 0.372 ha of Banksia Low Open Woodland in Very Good to Excellent condition (Figures C-1 to C-6 and D1 -D-6). Approximately 0.024 ha of Melaleuca Low Open Woodland in Degraded to Good condition (Figures C-6 and D-6). Approximately 0.450 ha of <i>Corymbia calophylla</i> Woodland in Degraded to Completely Degraded condition (Figures C-7 and D-7). Approximately 0.409 ha of Proteaceous Heath Good to Excellent condition (Figures C-1 to C-6 and D1 -D-6). Approximately 0.103 ha of Heath Mosaic in Excellent condition (Figures C-8 and D-8).

Vegetation and flora

The 1.358 ha clearing area is a subset of the three flora and vegetation survey areas and comprised of inferred areas. The surveyed areas account for approximately 0.766 ha (or approximately 56% of the total clearing area), whilst the inferred areas account for 0.592 ha (or approximately 44% of the total clearing area) (Table 2).

The key findings of the three flora and vegetation surveys of relevance to the clearing area are summarised as follows:

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- No TECs listed under the *Biodiversity Conservation Act 1950* (BC Act) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were recorded within the clearing area. No DBCA listed Priority Ecological Communities (PECs) were recorded within the clearing area
 - Vegetation community SH2 Open Shrubland was identified by Outback Ecology (2010) to be consistent with the *Banksia attenuata* Woodland over species rich dense shrubland TEC listed under the BC Act. Infrastructure has been situated within the Waddi Wind Farm project area to avoid this TEC.
 - EPBC Act listed Banksia Woodlands of the Swan Coastal Plain TEC / DBCA listed Priority 3 Banksia dominated woodlands of the Swan Coastal Plain IBRA region recorded by Ecologia Environment (2016) has been avoided by the transmission line alignment.
 - Banksia Low Open Woodland vegetation within the clearing area is not considered to be part of the EPBC Act listed Banksia Woodlands of the Swan Coastal Plain TEC (or the DBCA listed Priority 3 Banksia dominated woodlands of the Swan Coastal Plain IBRA region) as it is situated within the Geraldton Sandplains bioregion.
- Abridged vegetation units within the clearing area are
 - Banksia Low Open Woodland
 - Melaleuca Low Open Woodland
 - *Corymbia calophylla* Woodland
 - Proteaceous Heath
 - Heath Mosaic
- Approximately 0.474 ha of native vegetation within the clearing area is in Degraded to Good or worse condition, whilst 0.884 ha of native vegetation is in Good or better condition (Table 1; Figures D to D-8).
- No Threatened flora species listed under the BC Act or any species protected under the EPBC Act were recorded.
- Twelve DBCA listed priority species were recorded near the clearing area, however no priority species were identified within the clearing area. Table 4 identifies the priority species, number of individuals recorded (where known) and the abridged vegetation communities that the priority flora individuals were recorded in (where known) by the three surveys. Figures C-1 to C-6 show the location of these records.

Table 4 identifies that the priority species have been primarily recorded within the Banksia Low Open Woodland and Proteaceous Heath abridged vegetation communities (where known). Given that only 0.033 ha (or approximately 6%) of the 0.592 ha of native vegetation which has been inferred is representative of these abridged communities it is considered that the potential risk to priority species from the removal of native vegetation which has not been surveyed is low.

Further of 0.45 ha (or approximately 76% of the native vegetation which has been inferred) is representative of the *Corymbia calophylla* Woodland in Degraded - Completely Degraded condition. The understorey of this community is comprised of agricultural weed species including *Bromus diandrus* (Great Brome) and *Arctotheca calendula* (Cape weed). A lack of potential habitat (intact understorey) within most of the inferred areas coupled with the historical extent of clearing and existing agricultural land use within the wind farm site reduces the already low risk that the biological diversity and /or ecological integrity of any priority species would be significantly diminished by the proposed clearing.

Table 4: Priority species recorded

Project area	Species	Priority level	Survey	Abridged vegetation community	Number of individuals recorded
Overhead Transmission Line Alignment	<i>Acacia plicata</i>	Priority 3	Outback Ecology 2010	Proteaceous Heath	1
	<i>Conostephium magnum</i>	Priority 4	Outback Ecology 2010; Outback Ecology 2014; Ecologia Environment 2016	Banksia Low Open Woodland; Proteaceous Heath	158
	<i>Arnocrinum gracillimum</i>	Priority 2	Outback Ecology 2014	Proteaceous Heath	7
	<i>Stylidium aeoniodes</i>	Priority 4		Proteaceous Heath	49
Within Wind Farm site	<i>Banksia fraseri</i> var. <i>crebra</i>	Priority 3	Outback Ecology 2010	Abridged vegetation community unknown	Number of records unknown
	<i>Anigozanthos humilis</i> subsp. ? <i>Badgingarra</i> (S.D. Hopper 7114)	Priority 2	Outback Ecology 2014	Abridged vegetation community unknown	3
	<i>Tetradlea angulata</i>	Priority 3		Banksia Low Open Woodland	7
	<i>Lepidobolus quaratus</i>	Priority 3		Banksia Low Open Woodland	1
Outside of Wind Farm site	<i>Hypocalymma</i> sp. <i>Cataby</i>	Priority 2	Outback Ecology 2010	Abridged vegetation community unknown	Number of records unknown
	<i>Tetradlea angulata</i>	Priority 3			
	<i>Eucalyptus macrocarpa</i> subsp. <i>elachantha</i>	Priority 4			
	<i>Grevillea saccata</i>	Priority 4			
	<i>Regelia megacephala</i>	Priority 4			
	<i>Conostephium magnum</i> ¹	Priority 4	Outback Ecology 2010; Outback Ecology 2014	Banksia Low Open Woodland; Proteaceous Heath	6
	<i>Arnocrinum gracillimum</i>	Priority 2	Outback Ecology 2014	Proteaceous Heath	1

¹ Abridged vegetation communities and number of individuals known from Outback Ecology (2014) only

Fauna

The Fauna Assessment which informed the preparation of the *Environmental Statement, Proposed Dandaragan Wind Farms, Central Midlands, Western Australia* (Wind Prospect 2011), was updated by RPS to include the:

- Findings of the Avifauna Assessment, which also informed the preparation of the *Environmental Statement, Proposed Dandaragan Wind Farms, Central Midlands, Western Australia* (Wind Prospect 2011)
- Revised overhead transmission line alignment and relocation of the substation
- Findings of Waddi Wind Farm Spring Flora and Vegetation Survey and Black Cockatoo Habitat Survey (Outback Ecology 2014).

The updated Fauna Assessment (RPS 2014; Appendix J) was provided to the Shire of Dandaragan as part of the Environmental Assessment Report for the 8 km overhead transmission line connection extending west of the Waddi Wind Farm to the Cataby substation, additional access tracks and a revised onsite substation location. As previously identified, these amendments were approved by the Shire in September 2016 (Appendix C).

RPS (2014) identified that the conservation significant species that may be potentially impacted by the implementation of the Waddi Wind Farm project are limited to the western brush wallaby (*Macropus irma*), Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) and peregrine falcon (*Falco peregrinus*).

Most of the infrastructure (i.e. wind turbines, access tracks and onsite substation) has been located within cleared farm land to avoid the removal or fragmentation of fauna habitat. The minor extent of native vegetation clearing proposed within the overhead transmission line alignment occurs in non-contiguous discrete patches to minimise potential impacts to fauna species from habitat loss and fragmentation.

Given the implementation of the above avoidance and mitigation measures and the minor extent of proposed clearing (i.e. 1.358 ha), it is considered that that the general risk to the conservation significant and common fauna species is low.

Carnaby's Black-Cockatoo context

The three flora and vegetation surveys identified vegetation types within the clearing area considered to be potential Carnaby's Black Cockatoo habitat (Table 5).

Table 5: Potential black cockatoo habitat within the clearing area

Abridged vegetation community	Vegetation condition	Habitat type	Clearing area extent
Banksia Low Open Woodland	Very Good or better	Potential foraging habitat	0.372
Proteaceous Heath	Good to Excellent	Potential foraging habitat	0.409
<i>Corymbia calophylla</i> Woodland	Degraded - Completely Degraded	Potential foraging and breeding habitat	0.450
Heath Mosaic	Excellent	Potential foraging habitat	0.103
Total			1.334

Table 5 identifies that approximately 1.334 ha of the native vegetation proposed to be cleared is potential foraging habitat for Carnaby's Black Cockatoo. The removal of 1.334 ha of potential Carnaby's Black Cockatoo foraging habitat it is at variance with a high-risk factor (*Clearing of more than 1 ha of quality foraging habitat*) in the EPBC Act Referral Guidelines (Commonwealth of Australia²; Commonwealth of Australia 2017³). The guidelines identify that high-risk factors may result in significant impacts to black cockatoos and recommends referral to the Commonwealth for assessment under EPBC Act. To address potential significant impacts to Carnaby's Black Cockatoo from the implementation of the Waddi Wind Farm project, an EPBC Act referral (2018/8352) has been prepared and lodged with the Department of the Environment and Energy for assessment.

In addition to the avoidance and mitigation measures and the minor extent of proposed clearing Tilt Renewables has also agreed to the following mitigation measures:

- Surveys by qualified zoologists will be undertaken to detect any breeding Carnaby's Black Cockatoos within 100 metres of any proposed clearing prior to any clearing of trees or shrubland.
- Should breeding of Carnaby's Black Cockatoo be found, clearing will not commence within one hundred metres of the breeding tree until breeding in the area has finished.

² Commonwealth of Australia. 2012. EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's Cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's Cockatoo (vulnerable) *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*. Canberra: Australian Capital Territory.

³ Commonwealth of Australia. 2017. Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's Cockatoo (vulnerable) *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*. Canberra: Australian Capital Territory.

Assessment against the 10 Clearing Principles

Table 6 below provides an assessment of the proposed clearing activities against the “10 Clearing Principles” as outlined in Schedule 5 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 to determine whether the proposed clearing is at variance to the Principles.

Table 6: Assessment of the clearing area against the 10 Clearing Principles

Principle	Assessment	Outcome
Native vegetation should not be cleared if it comprises a high level of biological diversity	<p>Up to 1,358 ha of native vegetation will require clearing to construct the overhead transmission line between the wind farm site and the Cataby substation and internal access tracks. Approximately 0.884 ha (or 65%) of native vegetation is in Good or better condition with high species richness, whilst 0.474 ha (or 35%) of native vegetation is in Degraded to Good or worse condition. Consequently, most of the native vegetation within the clearing area is likely to represent high biodiversity.</p> <p>Furthermore, the Threatened Species Scientific Committee for the Australia Government has identified a number of areas as Biodiversity Hotspots for priority action (Department of Environment Regulation [DER] 2014⁴). The Geraldton Sandplain region, which includes the clearing area, has been included as the Mount Leseur-Eneabba hotspot.</p> <p>Biodiversity values within the clearing area are likely to be similar to areas within Crown Reserves 27216 and 41986 which are connected to the Waddi Wind Farm project area by continuous vegetation as well as the Badgingarra National Park.</p> <p>The proposal would require clearing a small area (up to 0.884 ha) of native vegetation with high biodiversity, including 0.390 ha and 0.318 ha within Crown Reserves 27216 and 41986. The proposed clearing represents a small portion (approximately 0.03%) of each Crown Reserve, which are likely to contain similar or better biodiversity values to the clearing area. Although a minor extent of high biodiversity vegetation is proposed be cleared (approximately 0.884 ha, which includes 0.708 ha within the Crown Reserves), it is considered unlikely that local biological diversity values within the Waddi Wind Farm project area would be significantly diminished.</p>	The proposal may be at variance with the principle
Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous Western Australia	<p>Potential foraging and breeding habitat suitable for Carnaby's Black Cockatoo has been identified within the clearing area. This habitat represents a vegetation remnant associated with the Crown Reserves 27216 and 41986 as well as the Badgingarra National Park.</p> <p>The Crown Reserves 27216 and 41986 and the Badgingarra National Park are likely to comprise a much larger area of similar or better quality Carnaby's Black Cockatoo habitat. Consequently, Carnaby's Black Cockatoo is not likely to rely on the clearing area for foraging and breeding habitat. The proposed clearing is considered unlikely to significantly impact local populations of this species.</p>	The proposal is unlikely to be at variance with the principle.
Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	<p>No Threatened flora species listed under the BC Act or any species protected under the EPBC Act have been recorded by the three flora surveys.</p> <p>Twelve DBCA listed priority flora species were recorded near the clearing area, however the proposed clearing has avoided the known locations of priority flora species.</p>	The proposal is not at variance with the principle.

⁴ DER. 2014. A Guide to the Assessment of Applications to Clear Native Vegetation – Under Part V Division 2 of the *Environmental Protection Act 1986*.

Principle	Assessment	Outcome																		
Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community	<p>No TECs listed under the BC Act or the EPBC Act were recorded within the clearing area by the three flora surveys. No DBCA listed PECs have been recorded within the clearing area by the three flora surveys.</p> <p>Vegetation community SH2 Open Shrubland was identified by Outback Ecology (2010) to be consistent with the <i>Banksia attenuata</i> Woodland over species rich dense shrubland TEC listed under the BC Act. Infrastructure has been situated within the wind farm site to avoid this TEC.</p> <p>Banksia Low Open Woodland vegetation within the clearing area is not considered to be part of the EPBC Act listed Banksia Woodlands of the Swan Coastal Plain TEC (or the DBCA listed Priority 3 Banksia dominated woodlands of the Swan Coastal Plain IBRA region) as it is situated within the Geraldton Sandplains bioregion.</p>	The proposal is not at variance with the principle.																		
Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared	<p>Vegetation within the clearing area was broadly mapped by Beard (1975⁵) at a scale of 1:1,000,000. Two vegetation associations were mapped within the clearing area:</p> <ul style="list-style-type: none"> • 7 – Medium Woodland; York gum (<i>Eucalyptus loxophleba</i>) and wandoo • 1031 – Mosaic: Shrublands; hakea scrub-heath/Shrublands; and dryandra heath. <p>The National Objectives and Targets for Biodiversity Conservation 2001-2005 and the EPA recognise that 30% or more of the pre-clearing extent of each ecological community is needed to adequately protect Australia's biodiversity (DER 2014). Vegetation proposed for clearing includes one vegetation association below this 30% threshold. Specifically, Beard Vegetation Association 7 currently retains 12.73% of its Pre-European extent. With less than 10% of its original extent, Beard Vegetation Association 7 is regarded by the EPA to represent an 'endangered' level. Beard Vegetation Association 1031 currently retains 32.90% of its Pre-European extent, meaning that it is currently above the 30% threshold.</p> <p>To minimise requirements for clearing native vegetation, the Waddi Wind Farm project has been designed to ensure future infrastructure would be positioned within previously disturbed areas, wherever practicable. Consequently, only minor clearing of native vegetation is required. Total areas of the vegetation associations that require clearing are summarised in the table below. Although vegetation with conservation value will be cleared, given the small amount of clearing required, the reduction in availability of Beard Vegetation Association 7 is considered to be insignificant.</p> <table border="1"> <thead> <tr> <th>Vegetation Association</th> <th>Current Extent Remaining (ha)</th> <th>Proportion of Extent Remaining (%)</th> <th>Area to be cleared (ha)</th> <th>Total Area remaining after clearing (ha)</th> <th>Proportion of extent remaining after clearing (%)</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>22,885.35</td> <td>12.73</td> <td>0.390</td> <td>22,884.96</td> <td>12.73</td> </tr> <tr> <td>1031</td> <td>88,672.41</td> <td>32.90</td> <td>0.698</td> <td>88,671.71</td> <td>32.90</td> </tr> </tbody> </table>	Vegetation Association	Current Extent Remaining (ha)	Proportion of Extent Remaining (%)	Area to be cleared (ha)	Total Area remaining after clearing (ha)	Proportion of extent remaining after clearing (%)	7	22,885.35	12.73	0.390	22,884.96	12.73	1031	88,672.41	32.90	0.698	88,671.71	32.90	The proposal is unlikely to be at variance with the principle
Vegetation Association	Current Extent Remaining (ha)	Proportion of Extent Remaining (%)	Area to be cleared (ha)	Total Area remaining after clearing (ha)	Proportion of extent remaining after clearing (%)															
7	22,885.35	12.73	0.390	22,884.96	12.73															
1031	88,672.41	32.90	0.698	88,671.71	32.90															
Native vegetation should not be cleared if it is growing in or in association with a watercourse or wetland.	<p>A small amount of riparian vegetation (0.45 ha of <i>Corymbia calophylla</i> Woodland) is proposed for clearing where the transmission corridor crosses the Mullering Brook. Outback Ecology (2014) reported this vegetation is in Degraded - Completely Degraded condition with low species diversity, limited to scattered overstorey species. Additionally, Ecologia Environment (2016) considered this vegetation to be severely impacted by disturbance. The proposed clearing is unlikely to have a significant impact on the ecological or hydrological values of the Mullering Brook watercourse.</p>	The proposal is unlikely to be at variance with the principle.																		

(Source: DBCA 2018⁶)

⁵ Beard, J. S. 1975. Vegetation Survey of Western Australia. 1:1,00,000 Vegetation Series Map.

⁶ Department of Biodiversity Conservation and Attractions. 2018. 2017 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis)-Full Report. Accessed on 09 January 2019 <https://catalogue.data.wa.gov.au/dataset/3d8c36a4-1863-4eee-9b7b-bcc33973987f/resource/b7bd60c2-bff6-4637-b213-aea4706412c7/download>

Principle	Assessment	Outcome
Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Land degradation can be caused or exacerbated by uncontrolled run-off and wind or water erosion. Clearing associated with the proposal has been minimised to reduce potential impacts on land values. The proposed clearing is unlikely to significantly alter hydrological processes and erosion within the Waddi Wind Farm project area.	The proposal is not at variance with the principle.
Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The proposal would require clearing a small area (up to 0.884 ha) of native vegetation with high biodiversity, of which 0.390 ha and 0.318 ha are within Crown Reserves 27216 and 41986. The proposed clearing represents a small portion each Crown Reserve, which is likely to contain similar or better biodiversity values to the clearing area. Although minor extent of high biodiversity vegetation is proposed be cleared, including 0.708 ha within Crown Reserves, it is considered unlikely that local biological diversity values would be significantly impacted.	The proposal may be at variance with the principle.
Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water	A small amount of riparian vegetation (0.45 ha of <i>Corymbia calophylla</i> Woodland) is proposed for clearing where the transmission corridor crosses the Mullering Brook. Outback Ecology (2014) reported this vegetation is in Degraded - Completely Degraded condition with low species diversity, limited to scattered overstorey species. Additionally, Ecologia Environment (2016) considered this vegetation to be severely impacted by disturbance. The proposed clearing is unlikely to cause deterioration in the quality of surface or underground water of the Mullering Brook watercourse.	The proposal is not at variance with the principle
Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the intensity of flooding.	A small amount of riparian vegetation (0.45 ha of <i>Corymbia calophylla</i> Woodland) is proposed for clearing where the transmission corridor crosses the Mullering Brook. Outback Ecology (2014) reported this vegetation is in Degraded - Completely Degraded condition with low species diversity, limited to scattered overstorey species. Additionally, Ecologia Environment (2016) considered this vegetation to be severely impacted by disturbance. The proposed clearing is unlikely to cause or exacerbate, the intensity of flooding of the Mullering Brook watercourse.	The proposal is not at variance with the principle

The proposed infrastructure configuration of the Waddi Wind Farm project has been underpinned by the findings of the three flora and vegetation surveys (i.e. Outback Ecology 2010, Outback Ecology 2014 and Ecologia Environment 2016). Specifically, this has resulted in most of the infrastructure (i.e. wind turbines, access tracks and onsite substation) being located within cleared farm land to avoid the key environmental values including TECs and priority flora species.

Concluding remarks

A minor extent of native vegetation clearing is proposed within the overhead transmission line alignment to facilitate the connection of the wind farm to the Cataby substation. This will be undertaken in non-contiguous discrete patches to avoid known locations of priority flora species and to minimise potential impacts to fauna species from habitat loss and fragmentation. Western Power's existing track will be used to provide access the transmission line alignment during construction.

The DBCA, SoD and private landholder have been consulted regarding the proposed clearing of native vegetation within their landholdings (Appendix H), whilst a licence to occupy Crown Land (Lic 02804/1991_A9222973) under the state *Land Administration Act 1997* has been obtained by Waddi Wind Farm Pty Ltd (Appendix I).

Our ref: EEL18167.002

We trust this information is sufficient for your purposes, however should you require further details or clarification, please do not hesitate to contact the writer by telephone.

Yours sincerely,
for RPS Australia West Pty Ltd



Giles Glasson
Managing Scientist
giles.glasson@rpsgroup.com.au
+61 8 9288 0834

Enc: Figures
Appendix A Application for a clearing permit (purpose permit) and form C3
Appendix B EPA determination and public advice
Appendix C Shire of Dandaragan planning approvals
Appendix D Clearing permit CPS 4608/2
Appendix E Targeted level 1 vegetation and flora assessment
Appendix F Spring flora and vegetation survey and black cockatoo habitat survey
Appendix G Waddi Wind Farm project – Cataby, supplementary flora, vegetation and fauna survey
Appendix H Landholder consent
Appendix I Licence to occupy Crown land
Appendix J Fauna assessment
Appendix K Hygiene protocol

FIGURES

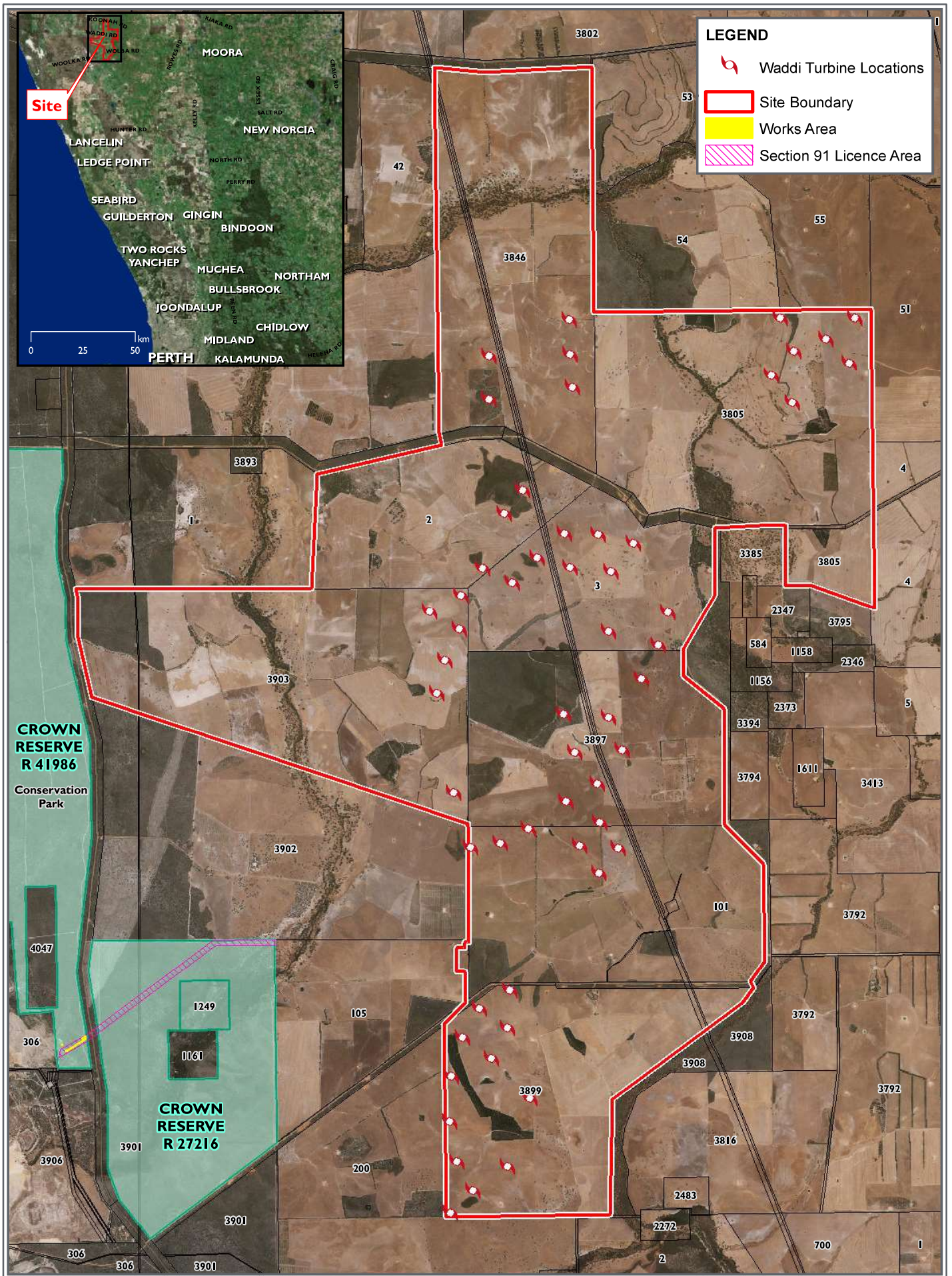


Figure A

Site Location

GDA 1994 MGA Zone 50



Job Number: L18167-002

Doc Number: 001

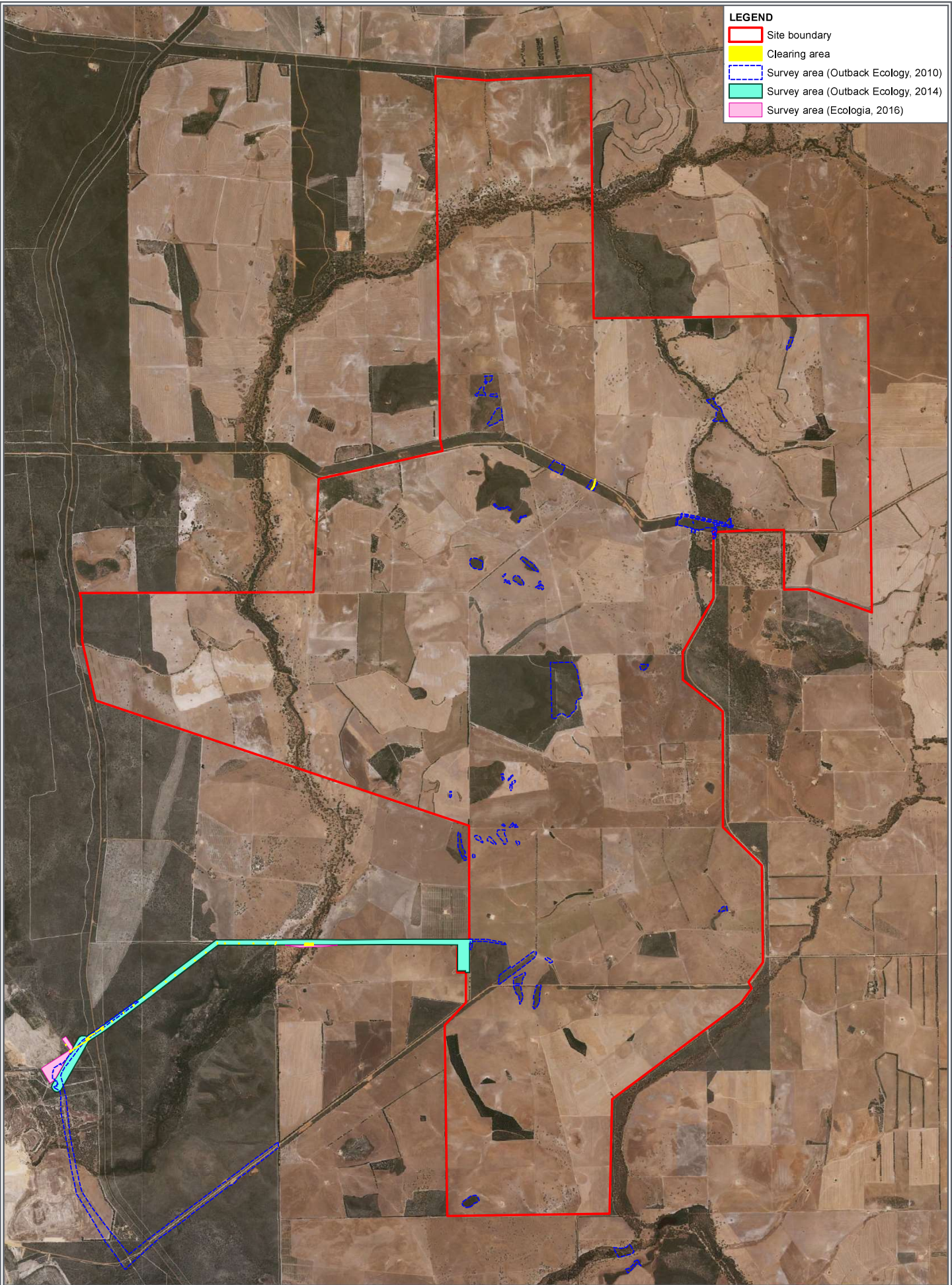
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Scale: Map 1:77,637 Overview 1:2,278,646 @ A4

Created by: MA

Source: Imagery - Landgate





LEGEND

- Site boundary
- Clearing area
- Survey area (Outback Ecology, 2010)
- Survey area (Outback Ecology, 2014)
- Survey area (Ecologia, 2016)

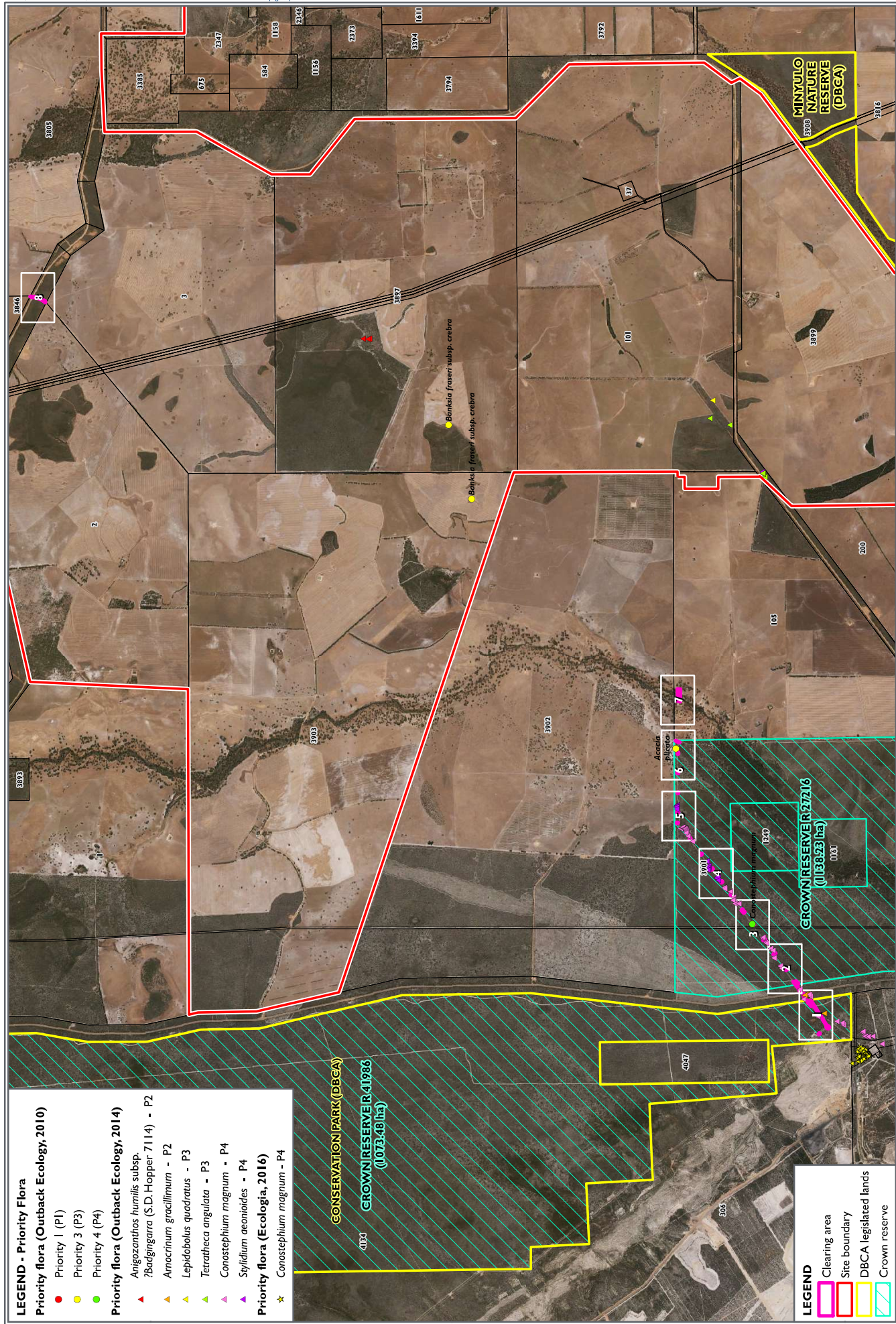
Figure B

Historical survey areas



Job Number: L18167-002
Doc Number: 002
Date: 05.04.19
Scale: 1:55,000 @ A3
Created by: MA





LEGEND - Priority Flora

Priority flora (Outback Ecology, 2010)

- Priority 1 (P1)
- Priority 3 (P3)
- Priority 4 (P4)

Priority flora (Outback Ecology, 2014)

- ▲ *Anigozanthos humilis* subsp.
- ▲ *?Badingarra* (S.D. Hopper 7114) - P2
- ▲ *Amorcinum gracillimum* - P2
- ▲ *Lepidobolus quadratus* - P3
- ▲ *Terratheca angulata* - P3
- ▲ *Conostephium magnum* - P4
- ▲ *Styidium aconioides* - P4

Priority flora (Ecologia, 2016)

- ★ *Conostephium magnum* - P4

LEGEND

- Clearing area
- Site boundary
- DBCA legislated lands
- Crown reserve

CONSERVATION PARK (DBCA)

GROWTH RESERVE 41986
(1073.48 ha)

GROWTH RESERVE 27216
(1138.23 ha)

MINTULO NATURE RESERVE (DBCA)

Banksia fraseri subsp. *crabra*

Acacia plicata



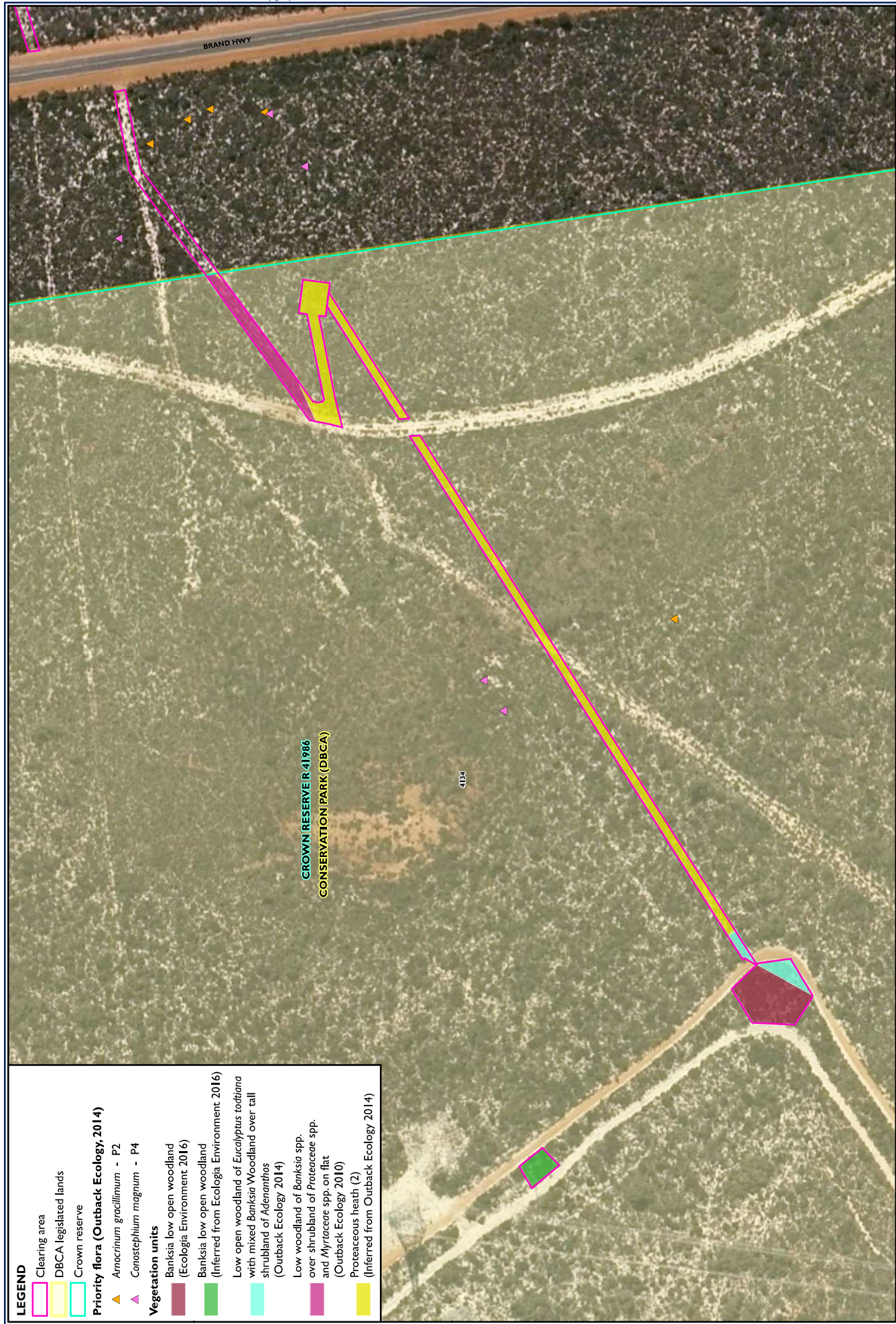
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 Doc Number: 003
 Date: 05.04.19
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 Source: Orthophoto - Langgate, 2017


 GDA 1984 MGA Zone 50



Figure C
Vegetation unit mapping map index

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LEGEND

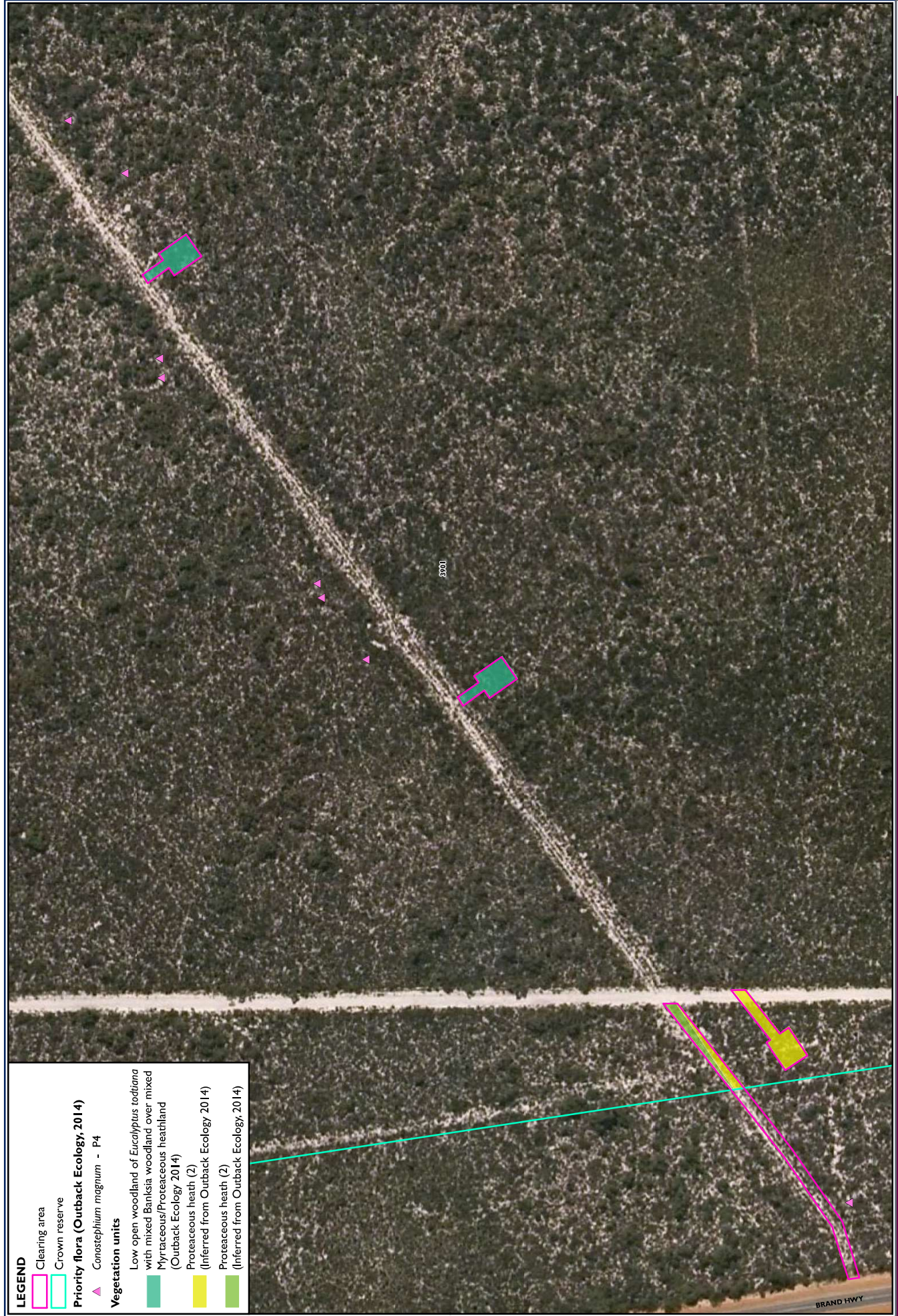
- Clearing area
- DBCA legislated lands
- Crown reserve
- Priority flora (Outback Ecology, 2014)**
- Amorcinium gracillimum* - P2
- Conostephium magnum* - P4
- Vegetation units**
- Banksia low open woodland (Ecologia Environment 2016)
- Banksia low open woodland (Inferred from Ecologia Environment, 2016)
- Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* Woodland over tall shrubland of *Adenanthos* (Outback Ecology 2014)
- Low woodland of *Banksia* spp. over shrubland of *Proteaceae* spp. and *Myrtaceae* spp. on flat (Outback Ecology 2010)
- Proteaceous heath (2) (Inferred from Outback Ecology 2014)

**CROWN RESERVE R 41986
CONSERVATION PARK (DBCA)**

4134



**Figure C-1
Sheet 1 of 8
Vegetation units**

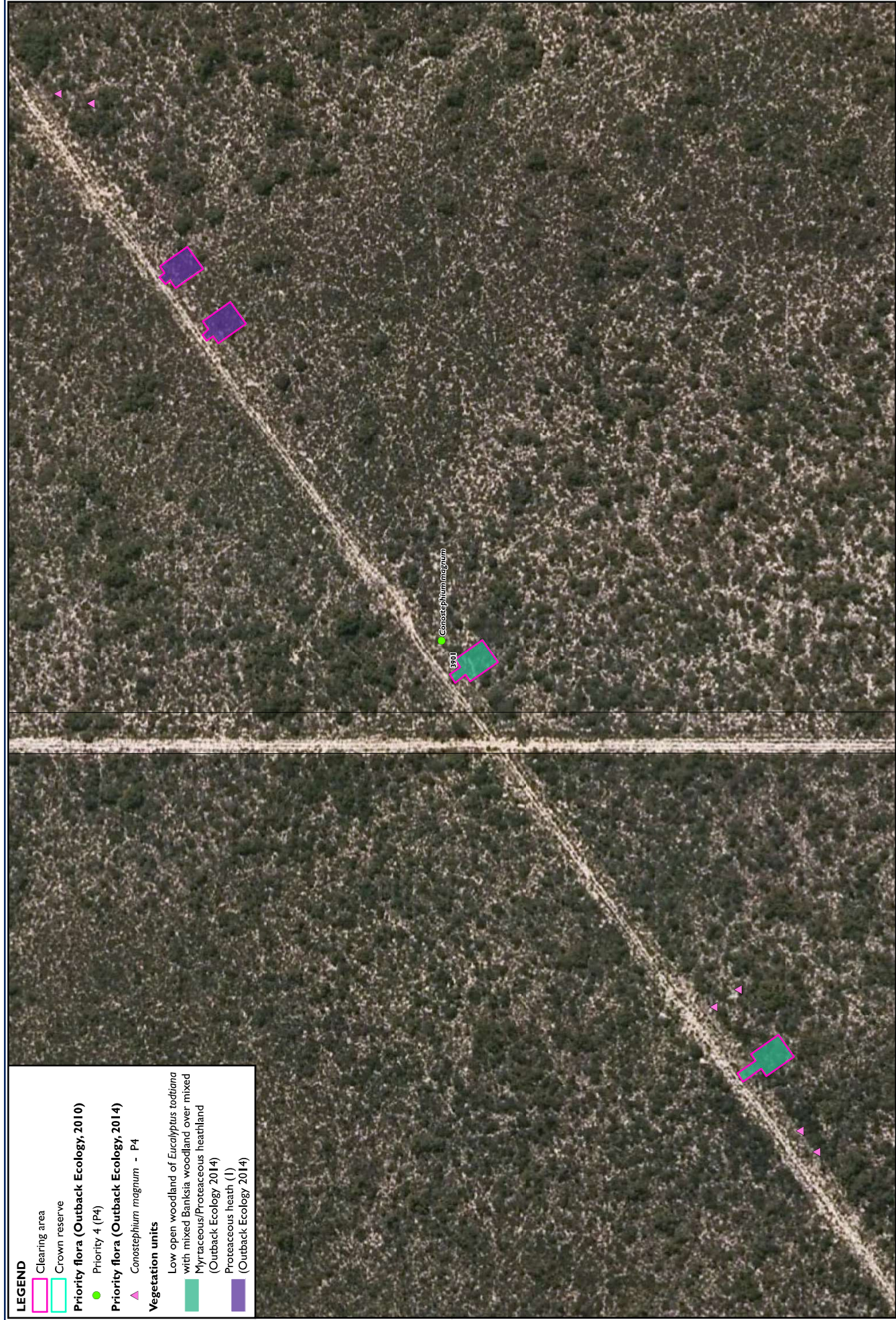


LEGEND

- Clearing area
- Crown reserve
- Priority flora (Outback Ecology, 2014)**
- Conostephium magnum* - P4
- Vegetation units**
- Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* woodland over mixed Myrtales/Proteaceous heathland (Outback Ecology 2014)
- Proteaceous heath (2) (Inferred from Outback Ecology 2014)
- Proteaceous heath (2) (Inferred from Outback Ecology, 2014)



Figure C-2
Sheet 2 of 8
Vegetation units



LEGEND

- Clearing area
- Crown reserve
- Priority flora (Outback Ecology, 2010)**
- Priority 4 (P4)
- Priority flora (Outback Ecology, 2014)**
- ▲ *Conostephium magnum* - P4
- Vegetation units**
- Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* woodland over mixed Myrtaceae/Proteaceae heathland (Outback Ecology 2014)
- Proteaceous heath (1) (Outback Ecology 2014)

Job Number: L1816-002
 Doc Number: 003-3
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: JMA
 Source: Orthophoto - Langkat, 2017



Figure C-3
Sheet 3 of 8
Vegetation units





LEGEND

- Clearing area
- Crown reserve

Priority flora (Outback Ecology, 2014)

- ▲ *Conostephium magnum* - P4
- ▲ *Styidium aconioides* - P4

Vegetation units

- Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* woodland over mixed Myrtaceous/Proteaceous heathland (Outback Ecology 2014)
- Proteaceous heath (1) (Outback Ecology 2014)

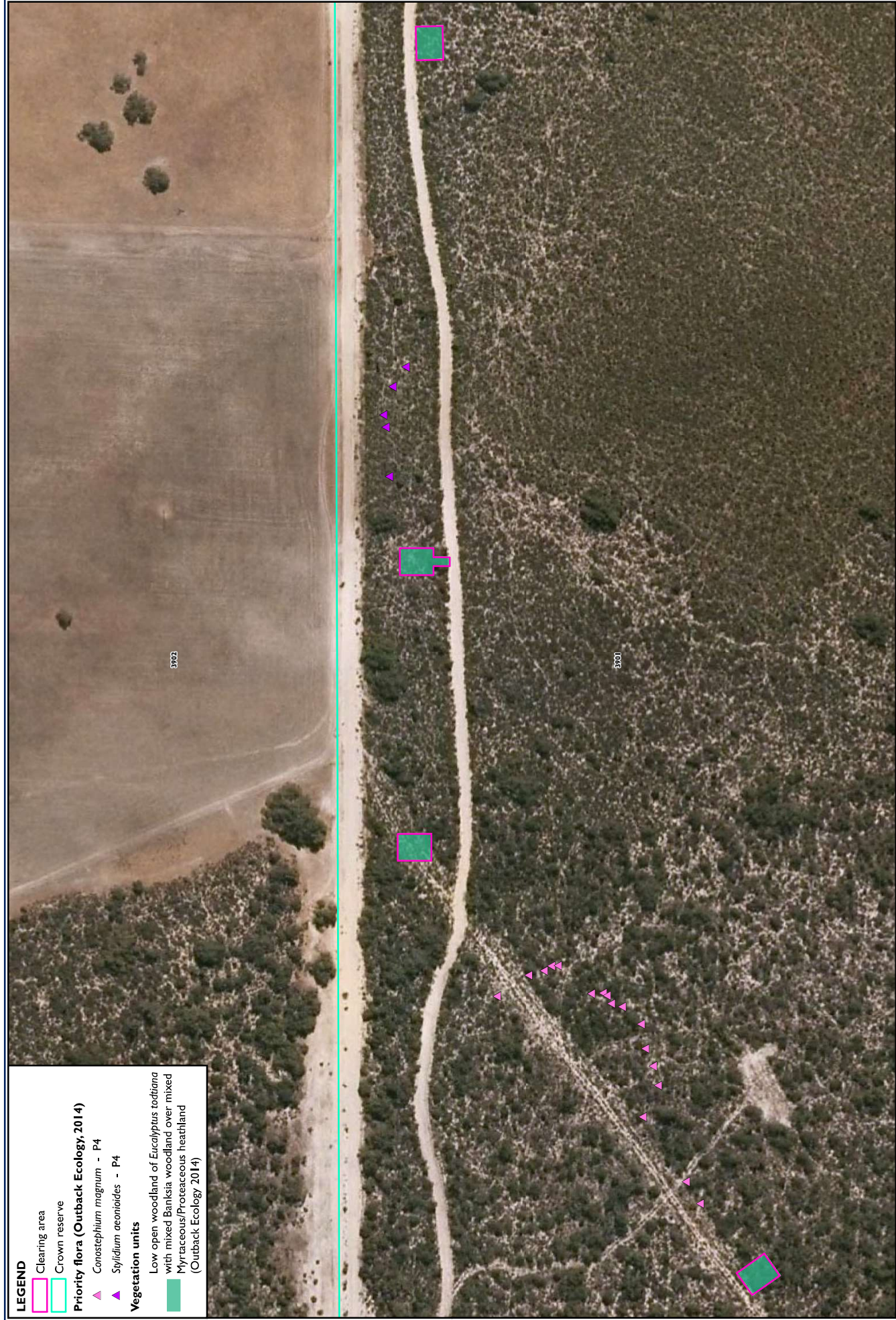
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 Source: Orthophoto - Langkat, 2017

GDA 1984 MGA Zone 50
 0 12.5 25 50 m

Figure C-4
Sheet 4 of 8
Vegetation units

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LEGEND

- Clearing area
- Crown reserve

Priority flora (Outback Ecology, 2014)

- ▲ *Conostephium magnum* - P4
- ▲ *Sydlidium aconioides* - P4

Vegetation units

Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* woodland over mixed Myrtaceous/Proteaceous heathland (Outback Ecology 2014)



Job Number: L1816-002
 Doc Number: 003-5
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: JMA
 Source: Orthophoto - Langgate, 2017



Figure C-5
Sheet 5 of 8
Vegetation units



LEGEND

- Clearing area
- Crown reserve
- Priority flora (Outback Ecology, 2010)**
- Priority 3 (P3)
- Vegetation units**
- Low open woodland of *Eucalyptus totidiana* with mixed *Banksia* woodland over mixed Myrtaceae/Proteaceae heathland (Outback Ecology 2014)
- Low open woodland of *Melaleuca* with *Thryptomene* Scrub (Inferred from Outback Ecology, 2014)
- Low open woodland of *Melaleuca* with *Thryptomene* Scrub (Outback Ecology 2014)

Figure C-6
Sheet 6 of 8
Vegetation units





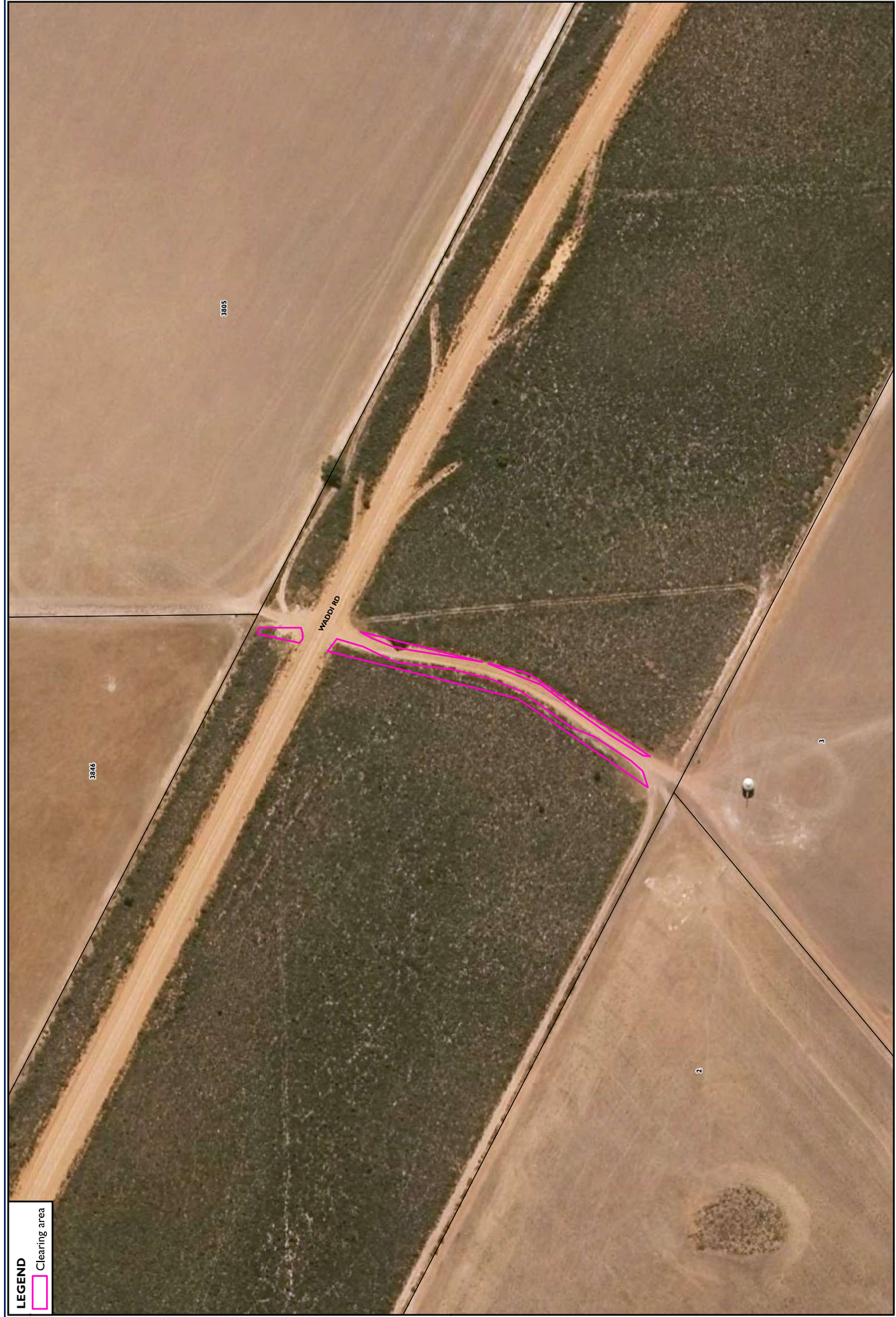
LEGEND
[Pink outline] Clearing area

Job Number: L1816-002
Doc Number: 003-7
Date: 05/04/19
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Source: Orthophoto - Langkat, 2017



Figure C-7
Sheet 7 of 8
Vegetation units





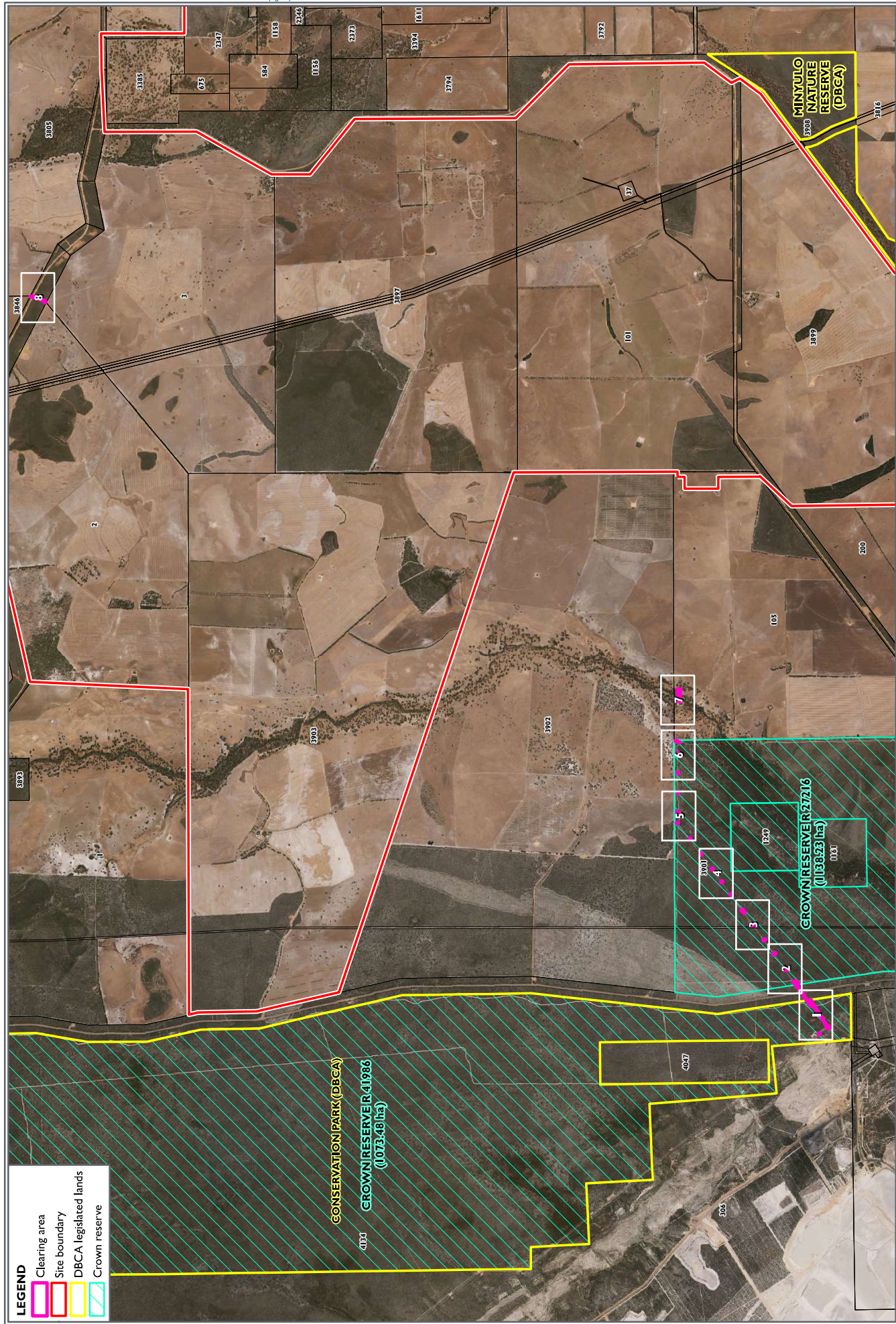
LEGEND
 Clearing area

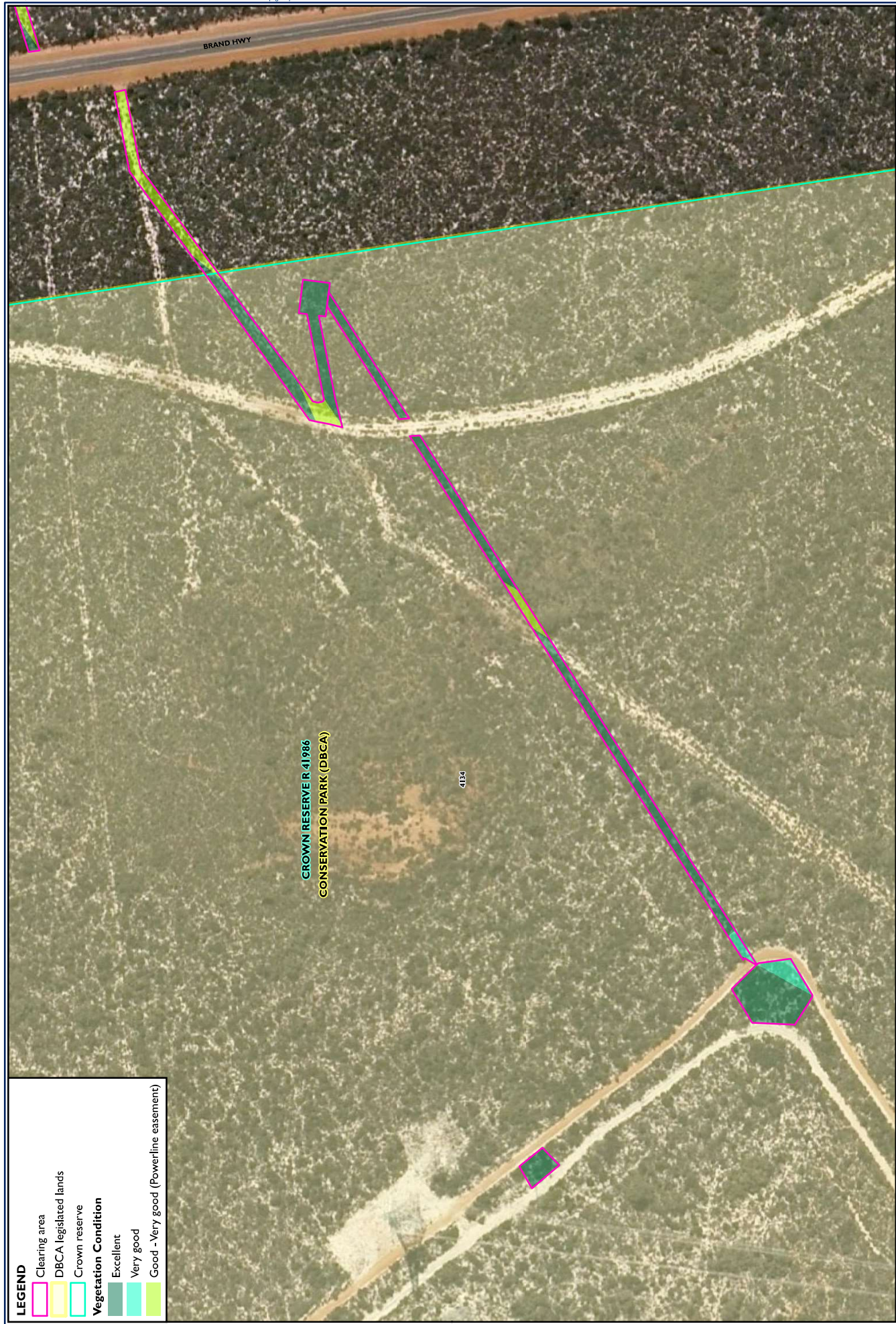
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 Doc Number: 003-8
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: JJA
 Source: Orthophoto - Langkat, 2017



Figure C-8
Sheet 8 of 8
Vegetation units







LEGEND

- Clearing area
- DBCA legislated lands
- Crown reserve
- Vegetation Condition**
- Excellent
- Very good
- Good - Very good (Powerline easement)

**CROWN RESERVE R 41986
CONSERVATION PARK (DBCA)**

4134

Job Number: L1816-002
 Doc Number: 004-1
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: JMA
 Source: Orthophoto - Langkat, 2017



**Figure D-1
Sheet 1 of 8
Vegetation condition**





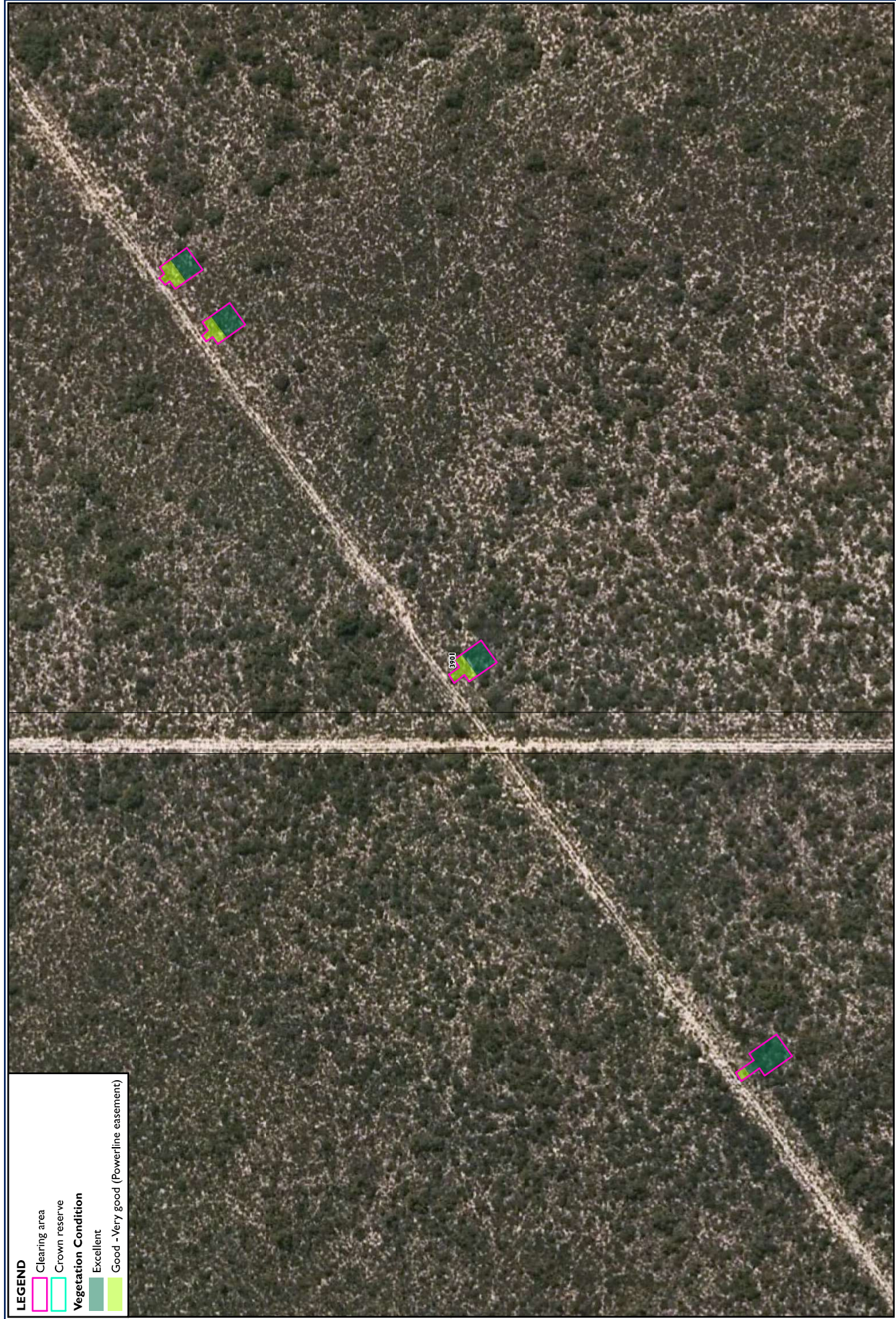
LEGEND

- Clearing area
- Crown reserve
- Vegetation Condition**
- Excellent
- Good - Very good (Powerline easement)

GDA 1984 MGA Zone 50

0 12.5 50 m

Figure D-2
Sheet 2 of 8
Vegetation condition



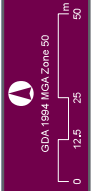
LEGEND

- Clearing area
- Crown reserve

Vegetation Condition

- Excellent
- Good - Very good (Powerline easement)

Figure D-3
Sheet 3 of 8
Vegetation condition



Job Number: L1816-002
 Doc Number: 0043
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: MA
 Source: Orthophoto - Langkat, 2017





LEGEND

- Clearing area
- Crown reserve

Vegetation Condition

- Excellent
- Good - Very good (Powerline easement)

Job Number: L1816-002
 Doc Number: 004-4
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: MA
 Source: Orthophoto - Langkat, 2017

GDA 1984 MGA Zone 50

0 12.5 25 50
 m

Figure D-4
Sheet 4 of 8
Vegetation condition

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LEGEND

- Clearing area
- Crown reserve

Vegetation Condition

- Excellent
- Very good
- Good - Very good (Powerline easement)



Job Number: L1816-002
 Doc Number: 0045
 Date: 05.04.19
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 Created by: MA
 Source: Orthophoto - Langgate, 2017



Figure D-5
Sheet 5 of 8
Vegetation condition



LEGEND

- Clearing area
- Crown reserve
- Vegetation Condition**
- Excellent
- Good - Degraded

Figure D-6
Sheet 6 of 8
Vegetation condition

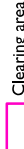
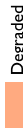
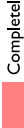


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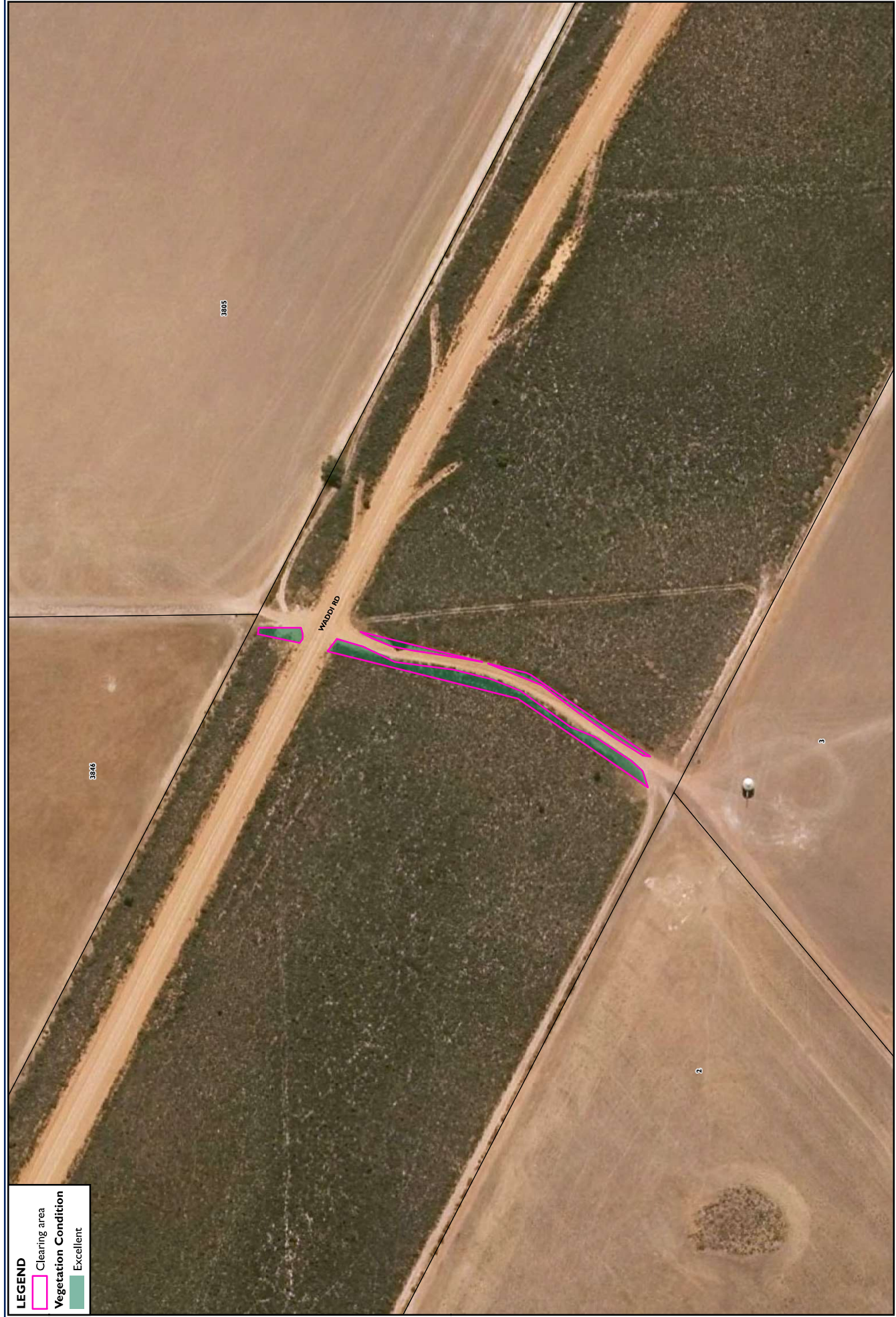
-  Clearing area
- Vegetation Condition**
-  Degraded
-  Completely degraded

Job Number: L1816-002
Doc Number: 0047
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Created by: MA
Source: Orthophoto - Langkat, 2017



Figure D-7
Sheet 7 of 8
Vegetation condition





LEGEND

- Clearing area
- Vegetation Condition
- Excellent



Job Number: L1816-002
 Doc Number: 0048
 Date: 05.04.19
 Scale: 1:1,500 @ A3
 Created by: JJA
 Source: Orthophoto - Langkat, 2017

GDA 1984 MGA Zone 50

0 12.5 25 50 m

Figure D-8
Sheet 8 of 8
Vegetation condition

Our ref: EEL18167.002

Appendix A

Application for a clearing permit (purpose permit) and form C3