Bulloo Interlink Pipeline

Environmental Authority

Terrestrial Ecology Assessment

APA Bulloo Interlink Pipeline Pty Ltd

July 2026



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Executive summary

The project

APA Bulloo Interlink Pipeline Pty Ltd (APA), which is part of the APA group of companies (the APA Group) is planning to develop the Bulloo Interlink Pipeline, an underground high-pressure gas pipeline linking the South West Queensland Pipeline in Queensland with the Moomba to Wilton Pipeline in New South Wales (NSW). The Queensland section of the Bulloo Interlink Pipeline (referred to as 'the project' for the purposes of this document) is approximately 236 kilometres (km) long. Overall, the pipeline has a total length of approximately 339 km and will provide a more direct route for natural gas to travel from Australia's northern production areas to southern gas markets.

This report

This report has been prepared by GHD Pty Ltd (GHD) to support the environmental authority (EA) application for the project in accordance with the *Environmental Protection Act 1994* (Qld) (EP Act) and requirements of the *Application requirements for petroleum activities guidelines* (DESI, 2024).

This report supports the project's impact assessment and EA application by documenting survey methods and results, species records, vegetation communities, habitat condition, and the likelihood of occurrence of conservation significant species listed under the *Nature Conservation Act 1992* (Qld) (NC Act) and identifying matters of state environmental significance (MSES) under the *Environmental Offsets Act 2014* (Qld) (EO Act). Where species are also listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), these are identified for completeness. A referral under the EPBC Act for the project was lodged on 28 May 2026 (EPBC 2026/10534). The proposed action is a controlled action, and the project will be assessed by preliminary documentation.

Existing environment

The existing environment supports large expanses of low, sparse grassland and chenopod shrubland in an environment that is temporally dynamic, where vegetation cover and associated biological diversity experiences dramatic periods of boom and bust in response to seasonal rainfall.

Within this context, hollow-bearing trees (HBTs) represent key constraints given that they provide important resources for wildlife, but are significantly more slow-growing than most surrounding chenopod and grassland vegetation. Other areas with increased ecological value were associated with braided wetlands and riparian woodlands containing HBTs.

Category C environmentally sensitive areas (ESAs) within the project site comprise of concern regional ecosystems (RE 5.5.1 and RE 5.5.1x2). No Category A or Category B ESAs are present within the project site.

Within the project area, surveys confirmed the presence of fauna species, and identified habitat values for fauna species listed as critically endangered, endangered, vulnerable and special least concern under the NC Act. The likelihood of occurrence for NC Act conservation significant species listed in Table E1.1. All NC Act listed species, excluding short-beaked echidna, are also listed under the EPBC Act and noted.

Table E1.1 NC Act conservation significant species – likelihood of occurrence

Scientific name	Common name	NC Act status (MSES)	EPBC Act status (MNES)	Likelihood of occurrence
Birds				
Aphelocephala leucopsis	Southern whiteface	V	V	Confirmed present
Calidris acuminata	Sharp-tailed sandpiper	V	V, Mig	Likely to occur
Calidris ferruginea	Curlew sandpiper	CE	CE, Mig	Likely to occur
Erythrotriorchis radiatus	Red goshawk	E	E	Potential to occur
Falco hypoleucos	Grey falcon	V	V	Likely to occur
Gallinago hardwickii	Latham's snipe	V	V, Mig	Likely to occur
Grantiella picta	Painted honeyeater	V	V	Likely to occur
Lophochroa leadbeateri leadbeateri	Pink cockatoo (eastern)	E	E	Likely to occur
Neophema chrysostoma	Blue-winged parrot	V	V	Confirmed present
Pedionomus torquatus	Plains-wanderer	CE	CR	Confirmed present
Tringa nebularia	Common greenshank	E	E, Mig	Likely to occur
Apus pacificus	Fork-tailed swift	SL	Mig	Potential to occur
Hydroprogne caspia	Caspian tern	SL	Mig	Likely to occur
Plegadis falcinellus	Glossy ibis	SL	Mig	Likely to occur
Mammals				
Pseudomys australis	Plains rat	V	V	Potential to occur
Tachyglossus aculeatus	Short-beaked echidna	-	SLC	Likely to occur
Notes: CE/CR = critically endangered; E = endangered; V = vulnerable; SL = special least concern; Mig = migratory				

Under the EO Act, protected wildlife habitat constitutes a MSES.

Two MSES values, regulated vegetation (defined watercourse) and regulated vegetation (wetland), were also confirmed present within the project site.

Impacts from the project during construction

The implementation of design measures at an early stage has resulted in a substantial direct impact avoidance through pipeline refinement, the adoption of HDD at the Wilson River, and reduced CRoW widths. These measures have minimised direct disturbance to sensitive ecological features including HBTs, riparian habitat, and watercourse and drainage features; and have significantly reduced the potential for adverse impacts on majority of the identified MSES values.

Construction impacts of the project are anticipated to include the clearing of vegetation and loss of habitat; degradation of habitats due to accidental spills of contaminants and soil disturbance; increased risk of fauna injury and/or mortality due to vehicle strikes and entrapment in open trenches; increased predation pressure and competition; introduction and/or spread of invasive species; altered hydrology and concentration of runoff at creek/floodout crossings; and altered species behaviour due to temporary increases in exposure to dust, light, noise and vibration during night works.

Impacts from the project during operation

Operation impacts of the project are anticipated to be minimal, and may include fauna injury and/or mortality due to vehicle strikes, the introduction and/or spread of invasive species due to vehicle movements during routine maintenance works, and impacts to fauna behaviour due to the generation of artificial light and increased noise.

Impacts from the project during decommissioning

Decommissioning impacts of the project are also anticipated to be minimal, given that the pipeline is expected to remain in situ, significantly limiting disturbance. However, there is a low risk of localised habitat degradation and fauna injury and/or mortality during decommissioning activities.

Recommended mitigation measures

A number of key recommendations and mitigation measures have been proposed to minimise the potential impacts of the project in accordance with the mitigation hierarchy, with a primary focus on avoiding impacts through design refinement, followed by minimisation and management of environmental and residual impacts.

The pipeline alignment has been refined and the width of the construction right of way (CRoW) has been reduced to the smallest safe working width to minimise vegetation clearing and intersection with drainage features including regulated vegetation within the defining bank of a watercourse, habitat loss and fragmentation of protected wildlife habitat. Substantial avoidance measures have been undertaken to reduce impact on habitat for conservation significant species, notably the avoidance of slow-growing HBTs that provide potential nesting and roosting sites for the southern whiteface and pink cockatoo (eastern) through horizontal directional drilling (HDD) adopted at the Wilson River crossing to prevent direct disturbance.

Project-specific mitigation measures have been defined for the design, construction, operation and decommissioning phases and will be implemented through the Construction Environmental Management Plan (CEMP). Measures include sequential clearing to allow for fauna dispersal, weed and biosecurity controls, targeted fauna spotter-catcher supervision, erosion and sediment management and rehabilitation of disturbed areas as soon as practicable. Construction methods have been designed to maintain hydrology and high-value vegetation at the Wilson River to limit disturbance within sensitive habitats including potential plains-wanderer habitat focusing on avoidance, minimisation, and management of environmental impacts and designed to protect environmental values.

Conclusion

Given the application of significant avoidance measures through alignment refinement, the localised and temporary nature of the potential impacts, within an environment that is naturally dynamic, the project has avoided impacts on ESAs and MSES to the greatest extent practicable.

Category A and Category B ESAs are absent from the project site. Impacts on Category C ESA are predicted as follows:

– of concern REs:
  - 98 ha of RE 5.5.1
  - 106.3 ha of RE 5.5.1x2.

Significant residual impacts are predicted for the following MSES:

– Regulated vegetation (defined watercourse) – likely

  Due to the linear nature of the project, clearing will occur within regulated vegetation within the defining banks of watercourses. Minimum width thresholds are not able to be achieved and maintain safe and efficient work areas within the CRoW. Environmental offsets under the Queensland offsets framework will be provided.

– Protected wildlife habitat (plains-wanderer) – potential

  Suitable habitat for the plains-wanderer occurs broadly across the project site and surrounding landscape. The species population in QLD occurs in low-densities, with habitat use opportunistic and condition-dependent, which while consistent with the species' ecology in arid and semi-arid environments has resulted in a conservative approach to habitat mapping within the project site. Acoustic detections recorded the species at five locations within the project site during the survey program. Taking into account the limited scale and duration of disturbance, the temporary and reversible nature of impacts associated with a buried linear pipeline, the extensive availability of comparable suitable habitat beyond the CRoW, and the implementation of species-specific avoidance, mitigation and reinstatement measures, the project is unlikely to result in reduced habitat availability, or adversely affect the species' population viability. Further, it is noted

that no evidence of breeding, or sustained reliance on habitats within the project site was identified. However, with new, confirmed records extending the likely range of the species, and applying the precautionary principle, the temporary disturbances to suitable habitat within the project site has conservatively been assessed as resulting in a potential significant residual impact trigger. Any potential offsets determined to be required for impacts to plains-wanderer or its habitat are proposed to be imposed under the EPBC Act.

Table E1.2 proves a summary of the outcomes of the significant residual impact assessment for terrestrial related MSES identified within the project site.

Table E1.2 Significant residual impact summary for terrestrial MSES within the project site

MSES value	Relevance to project	Impact area (ha)	Significant residual impact / Offset
Regulated vegetation			
– A prescribed RE that intersects with an area shown as a wetland on the vegetation management wetlands map (to the extent of the intersection) (regulated vegetation (wetland))	Access tracks are located within field verified REs that intersect wetlands (at three distinct locations) as mapped on the Vegetation Management Wetland Map.	n/a	No
– A prescribed RE located within a defined distance from the defining banks of a relevant watercourse or relevant drainage feature (regulated vegetation (defined watercourse))	– RE 5.3.2	0.6	Yes Offsets would be delivered under the EO Act
	– RE 5.3.4	0.31	
	– RE 5.3.5	0.2	
	– RE 5.3.7	0.02	
	– RE 5.3.9	2.14	
	– RE 5.5.1	0.53	
	– RE 5.5.1x2	0.59	
	– RE 5.5.4	0.16	
	– RE 5.5.4x1	1.57	
	– RE 5.6.2	0.29	
	– RE 5.6.4	0.18	
	– RE 5.9.3	1.28	
	– RE 5.3.21	2.12	
	– RE 5.3.21a	0.37	
Connectivity areas			
Connectivity areas	The project site is located within a landscape with high The DETSI connectivity tool has been run and found the project will not have a significant reduction in landscape connectivity		No
Protected wildlife habitat			
A habitat for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a special least concern animal	The project site intersects habitat for conservation significant fauna species listed as critically endangered, endangered, vulnerable wildlife or special least concern under the NC Act:		
	– Southern whiteface	688.4	No
	– Sharp-tailed sandpiper	281.3	No
	– Curlew sandpiper	281.3	No

MSES value	Relevance to project	Impact area (ha)	Significant residual impact / Offset
	– Red goshawk	670.4	No
	– Grey falcon	1,117.6	No
	– Latham's snipe	281.3	No
	– Painted honeyeater	330.9	No
	– Pink cockatoo (eastern)	210.1	No
	– Blue-winged parrot	1,117.6	No
	– Plains-wanderer	620.7	Potential MNES
	– Common greenshank	281.3	No
	– Plains rat	923.1	No
	– Fork-tailed swift	1,117.6	No
	– Caspian tern	281.3	No
	– Glossy ibis	281.3	No
	– Short-beaked echidna	1,17.6	No

Acronyms and abbreviations

Abbreviation/ acronym	Description
ALA	Atlas of Living Australia
APA	APA Bulloo Interlink Pipeline Pty Ltd
AS 2885	*AS 2885 Pipelines – Gas and Liquid Petroleum*
AVH	Australasian Virtual Herbarium
Biosecurity Act	*Biosecurity Act 2014* (Qld)
CEMP	Construction Environmental Management Plan
CRoW	Construction right of way
DBH	Diameter at breast height
DEMP	Decommissioning Environmental Management Plan
DETSI	Department of Environment, Tourism, Science and Innovation (Qld)
DESI	Department of Environment, Science and Innovation
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DIWA	Directory of Important Wetlands in Australia
DNRMMRRD	Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (Qld)
DPI	Department of Primary Industries (Qld)
EA	Environmental authority
EO Act	*Environmental Offsets Act 2014* (Qld)
EP Act	*Environmental Protection Act 2014* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ESA	Environmentally sensitive area
ESCP	Erosion and Sediment Control Plan
GDE	Groundwater dependent ecosystem
HBT	Hollow-bearing tree
HDD	Horizontal directional drilling
IECA	International Erosion Control Association
KP	Kilometre Point
MLES	Matter of local environmental significance
MNES	Matter of national environmental significance
MSES	Matter of state environmental significance
NC Act	*Nature Conservation Act 1992* (Qld)
NSW	New South Wales
PMST	Protected Matters Search Tool
RE	Regional ecosystem
RIDA	Regional Interests Development Approval
RPI Act	*Regional Planning Interests Act 2014* (Qld)
SEA	Strategic environmental area
SMP	Species Management Program

Abbreviation/ acronym	Description
SPRAT	Species Profile and Threats Database
TEC	Threatened ecological community
VM Act	*Vegetation Management Act 1999* (Qld)
Water Act	*Water Act 2000* (Qld)
WoNS	Weeds of National Significance

Glossary

Term	Definition
Construction right of way (CRoW)	The area that will be directly disturbed to construct the pipeline within the project area (includes the trench, temporary storage areas and construction manoeuvring areas). The nominal corridor width is up to 40 m.
Desktop search extent	The 20 km buffer around the proposed pipeline alignment used for desktop environmental database searches and spatial mapping.
Conservation significant species	Species listed as critically endangered, endangered or vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) and/or critically endangered, endangered, vulnerable or special least concern (animals only) under the *Nature Conservation Act 1992* (Qld).
Pipeline alignment	The pipeline centreline.
Pipeline easement (the easement)	The permanent operational easement for the project that would be established to facilitate ongoing access and maintenance. Allows the pipeline operator a legal right to enter land to construct, operate and maintain the pipeline. It is registered on the underlying land title and remains on title. The nominal easement width for the project is 30 m.
Project	The project includes constructing, operating (including maintaining) and decommissioning approximately 236 km of underground natural gas transmission pipeline located in Queensland, and associated above ground infrastructure to connect to the South West Queensland Pipeline.
Project area	The project area is the defined limits of the area in which the project will be located. The area encompasses a nominal 300 m wide envelope buffering the pipeline alignment, and incorporates access tracks, temporary accommodation facilities and stockpile locations as well as ancillary project related activities totalling ~8,036 ha. It also represents the extent of field-verified mapping for the project. The project site will be entirely located within the project area allowing for minor pipeline alignment adjustments and final micro-siting to maximise avoidance and minimise impacts to significant ecological values during construction.
Project site	The term project site is used to refer to the land required to construct, operate (including maintain) and decommission the Queensland section of the project. The project site comprises the 40 m wide CRoW, within which the permanent 30 m easement and surface operational facilities would be located. It also includes additional land required outside the CRoW for temporary and ancillary facilities, including construction compounds and stockpile locations, temporary workspaces, temporary accommodation facilities, access track works, and land required to support the project's water servicing strategy.
Survey area	The area physically surveyed on the ground, within and adjacent to the project area.

1. Introduction

1.1 Project overview

APA Bulloo Interlink Pipeline Pty Ltd (APA), which is part of the APA group of companies (the APA Group) is planning to develop the Bulloo Interlink Pipeline, an underground high-pressure gas pipeline that will link the South West Queensland Pipeline in Queensland with the Moomba to Wilton Pipeline in New South Wales (NSW).

The Bulloo Interlink Pipeline includes an approximately 236-kilometre (km) long section in Queensland, which will provide a more direct route for natural gas to travel from Australia's northern production areas to southern gas markets. The pipeline has a total length of approximately 339 km, comprising about 103 km in NSW.

The section of the Bulloo Interlink Pipeline located in Queensland (referred to as 'the project' for the purposes of this document) will require an environmental authority (EA) under the *Environmental Protection Act 1994* (Qld) (EP Act). Approval for the NSW section of the Bulloo Interlink Pipeline will be sought under a separate approval process in accordance with NSW legislation and approval requirements.

1.1.1 Location

The project is located within the Bulloo Shire local government area in the vicinity of the Noccundra township within the traditional Country of the Wangkumarra People and Kullilli People. The project site extends south from the tie-in point with the South West Queensland Pipeline for about 186 km, then traverses south-west for about 30 km, and south about 20 km to the Queensland–NSW border. The project location and key project features are shown in Figure 1.1.

1.1.2 Key project features

The project will be designed, constructed and operated in accordance with the *AS 2885 Pipelines – Gas and Liquid Petroleum* series of standards (AS 2885) and the Australian Pipelines and Gas Association (APGA) *Code of Environmental Practice – Onshore Pipelines* (APGA Code of Environmental Practice) (APGA, 2022).

The key operational features of the project include:

– an underground high pressure, steel gas transmission pipeline with a length of about 236 km
– a permanent easement of up to 30 metres (m)
– supporting surface infrastructure, including:
    - beginning of line facility, including a connection to the South West Queensland Pipeline
    - temperature control station, including main line valve
    - cathodic protection units
    - main line valve
    - pipeline marker signs
    - permanent access tracks.

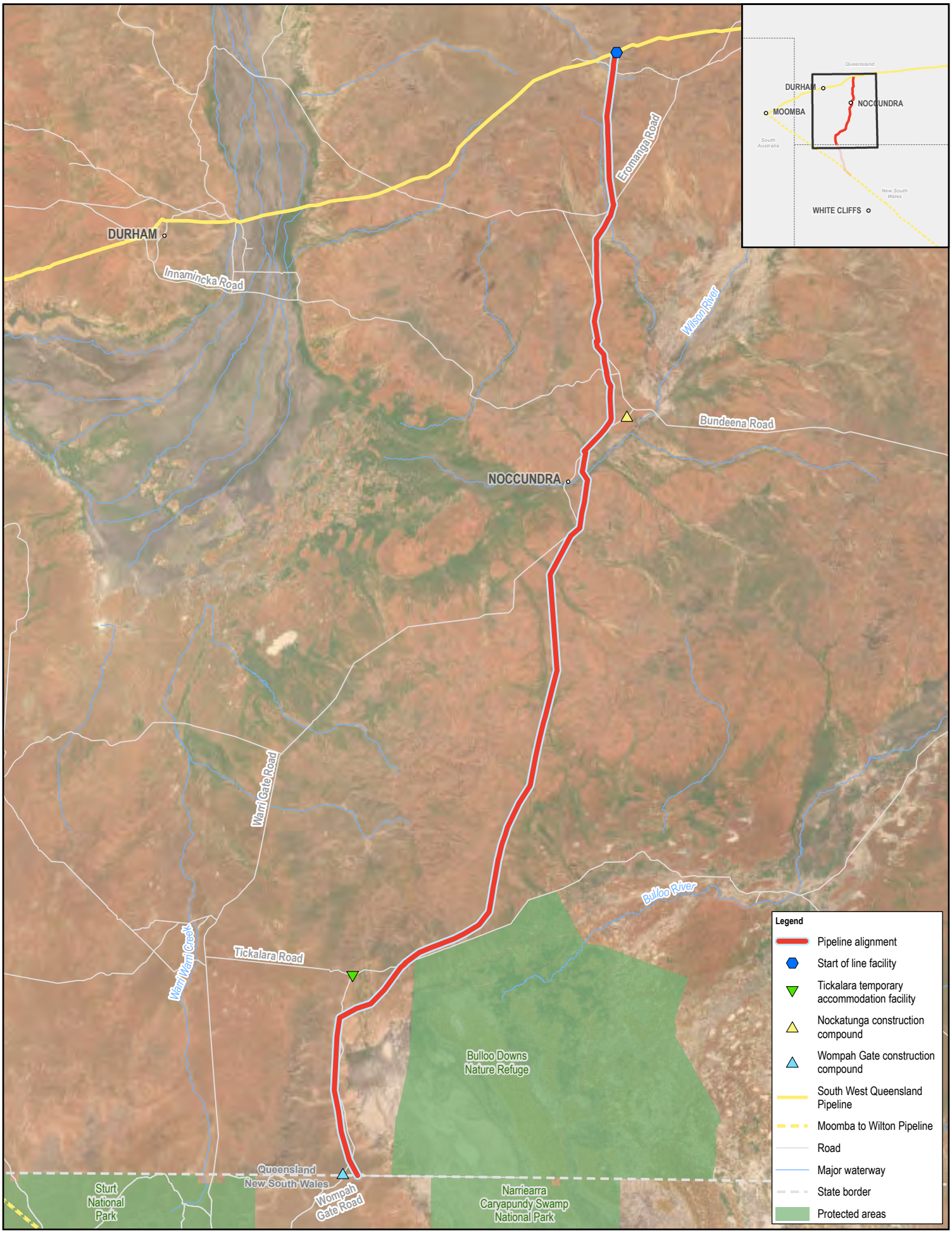
An approximately 40 m wide CRoW will be established to facilitate construction and access.

Key ancillary facilities and infrastructure outside the CRoW would include:

– a temporary accommodation facility located at the intersection of Wompah Gate Road and Tickalara Road
– a construction compound facility to stockpile line pipe located on Wompah Gate Road near the southern end of the project site.

Smaller temporary workspaces are also proposed at regular intervals along the CRoW to support construction activities.

Further information on the project's features and indicative construction methodology is provided in Chapter 3 (Project description) of the Environmental Authority Supporting Information Report (GHD, 2026a).



Paper Size ISO A4

0 4.5 9 13.5 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

N

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Bulloo Interlink Pipeline

Project No. **12661648**
Revision No. **0**
Date **15/06/2026**

Project location and key features

Figure 1.1

N:\AU\Sydney\Projects\21\12661648\GIS\Maps\Deliverables\Queensland\12661648_OBIL_1.aprx - BIL_KeyFeatures_QLD_1pg_A4P / Print date: 15 Jun 2026 - 10:00

Data source: Earthstar Geographics, Esri, CGIARDNRMMRRD: Roads, Watercourse (2023), LGA (2025); GA: State border (2006). APA: Pipeline alignments, infrastructure, pipe stockpiles, camps (2026); NPWS: Estates (2026). Created by: acjackson

1.2 Purpose and scope of this report

This Terrestrial Ecology Assessment has been prepared by GHD to identify, describe, and assess terrestrial ecological values within the Queensland section of the Bulloo Interlink Pipeline project. It summarises the findings of desktop and field surveys investigating the terrestrial ecological values of the existing environment.

This includes ecological constraints identified through early alignment refinement where route variations were adopted to avoid sensitive vegetation communities and potential habitat for threatened species.

This report supports the project's impact assessment and EA application by documenting survey methods and results, species records, vegetation communities, habitat condition, and the likelihood of occurrence of conservation significant species listed under the NC Act and MSES under the *Environmental Offsets Act 2016* (Qld) and subordinate legislation Environmental Offsets Regulation 2016, including matters of national environmental significance (MNES) listed under the EPBC Act. This report also identifies and assesses impacts on environmentally sensitive areas (ESAs) under the provisions of the EP Act as relevant to the project.

The findings of the field surveys were used to inform early impact avoidance and mitigation measures, including further alignment refinements, targeted threatened species surveys, and construction phase management to minimise disturbance to high-value habitats that represent ecological constraints such as watercourses, wetlands, and riparian corridors. Where impacts to MSES are predicted to remain a significant residual impact assessment has been undertaken in accordance with the *Queensland Significant Residual Impact Guideline* (DEHP, 2014), for applications assessable under the EP Act.

This report applies only to terrestrial ecology within Queensland. Aquatic ecology is addressed separately in Appendix C (Aquatic Ecology Assessment Report) of the Environmental Authority Supporting Information Report (GHD, 2026a).

1.3 Report structure and content

The structure and content of this report are outlined in Table 1.1.

Table 1.1 Structure and content

Section	Description
Section 1 – Introduction	Outlines the key elements of the project and the purpose of this report (this section).
Section 2 – Legislative and policy context	Summarises the key legislative requirements and guidelines relevant to terrestrial ecology.
Section 3 – Methodology	Describes the project area and methodology for the assessment.
Section 4 – Existing environment	Describes the existing environmental values of the project area and project site relevant to terrestrial ecology.
Section 5.1 – Construction impacts	Examines the potential for impacts to terrestrial ecology during construction.
Section 5.2 – Operation impacts	Examines the potential for impacts to terrestrial ecology during operation.
Section 5.3 – Decommissioning impacts	Examines the potential for impacts to terrestrial ecology during decommissioning.
Section 5.4 – Cumulative impacts	Provides an assessment of cumulative impacts.
Section 6 – Recommended mitigation and management measures	Recommends measures to mitigate and manage the potential impacts identified.
Section 7 – Impact assessment	Assesses the significance of the potential residual impacts of the project on MNES and matters of national values.
Section 8 – Conclusion	Provides the key findings of the assessment.

1.4 Limitations

This report has been prepared by GHD for APA Bulloo Interlink Pipeline Pty Ltd and may only be used and relied on by APA Bulloo Interlink Pipeline Pty Ltd for the purpose agreed between GHD and APA Bulloo Interlink Pipeline Pty Ltd as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than APA Bulloo Interlink Pipeline Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

GHD has prepared this report on the basis of information provided by APA Bulloo Interlink Pipeline Pty Ltd and others who provided information to GHD (including government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer to section 1.3 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

2. Legislative and policy context

This report has been prepared to support the EA application under the EP Act. The key legislation, regulations and guidelines relevant to the project and this report are described in the following sections.

2.1 Queensland legislation and policy

2.1.1 Biosecurity Act 2014

The *Biosecurity Act 2014* (Biosecurity Act) establishes a framework to safeguard Qld's economy, agricultural and tourism industries, environment, and way of life from pests, diseases and contaminants.

The Biosecurity Act classifies biosecurity risks as either a 'prohibited matter' or a 'restricted matter'. A prohibited matter is a biosecurity matter which is not found in Qld, and would have a significant adverse impact if it was to enter the state. A restricted matter is a biosecurity matter currently found in Qld that has a significant impact on human health, social amenity, the economy or the environment.

The Biosecurity Act is administered by the Department of Primary Industries (DPI) also establishes a 'general biosecurity obligation' requiring all persons to take reasonable steps to prevent the spread of pests, diseases and contaminants.

The Biosecurity Act is relevant to the project due to:

– extensive vehicle movements
– ground disturbance
– interaction with rural and pastoral land.

Restricted matters recorded within the project site are discussed in section 4.5.

Biosecurity risks for the project will be managed through biosecurity controls, including hygiene and weed management measures.

2.1.2 Environmental Offsets Act 2014

The *Environmental Offsets Act 2014* (EO Act) is administered by the Department of Environment, Tourism, Science and Innovation (DETSI) and establishes a framework for providing environmental offsets where a prescribed activity results in a significant residual impact on a prescribed environmental matter, after all reasonable avoidance and mitigation measures have been applied.

The project constitutes a prescribed activity being a resource activity carried out under an EA. However, an environmental offset obligation may only be imposed where it is demonstrated that the project will result in a significant residual impact to a prescribed environmental matter, such as a MNES or MSES.

Significant Residual Impact Guideline

The Queensland *Significant Residual Impact Guideline* (DEHP, 2014) is a non-statutory guideline that provides criteria to determine whether a prescribed activity is likely to have a significant residual impact on MSES, requiring offsets. Any significant residual impacts identified through the significant residual impact assessment must be addressed through appropriate environmental offsets in accordance with this guideline.

Queensland Environmental Offsets Policy

The *Queensland Environmental Offsets Policy* (DETSI, 2025a) is a decision-support tool for administering agencies to use in the assessment of environmental offset proposals, to ensure that they meet the requirements of the EO Act. Offsets are only required under the EO Act for significant residual impacts from prescribed activities on prescribed environmental matters (i.e. MNES, MSES, and MLES).

If an administering agency decides to impose an offset condition on an authority for a prescribed activity, the offset must be delivered in accordance with the Queensland environmental offsets. A proponent with an offset requirement can deliver the offset through either proponent-driven offsets (including land-based offsets and/or delivery of actions in a Direct Benefit Management Plan (DBMP)), financial settlement offsets, or a combination of these approaches.

The project is likely to result in a residual impact to a MSES, being regulated vegetation (watercourse) and an environmental offset is likely to be required in accordance with the *Queensland Environmental Offsets Policy* (DETSI, 2025a).

2.1.3 Environmental Protection Act 1994

The EP Act establishes a framework to provide for the protection of Queensland's environment while allowing for development to occur in an ecologically sustainable manner.

The project would require an EA under the EP Act for a resource activity. The project involves carrying out the activity prescribed in Schedule 3, item 5 of the Environmental Protection Regulation 2019 (Qld) (EP Regulation), being the construction of a new pipeline exceeding 150 km under a petroleum authority (PPL 2087).

This terrestrial ecology assessment has been prepared to support the EA application by:

– identifying terrestrial environmental values associated with the project
– assessing potential impacts to terrestrial flora, fauna and habitat
– describing measures to avoid or minimise environmental harm, consistent with the general environmental duty under the EP Act.

Application requirements

The *Application requirements for petroleum activities guideline* (DESI, 2024) provides specific requirements relevant to petroleum-related projects, including pipeline construction and operation.

The *Application requirements for activities with impacts to land* (DETSI, 2025b) outlines the environmental information necessary to support EA applications for activities impacting land, including assessment of potential environmental values, disturbance descriptions, impact assessment, and mitigation measures.

Specifically for this terrestrial ecology assessment, the guidelines (DESI, 2024) require the consideration of:

– bioregions and REs
– flora values including vegetation communities, protected species and pest species
– fauna including fauna present and protected animal breeding places
– Category A, B and C ESAs for resource activities
– areas with high ecological significance values such as TECs or large tracts of remnant vegetation.

Further, the guideline identifies that where a residual adverse impact on State-significant biodiversity values is proposed, an offset may be required as discussed in section 2.1.2.

These guidelines have been applied to inform this terrestrial ecological assessment by guiding the identification of relevant terrestrial environmental values, potential disturbance pathways such as vegetation clearing and soil disturbance, and the development of appropriate avoidance, mitigation, and rehabilitation strategies to minimise environmental harm.

2.1.4 Planning Act 2016

The *Planning Act 2016* (Planning Act) establishes Queensland's land use planning and development assessment framework through planning instruments such as the State Planning Policy (SPP), regional plans and local planning schemes. The project constitutes a resource activity and, as such, the pipeline is not subject to development assessment under local planning schemes made under the Planning Act.

Notwithstanding the above, specific components of the project remain subject to the Planning Act where those components constitute assessable development in their own right. The following has been identified for the project:

– Operational work involving clearing of native vegetation is not applicable as Schedule 21 of the Planning Regulation 2017 identifies that a resource activity is exempt clearing work.
– Operational work involving waterway barrier works associated with waterways crossings may be assessable development under the Planning Act. This is discussed in Appendix C (Aquatic Ecology Assessment Report) of the Environmental Authority Supporting Information Report (GHD, 2026a).

2.1.5 Nature Conservation Act 1992

The NC Act provides for the conservation of native wildlife and wildlife habitat in Qld, including the protection and management of protected wildlife species and their breeding places.

The NC Act is relevant to the project due to the potential for construction activities to temporarily disturb fauna habitat along the pipeline alignment. In particular, the NC Act requires consideration of potential impacts to animal breeding places, as defined under section 335 of the Nature Conservation (Animals) Regulation 2020.

Under the NC Act, a species management program (SMP) is required only where an activity is proposed that may tamper with an animal breeding place. SMPs may be classified as:

– low risk, for least concern fauna species
– high risk, for endangered, vulnerable, near threatened or special least concern species, including colonial breeding species.

There were a number of potential breeding places identified during the field surveys for the project, including birds' nests, tree hollows, pooled water and hollow logs located within the project site. The likelihood of occurrence assessment and field-based investigations have identified a number of listed species that have the potential to breed within the project site (section 4.2.3). Where practicable, fauna breeding places will be avoided, and where avoidance is not feasible, appropriate SMPs under the NC Act will be obtained prior to commencement of relevant works.

Flora Survey Guidelines – Protected Plants (DETSI, 2025f) provides the requirements for protected plants surveys, reporting and vegetation clearing permits required under the NC Act to remove vegetation within high-risk flora trigger areas. High-risk flora trigger mapping identifies areas of high importance for protected plants under the NC Act. A small portion of an access track at KP 83, to be utilised by the project is located within high-risk trigger mapping. Any proposed vegetation clearing within the mapping will adhere with requirements stipulated within these guidelines and relevant permits would be obtained as relevant.

2.1.6 Vegetation Management Act 1999

The *Vegetation Management Act 1999* (VM Act) provides for protection of remnant vegetation and interacts with the Planning Act to regulate development that involves clearing of vegetation. A regulated vegetation management map is established under the VM Act, which indicates vegetation category areas according to the following:

– Category B – remnant vegetation.
– Category C – high-value regrowth vegetation.
– Category R – regrowth watercourse and drainage feature vegetation.
– Category X – non-remnant vegetation.
– Category A – vegetation that is not category B, C, R or X. Category A vegetation areas are usually areas that are mapped as a declared area, an offset area or an exchange area or have been unlawfully cleared or are the subject of a restoration notice or an enforcement notice.
– Regulated vegetation (defined watercourse).
– Regulated vegetation (wetland).

The project will intersect regulated vegetation, as well as relevant watercourses and wetlands as defined under the VM Act. Vegetation clearing associated with the project is exempt clearing work (under Schedule 21 of the Planning Regulation) on the basis that the project is a resource activity i.e. a petroleum activity and development approval is not required.

However, impacts to regulated vegetation defined as MSES under the EO Regulation are assessed against the Queensland *Significant Residual Impact Guideline* (DEHP, 2014) to determine whether a prescribed activity is likely to have a significant residual impact on MSES, requiring offsets as discussed in section 2.1.2.

2.2 Commonwealth legislation and policy

2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the principal environmental law administered by the Australian Government. The EPBC Act provides for the protection of MNES which includes the following terrestrial values as relevant to the project:

- MNES threatened species and ecological communities
- MNES migratory species.

The presence (or likelihood of occurrence) of terrestrial MNES within the project area is discussed in section 4.6 and impacts are summarised in section 7.3.

Aquatic flora and fauna, including wetlands, are discussed in Appendix C (Aquatic Ecology Assessment Report) of the Environmental Authority Supporting Information Report (GHD, 2026a).

Significant impact assessment guidelines 1.1 – Matters of national environmental significance

The EPBC Act *Significant impact guidelines 1.1* (DoE, 2013), provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under national environment law (i.e. MNES protected under the EPBC Act, as described in section 4.6). These guidelines outline a 'self-assessment' process, including detailed criteria, to assist persons in deciding whether or not a referral may be required (DoE, 2013). A summary of the significant impact assessments undertaken for MNES is provide in section 7.3.

Environmental Offset Policy

Environmental offsets are defined as measures that compensate for the significant residual adverse impacts of an action on the environment. Offsets provide environmental benefits to counterbalance the impacts that remain after avoidance and mitigation measures have been implemented. These remaining, unavoidable impacts are termed 'residual impacts'.

The *EPBC Act Environmental Offsets Policy* (DSEWPC, 2012) sets out the Australian Government's approach to environmental offsets for significant residual impacts on MNES under the EPBC Act. For assessment under the EPBC Act, offsets are only required if residual impacts are considered significant (DSEWPC, 2012). The policy requires that an offset must deliver an overall conservation outcome that improves or maintains the viability of the matter being offset (DSEWPC, 2012). Offsets are generally required to be direct, land-based offsets but can also include other compensatory measures, such as funding for research.

MNES are prescribed environmental matters under the EO Act, however, offset conditions for MNES cannot be imposed, delivered or legally secured under the EO Act. The EO Act indicates that the preference is for offset conditions to be imposed by the Commonwealth rather than the State. On this basis any potential offsets determined to be required (subject to further assessment) for impacts to species that are listed under both the EPBC Act and the NC Act would be proposed to be imposed under the EPBC Act.

3. Methodology

3.1 Assessment approach

The assessment included desktop assessments and field surveys, which supported a likelihood of occurrence assessment, vegetation mapping, and fauna habitat mapping. The various approaches support a robust assessment and identification of key ecological features, which in turn supported the assessment of potential impacts and opportunities for mitigation.

3.1.1 Desktop assessment

Prior to the field surveys, an initial desktop assessment was undertaken in June 2025 to facilitate an informed approach to the field survey. The desktop assessment incorporated a review of relevant government databases and mapping layers. Databases and desktop mapping utilised during the desktop assessments are summarised in Table 3.1. Desktop search results are provided in Appendix B.

Table 3.1 Desktop assessment information sources

Desktop search	Purpose
Commonwealth	
Protected Matters Search Tool (PMST)	The Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) PMST search was used to identify MNES protected under the EPBC Act that have the potential to occur within the desktop search extent (DCCEEW, 2025a).
Species Profile and Threats Database (SPRAT)	The DCCEEW SPRAT profiles were assessed to determine habitat requirements and ecology of potentially occurring threatened species (DCCEEW, 2025b).
Directory of Important Wetlands in Australia (DIWA)	The DIWA database was searched to understand if any nationally important wetlands are present within the study area (DCCEEW, 2025c).
State	
Queensland Globe	Queensland Globe was used to view spatial features (including the flora survey trigger map, regulated vegetation, and watercourses as defined by the *Water Act 2000* (Qld) (Water Act)) mapped within the project area (Queensland Government, 2025).
WildNet platform	The DETSI WildNet platform was searched to retrieve historical records of flora and fauna species previously recorded within the desktop search extent (DETSI, 2025c).
Biomaps	The WildNet online database was assessed through Biomaps to identify the location and date of historical records of threatened species within the desktop search extent (DETSI, 2025d).
MSES environmental database and report tool	The MSES environmental database and report tool was utilised to identify MSES within the desktop search extent including aquatic protected areas, essential wetland habitats, waterways, and conservation significant species protected under the NC Act (DETSI, 2025e).
WetlandMaps	WetlandMaps was used to view wetlands mapping spatial features to identify lacustrine, riverine and palustrine water bodies or REs through point features, major and minor watercourses lines, and polygons of wetland waterbodies and wetland REs (DETSI, 2019).
Other sources	
Atlas of Living Australia (ALA) database	The ALA database (2025) was utilised to search and retrieve historical sighting records of threatened flora and fauna species within the desktop search extent.
Australasian Virtual Herbarium (AVH) database	The AVH database (2025) was used to retrieve historical records of flora species previously collected in the vicinity of the desktop search extent.
Additional resources	
Arcadian Ecology Report	The Arcadian Ecology Report was reviewed to provide context on previous ecological assessments of the ‘Stockpile 1’ laydown area.
APA provided information (site photos)	APA reference materials including site photographs were used to obtain up-to-date information on the project area and current environmental conditions to inform planning.

3.1.2 Field surveys

Three terrestrial ecology field surveys were conducted within the project area to identify and document existing environmental values verify desktop assessment outcomes, and inform the identification of conservation significant species, habitats and potential constraints. The first two surveys provided a baseline investigation of values, with the third survey investigating opportunities to avoid direct impacts to hollow-bearing trees (HBTs) at high-value drainage crossings via adjustments and refinements to the pipeline alignment. Survey plans were developed with reference to species-specific guidelines including:

- Conservation advice and national recovery plans
- *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland* (Neldner et al., 2023)
- *Survey guidelines for Australia's threatened birds* (DEWHA, 2010)
- *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (DoE, 2015a)
- *Referral guideline for 14 birds listed as migratory species under the EPBC Act* (DoE, 2015b)
- *Survey guidelines for Australia's threatened mammals* (DSEWPC, 2011)
- *Flora Survey Guidelines – Protected Plants* (DETSI, 2025f).

Survey effort

The initial survey was undertaken over a 10-day period by a team of two botanists and two fauna ecologists, operating as two field teams and completing approximately 10 hours of survey effort per day. The second mobilisation was conducted over an 8-day period by two experienced ecologists, focusing on high-value habitats and refining information on conservation-significant species of concern. The third survey was undertaken over a 6-day period by a senior ecologist and APA's construction team using a differential GPS to determine the best alignment for the pipeline through the high-value watercourse habitats, prioritising avoidance of impacts.

A summary of the survey effort is summarised in Table 3.2, and depicted in Figure 3.1 and Figure 3.2 for flora surveys and fauna surveys, respectively.

Survey effort for conservation significant fauna species is summarised in Table 3.3.

Animal ethics and legislative permits

The terrestrial ecology field surveys were conducted in accordance with the following permits and approvals:

- DPI Scientific Users Registration Certificate (SUR000132).
- DETSI Scientific Purposes Permit (P-SPP-100800544).
- Animal Research Authority (ARA 24/25) issued by the accredited GHD Animal Ethics Committee.

Table 3.2 Summary of survey effort

Survey	Dates (days)	Team	Survey effort
Initial terrestrial baseline survey/ preliminary targeted terrestrial survey	Winter survey 30 July– 8 August 2025 (10 days x 10 hours)	– 2x botanists – 2x ecologists	**Flora survey effort** – 507x RE assessments (quaternary vegetation assessments according to Neldner et al., 2022) – 18x introduced species assessments (introduced species were rarely observed) – 200 search hours in suitable habitat for EPBC Act and NC Act flora species that have potential to occur. **Fauna survey effort** – 55x active searches – 48x bird censuses – 14x call playbacks – 6x conservation significant species – 57x fauna breeding habitats – 12x fauna secondary traces

Survey	Dates (days)	Team	Survey effort
			– 311x general habitats – 10x general species – 18x hazards – 77x HBT records – 26x large trees (≥30 cm diameter at breast height (DBH)) – 468x photo points – 20x water features/wetlands – 10x waterbody watches – 200 search hours in suitable habitat for threatened fauna species that have potential to occur – 44x camera days/nights – 15x AudioMoth days/nights – 8x Anabat nights.
Targeted terrestrial survey	Spring survey 6–15 October 2025 (8 days x 10 hours)	2x ecologists	**Fauna survey effort** <u>Targeted effort</u> – 150 km spotlighting driving transects – 1,700 m large tree transects – 102x BAR V2 nights (15 devices over 6–7 nights) – 160 search hours in suitable habitat for threatened fauna species that have potential to occur. <u>Opportunistic effort</u> – 17x active searches – 18x bird censuses – 3x call playbacks – 2x conservation significant species – 7x fauna breeding habitats – 20x general habitats – 6x hazards – 11x HBT records – 16x large trees (≥30 cm DBH) – 271x photo points – 7x water features/wetlands – 7x waterbody watches – 6x representative receiving environment assessments (downstream impacts).
Targeted refinement survey for hollow-dependent species	17-–22 January 2026 (6 days x 10 hours)	1x senior ecologist and APA construction and approvals team	**Fauna survey effort** – 48x targeted drainage feature crossings – 124x HBT points – 29x photo points.

Table 3.3 Summary of survey effort for conservation significant fauna

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Plains-wanderer	– Daytime habitat assessments – Nocturnal spotlighting over three nights (12 hours) (conducted on nights where there is no wind or only a light breeze, and either no rain or light showers). – Acoustic surveys utilising BAR V2, passive acoustic monitoring devices (PAM) recording from 4 pm to 10 am daily.	– 15 remote BAR V2 PAM devices set for 6–7 days/nights (102 survey nights) – 150 km (6 hours) of spotlighting over three nights, with slow driving (5kph) through areas of optimal habitat – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites.	Due to the widespread availability of structurally suitable habitat within the broader project landscape, surveys were strategically targeted to areas with the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping, field verification and targeted acoustic monitoring is sufficient to detect presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments. Traditional spotlighting is recognised as a low-efficiency detection method for plains-wanderer; however, this limitation was addressed through the extensive use of passive acoustic monitoring, which represents current best practice for the species.	Survey effort is considered adequate to assess presence and to inform an assessment of potential impacts. Additional survey being undertaken will assist to further inform species usage and distribution across the project area.
Southern whiteface	– Daytime habitat assessments – Bird census surveys – Targeted large-tree and hollow transects.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 1700 m large-tree transects.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping, field verification and targeted large tree transects is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Targeted survey methods for the southern whiteface, are not specified by the survey guidelines (DEWHA, 2010); as such, general recommendations in relation to the species' conservation advice (DCCEEW, 2023b) were followed. This species occupancy has largely been established on site through historical records.

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Pink cockatoo (eastern)	– Daytime habitat assessments – Bird census surveys – Targeted large-tree and hollow transect – Detection improves following rainfall events.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 1,700 m large-tree transects.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping, field verification and targeted large tree transects is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Targeted survey methods for the pink cockatoo (eastern) are not specified in the survey guidelines (DEWHA, 2010); as such, general recommendations in relation to the species' conservation advice were followed (DCCEEW, 2023a). This species occupancy has been established on site through historical records, and the surveys were conducted at a suitable time.
Blue-winged parrot	– Daytime habitat assessments – Bird census surveys – Area searches/ flushing surveys – Autumn–winter (April–August) during northward movements – Detection improves following rainfall events.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – Active searches/ flushing surveys at 72 sites.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping, field verification and active searches is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Targeted survey methods for the blue-winged parrot, are not specified by DEWHA (2010); as such, general advice in relation to the species' conservation advice (DCCEEW, 2023c) were followed. This species occupancy has been established and well documented on site through historical records and the surveys were conducted at a suitable time. Given the highly mobile and nomadic nature of the blue-winged parrot and its opportunistic use of inland habitats during non-breeding movements, the survey effort is considered adequate to confirm presence and assess habitat availability and use within the project area.

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Painted honeyeater	– Daytime habitat assessments – Bird census surveys – Breeding season: generally spring–summer (roughly October to March).	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites (noting mistletoe observations/ densities).	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping, field verification and targeted survey methods is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Targeted survey methods for the painted honeyeater are not specified by the survey guidelines (DEWHA, 2010); as such, general advice in relation to the species' conservation advice (DoE, 2015a) were followed. Targeted survey methods were adequate as they were focussed on the few areas noted to contain higher mistletoe densities. Surveys were conducted at a suitable time.
Sharp-tailed sandpiper	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers – Vantage point surveys – Diurnal area search in appropriate habitat in and around the project area – Four surveys for roosting shorebirds during the period when the majority of shorebirds are present in the area (August to December for the sharp-tailed sandpiper).	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. .	Targeted survey efforts for the sharp-tailed sandpiper were limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligning with periods when migratory shorebirds may occur in Australia (DoE, 2015b). The largely inland and linear nature of the proposed action corridor is expected to provide, at most, transient stopover habitat for migratory shorebirds. Key coastal roosting or staging habitats for the sharp-tailed sandpiper do not occur within the project area. Accordingly, the survey effort is considered sufficient to identify the presence of suitable aquatic habitats and assess the

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
				likelihood of use by the species.
Curlew sandpiper	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers. – Vantage point surveys. – Diurnal area search in appropriate habitat in and around the project area. – Four surveys for roosting shorebirds during the period when the majority of shorebirds are present in the area. (August to March for curlew sandpiper).	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including in and around waterbodies is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Survey effort for the curlew sandpiper was limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligning with periods when migratory shorebirds may occur in Australia (DoE, 2015b). The largely inland corridor will more likely provide transient stopover habitat which is unlikely to be impacted; therefore, the survey effort is considered sufficient.
Common greenshank	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers – Vantage point surveys – Diurnal area search in appropriate habitat in and around the project area – Four surveys for roosting shorebirds during the period when the majority of shorebirds are present in the area. (August to March for common greenshank).	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including in and around waterbodies is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Survey effort for the common greenshank was limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligning with periods when migratory shorebirds may occur in Australia (DoE, 2015b). The largely inland corridor will more likely provide transient stopover habitat which is unlikely to be impacted; therefore, the survey effort is considered sufficient.

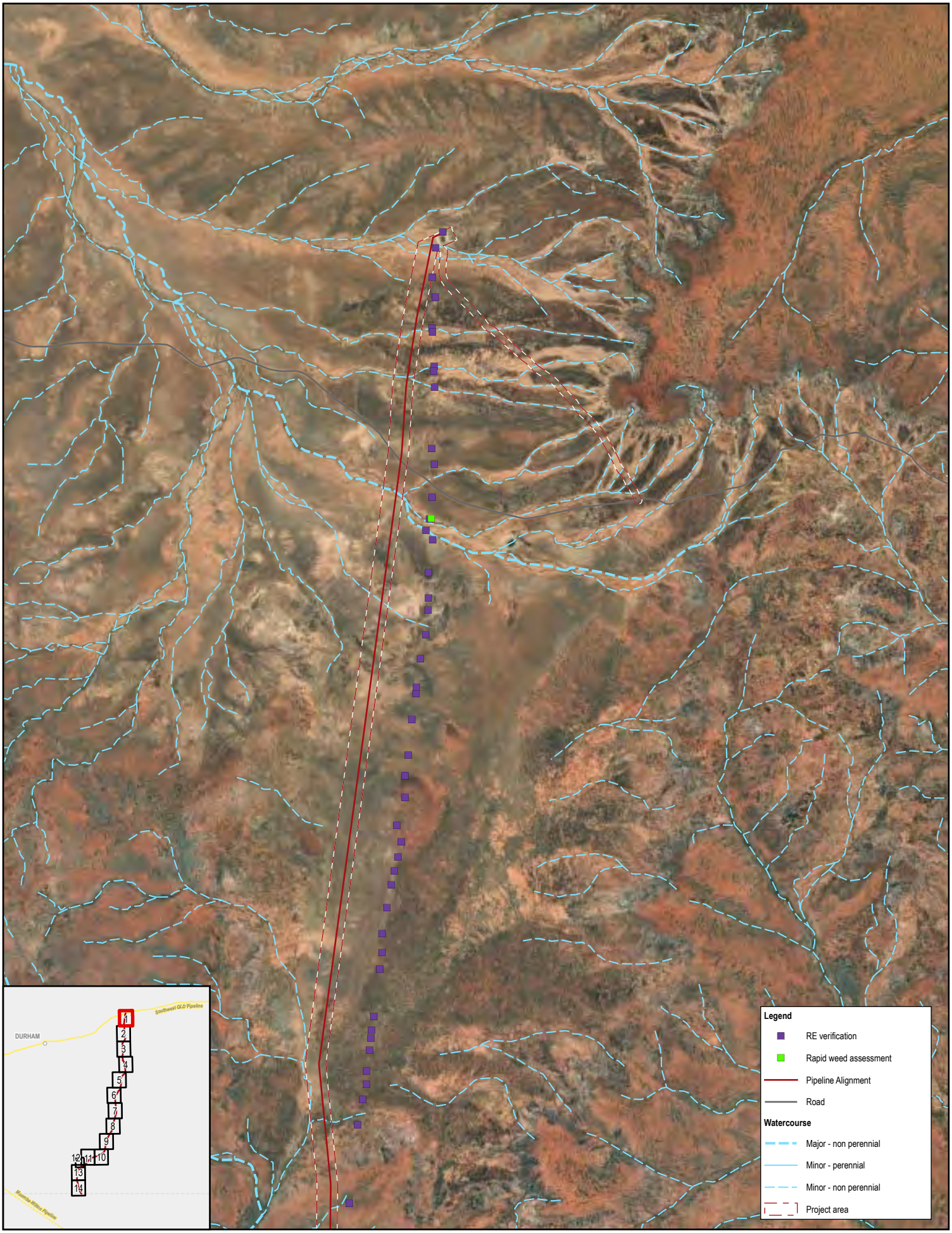
Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Grey falcon	– Observation from vantage points to detect soaring species over – Area searches on foot in suitable habitat in and around the project area – Transect surveys by vehicle within extensive study – Transect surveys by boat along suitable coastal or riverine habitat for nests – Aerial surveys in extensive areas.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 560 person hours of driving the project area and surveying the habitat.	Due to the widespread availability of suitable foraging and hunting habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting grey falcon foraging or nesting activity. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Targeted critical breeding areas for the grey falcon were surveyed more extensively, as several target species utilise these habitats. Very limited suitable habitat capable of supporting raptor nests was identified within these areas; therefore, the survey effort is considered adequate given the ease of identifying and assessing the targeted locations.
Latham's snipe	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers – Vantage point surveys – Diurnal area search in appropriate habitat in and around the project area – Four surveys for roosting shorebirds during the period when most shorebirds are present in the area. (August to March for Latham's snipe).	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including in and around waterbodies is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Survey effort for Latham's snipe was limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligning with periods when migratory shorebirds may occur in Australia (DoE, 2015b). The largely inland corridor will more likely provide transient stopover habitat which is unlikely to be impacted; therefore, the survey effort is considered sufficient for this species.

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Red goshawk	– Observation from vantage points to detect soaring species over – Area searches on foot in suitable habitat in and around the project area – Transect surveys by vehicle within extensive study.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – Call-playback at 17 sites – 560 person hours of driving the project area and surveying the habitat.	Due to the widespread availability of suitable foraging and hunting habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species foraging or potential nesting habitat attributes. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Areas considered most likely to support red goshawk foraging or nesting habitat attributes were surveyed more extensively, as several target species utilise these habitats. Very limited suitable habitat capable of supporting raptor nests was identified within these areas; therefore, the survey effort is considered adequate given the ease of identifying and assessing the targeted locations.
Plains rat	– Daytime searches for suitable habitat (e.g. spinifex hummocks, boulders, crevices) – Daytime searches for species presence (e.g. tracks, nests, burrows, scats) – Collection of predator scats, owl casts, or remains targeting nests/dens – Pitfall trap surveys – Hair sampling device surveys – Elliott A small mammal box trap surveys.	– Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 560 person hours of driving the project area, and surveying the habitat – 44 camera day/nights – 72 active searches for secondary traces.	Trapping was not undertaken due to the widespread nature of habitat in the project area, and associated ethical constraints.	Although suitable plains rat habitat is extensive across the project area, and additional survey effort could be justified, the species has not been recorded within the area. The nearest record is from a 2001 barn owl pellet, 54 km south. Surveys were undertaken as a precautionary measure for this species, and the current effort is considered sufficient for assessment purposes.

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Fork-tailed swift	– Timed aerial counts during the Austral summer or migration periods – Observation from elevated viewpoints to detect birds flying overhead – Standardised timed surveys conducted by experienced observers able to identify calls and birds in flight – October–April in Australia.	– Bird census at 66 sites – Rapid fauna habitat assessments at 331 sites – 560 person hours of driving the project area and surveying the habitat.	Due to the entirely aerial nature of the species and the extensive area of suitable habitat, surveys relied primarily on general bird census observations. Few elevated viewpoints were available within the project area, and only two surveys were conducted during the species' Australian migration period.	The fork-tailed swift is a highly aerial, non-breeding migratory species in Australia, that forages almost exclusively in flight and is not dependent on specific ground-based habitats within the project area. As the proposed action will not result in the loss or modification of habitat relevant to this species, and the species forages entirely on the wing, the potential for significant impacts is considered low. Given its transient behaviour and broad foraging range, the existing survey effort is considered adequate to assess its likelihood of occurrence and potential impacts. Consistent with the Species Profile and Threats (SPRAT) database, the fork-tailed swift is an obligate aerial forager that does not rely on ground-based habitat in Australia, and therefore is unlikely to be affected by terrestrial construction works (DCCEEW, 2026).

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Caspian tern	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers – Vantage point surveys – Diurnal area search in appropriate habitat in and around the project area – Four surveys for roosting shorebirds.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including in and around waterbodies is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Survey effort for the Caspian tern was limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligned with periods when migratory shorebirds may occur in the Channel Country bioregion. The largely inland corridor is more likely to provide transient foraging or stopover habitat, therefore, the survey effort is considered sufficient for this species.
Glossy ibis	– Transect surveys by boat around offshore islands, lake shores, coastlines and rivers – Vantage point surveys – Diurnal area search in appropriate habitat in and around the project area – Four surveys for roosting shorebirds.	– Bird census at 66 sites – Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 17 waterbody watches.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including in and around waterbodies is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	Survey effort for the glossy ibis was limited relative to the 236 km linear project area. Surveys undertaken in July–August targeted aquatic habitats through bird census and waterbody watches, aligned with periods when migratory shorebirds may occur in the Channel Country bioregion (rainfall driven). The largely inland corridor will more likely provide transient foraging or stopover habitat, which is unlikely to be impacted; therefore, the survey effort is considered sufficient for this species.

Species	Recommended surveys and conditions	Survey effort	Limitations	Survey adequacy
Short-beaked echidna	– Daytime searches for suitable habitat – Daytime searches for species presence (e.g. tracks, diggings, scats, possible den's/ burrows) – Observations and monitoring of predator scats, remains and road-kill – Camera trapping.	– Photo points at 739 sites – RE verification at 507 sites – Rapid fauna habitat assessments at 331 sites – 560 person hours of driving the project area, and surveying the habitat – 44 camera day/nights – 72 active searches for secondary traces.	Due to the widespread availability of suitable habitat for this species within the project area, surveys were strategically focused on areas considered to have the highest likelihood of supporting the species foraging and potential denning habitat attributes. While not all areas of potentially suitable habitat were subject to survey, the combination of habitat mapping and field verification, including active searches, is sufficient to predict presence of the species, make informed assessments of where it has the potential to occur and assist to inform impact assessments.	There are no State Government targeted survey guidelines for the short-beaked echidna, as such, general recommendations and survey guidelines (Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland (DES 2022)) in relation to the species' were followed. Suitable short-beaked echidna habitat is extensive across the project area, however, the species abundance is lower in arid areas, than that of higher-value coastal regions. There are several historical records of the species adjacent to the alignment, the closest 160 m away in from the southernmost extent in QLD. Surveys effort undertaken for this species is considered sufficient for assessment purposes.



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Kilometres

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Flora survey effort

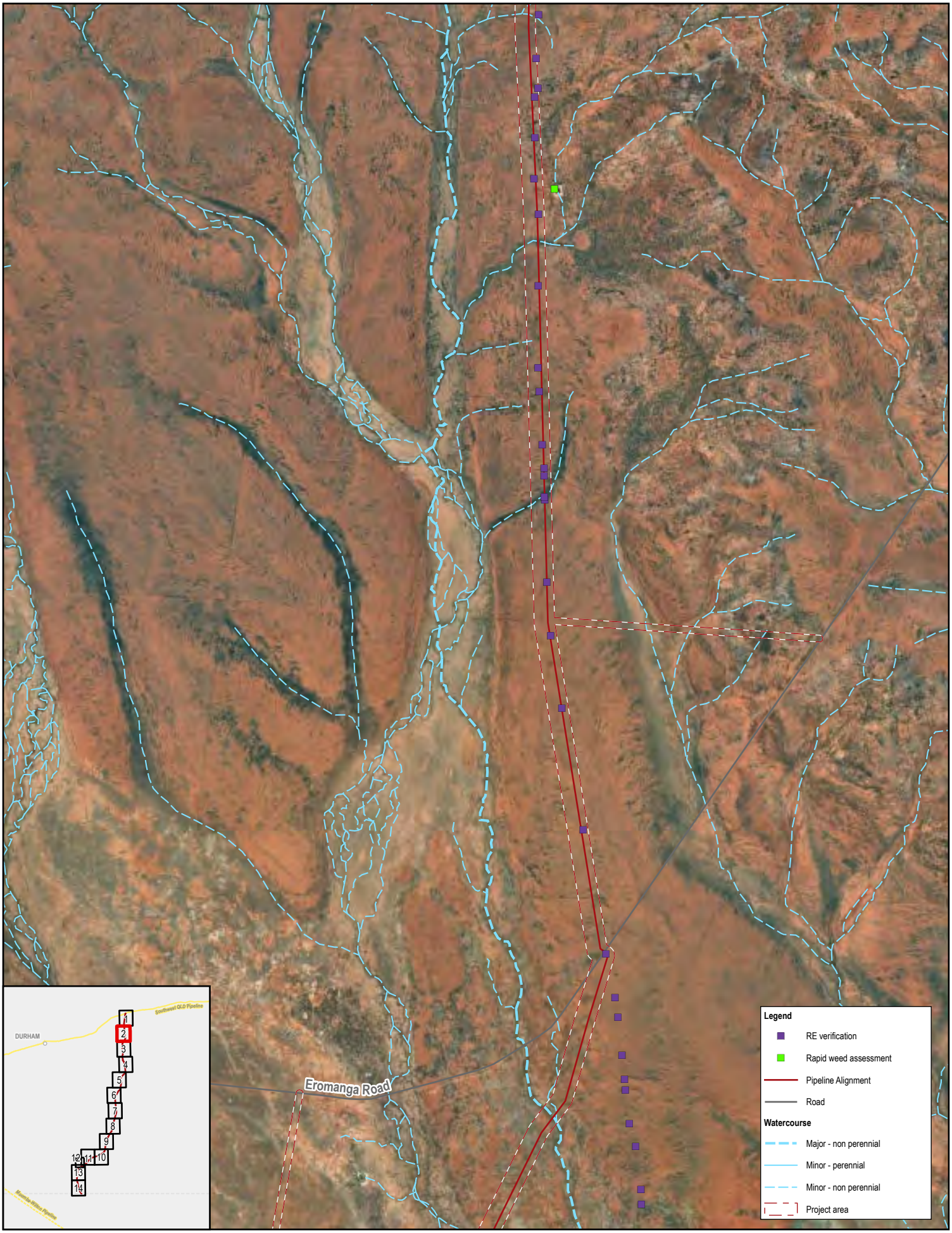
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Figure 3.1

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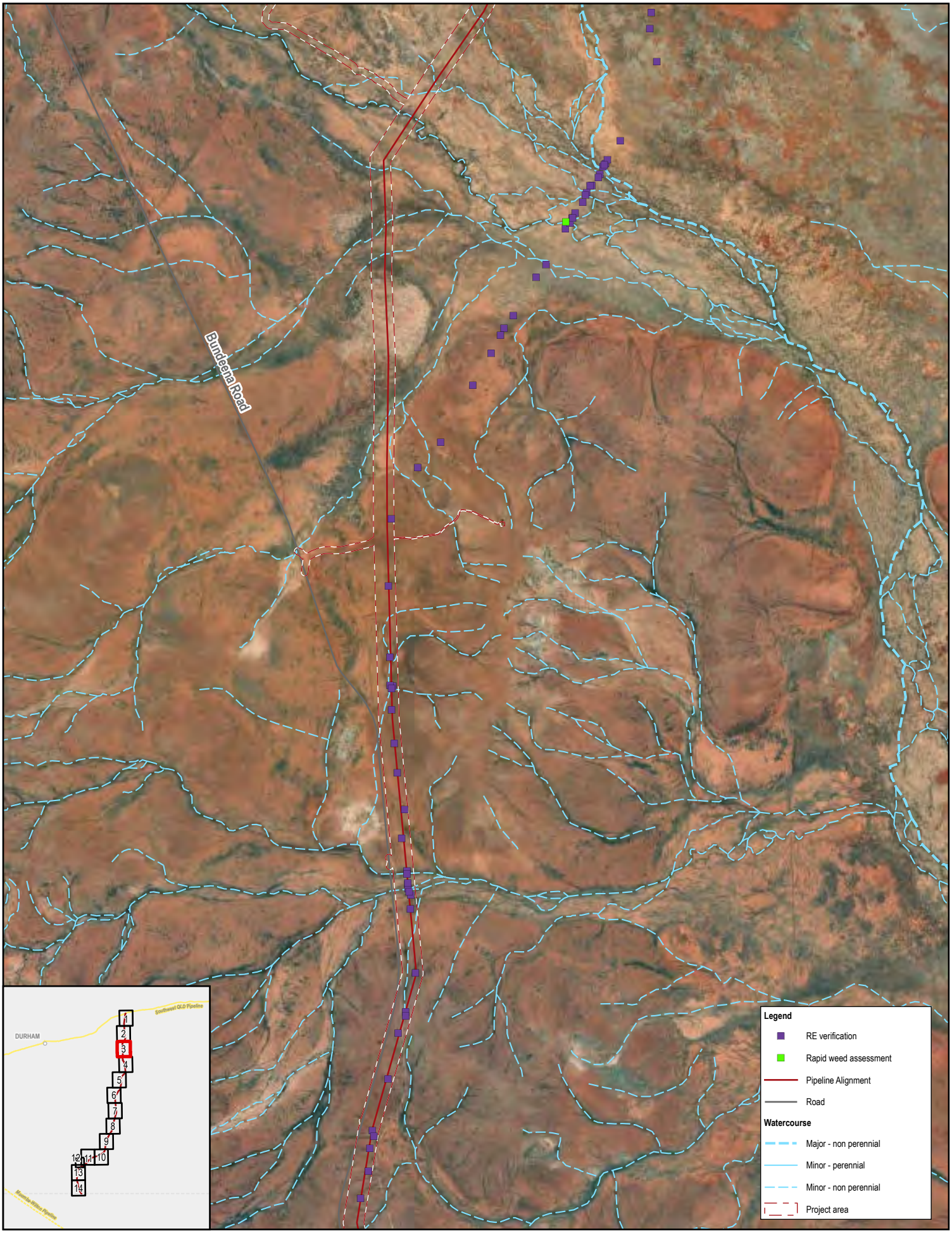
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Figure 3.1

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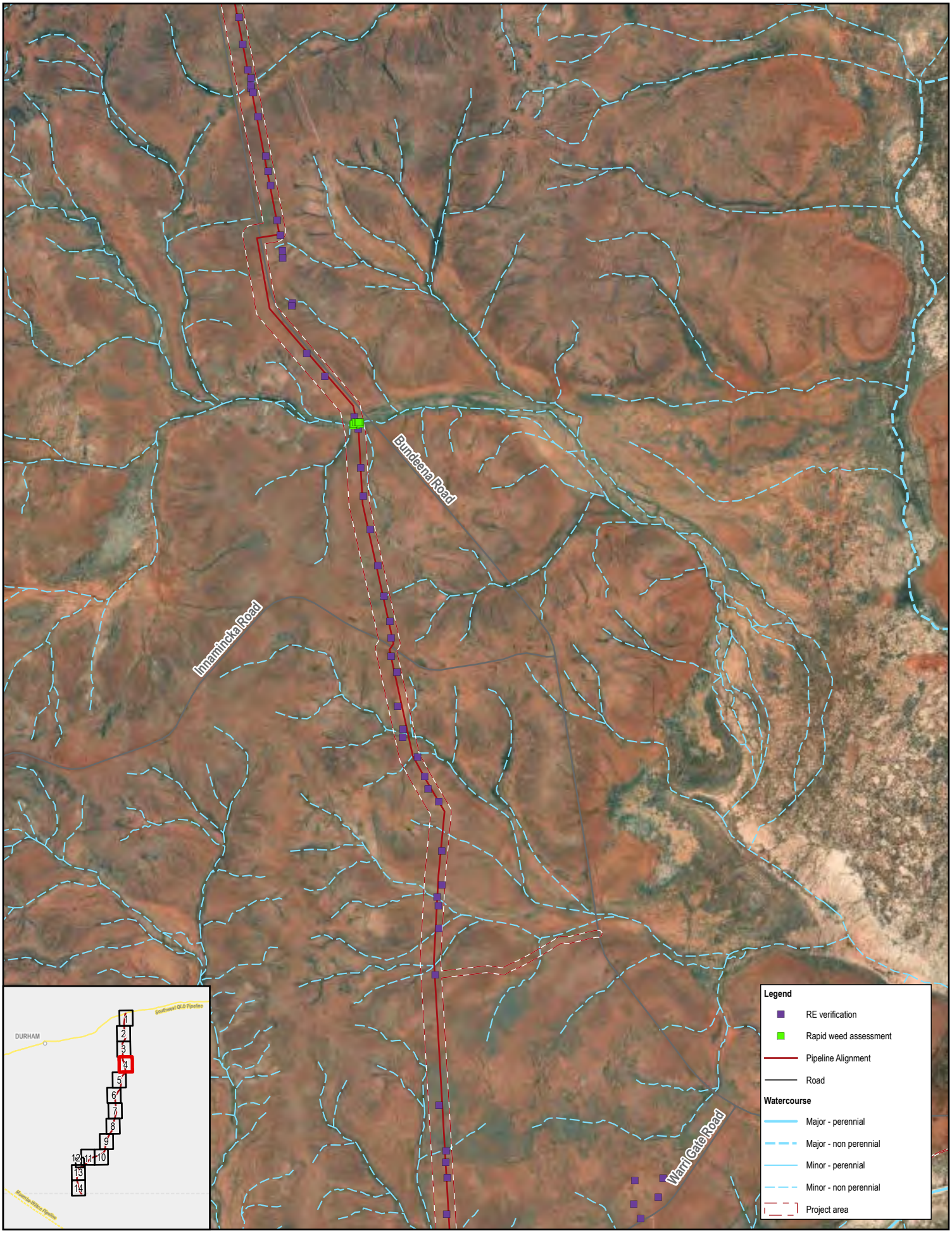
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Figure 3.1

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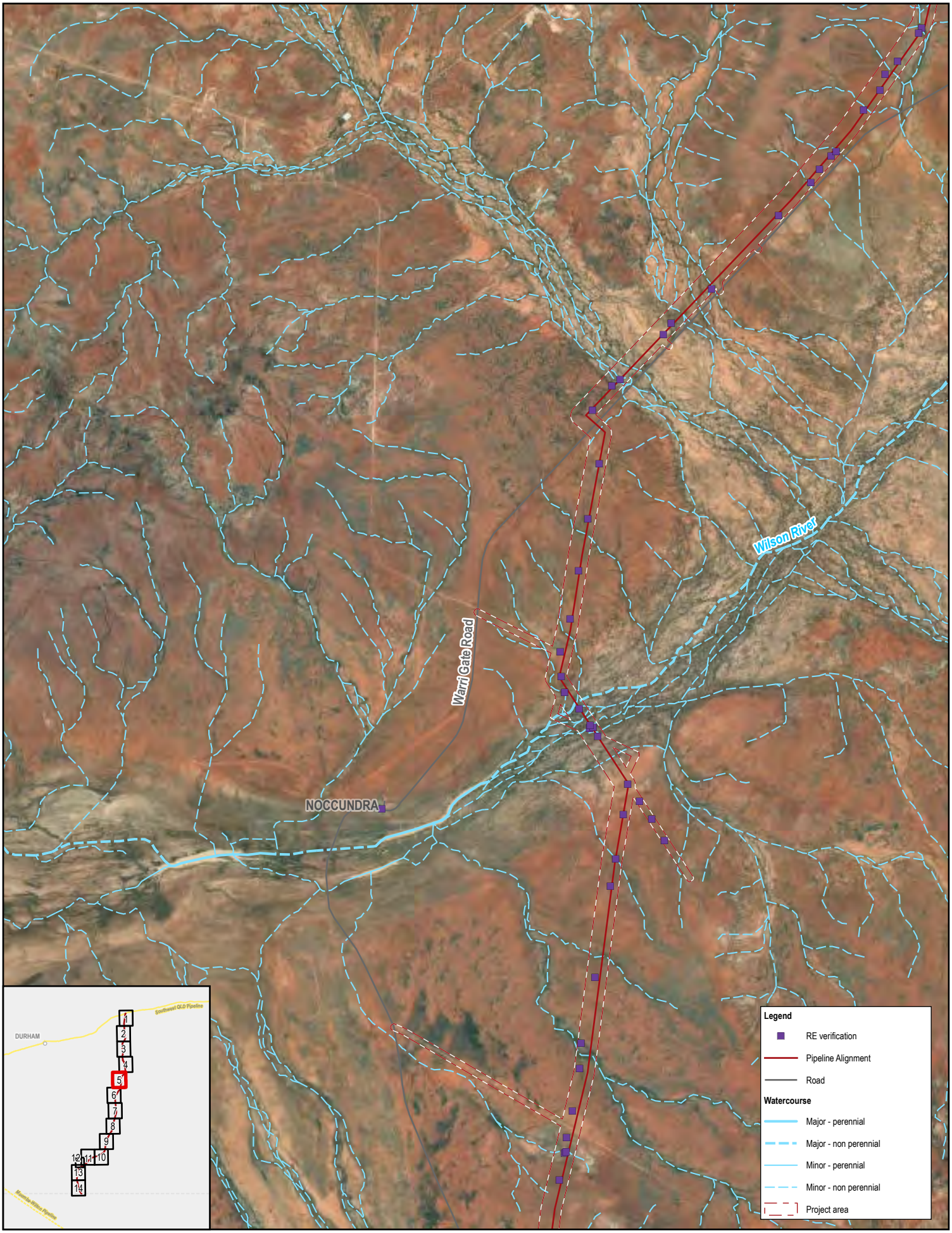
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Figure 3.1

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Flora survey effort

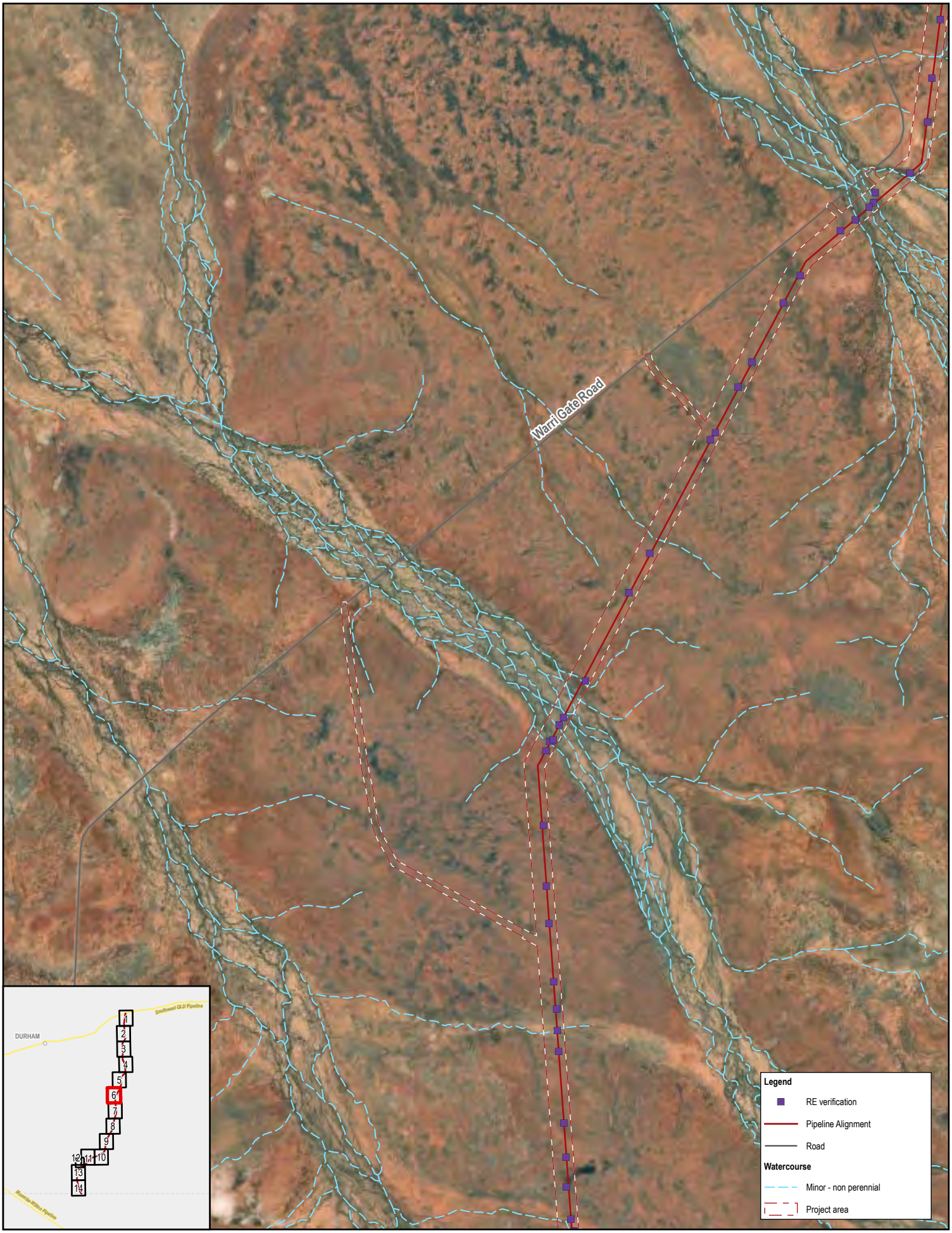
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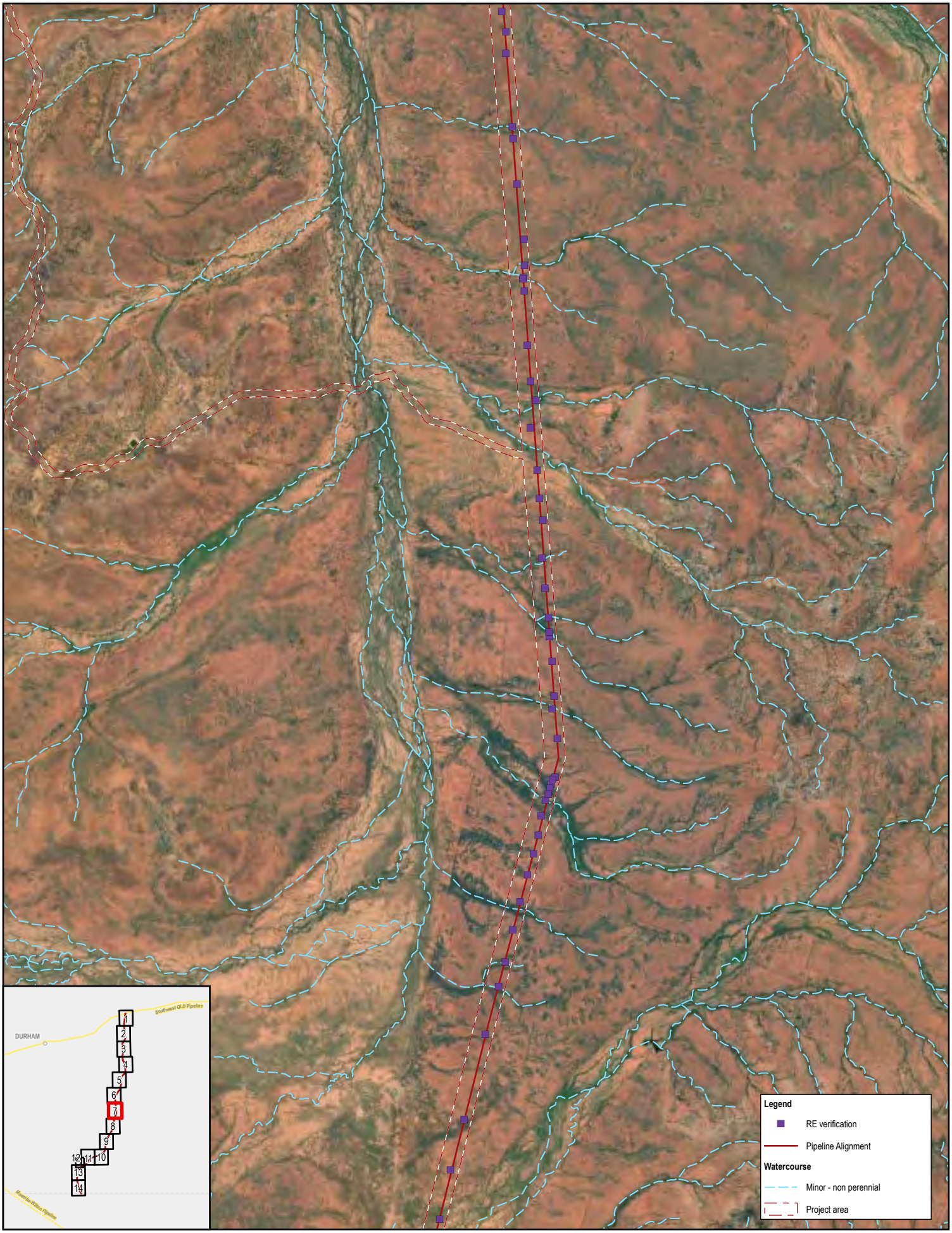
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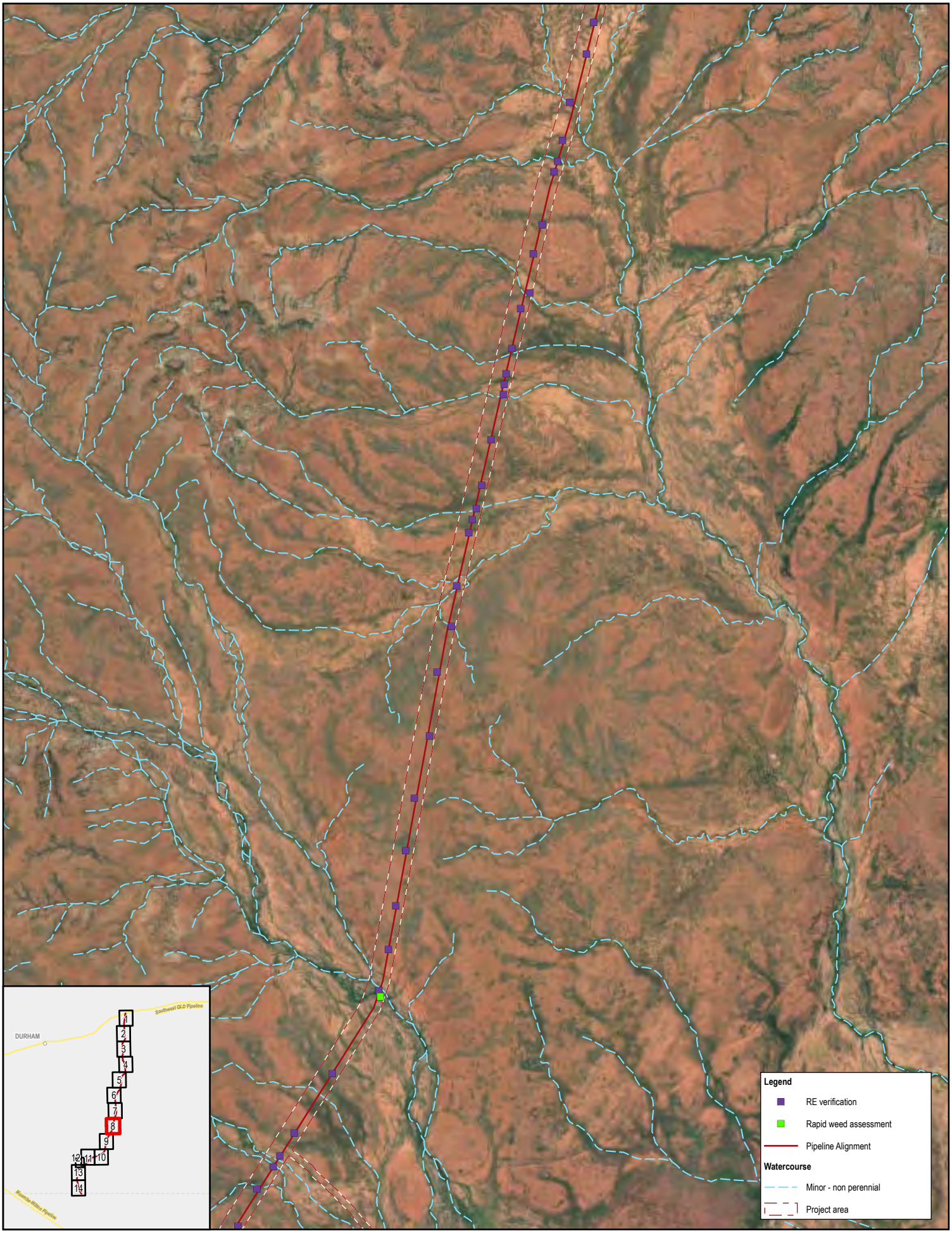
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Flora survey effort

Figure 3.1

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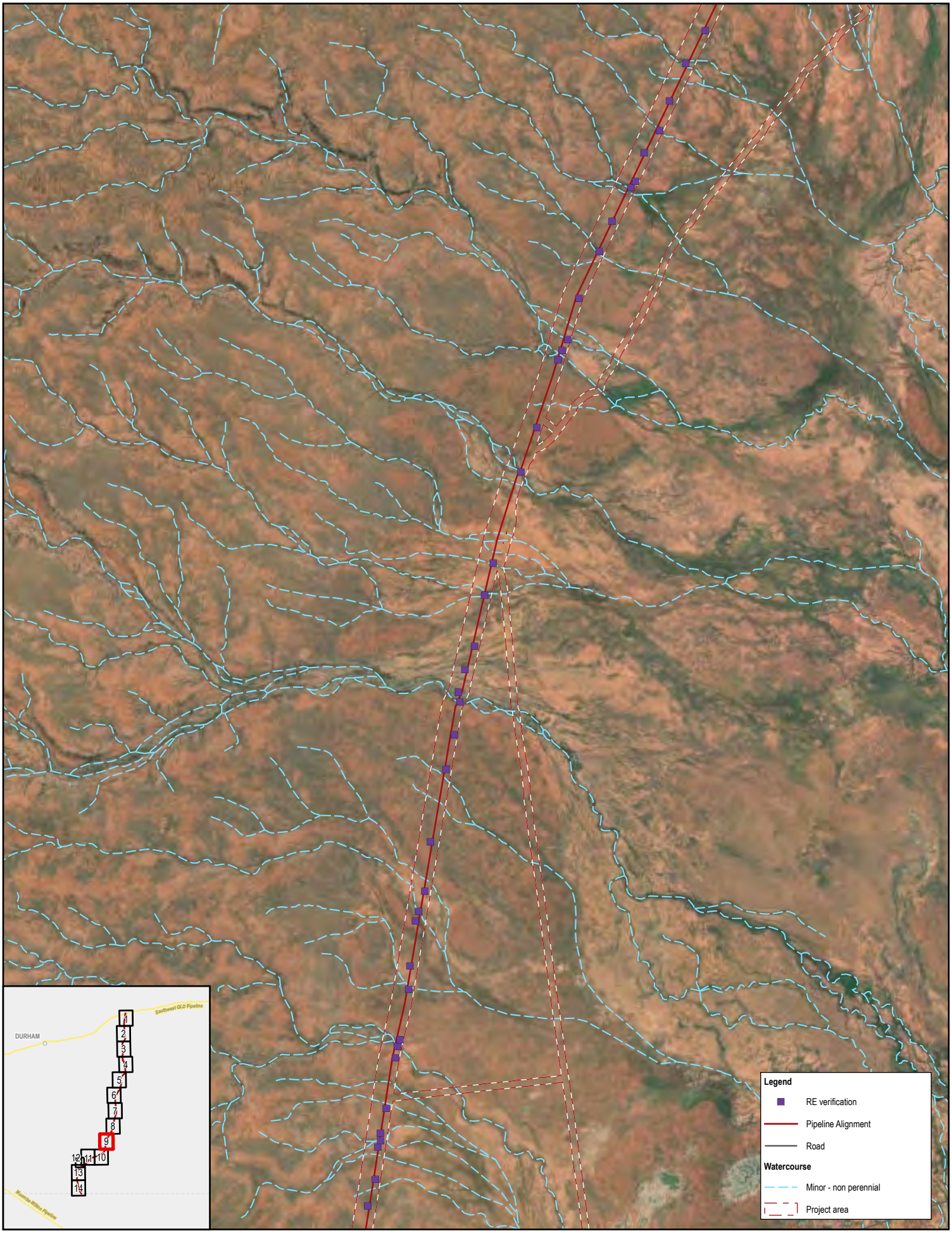
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Figure 3.1

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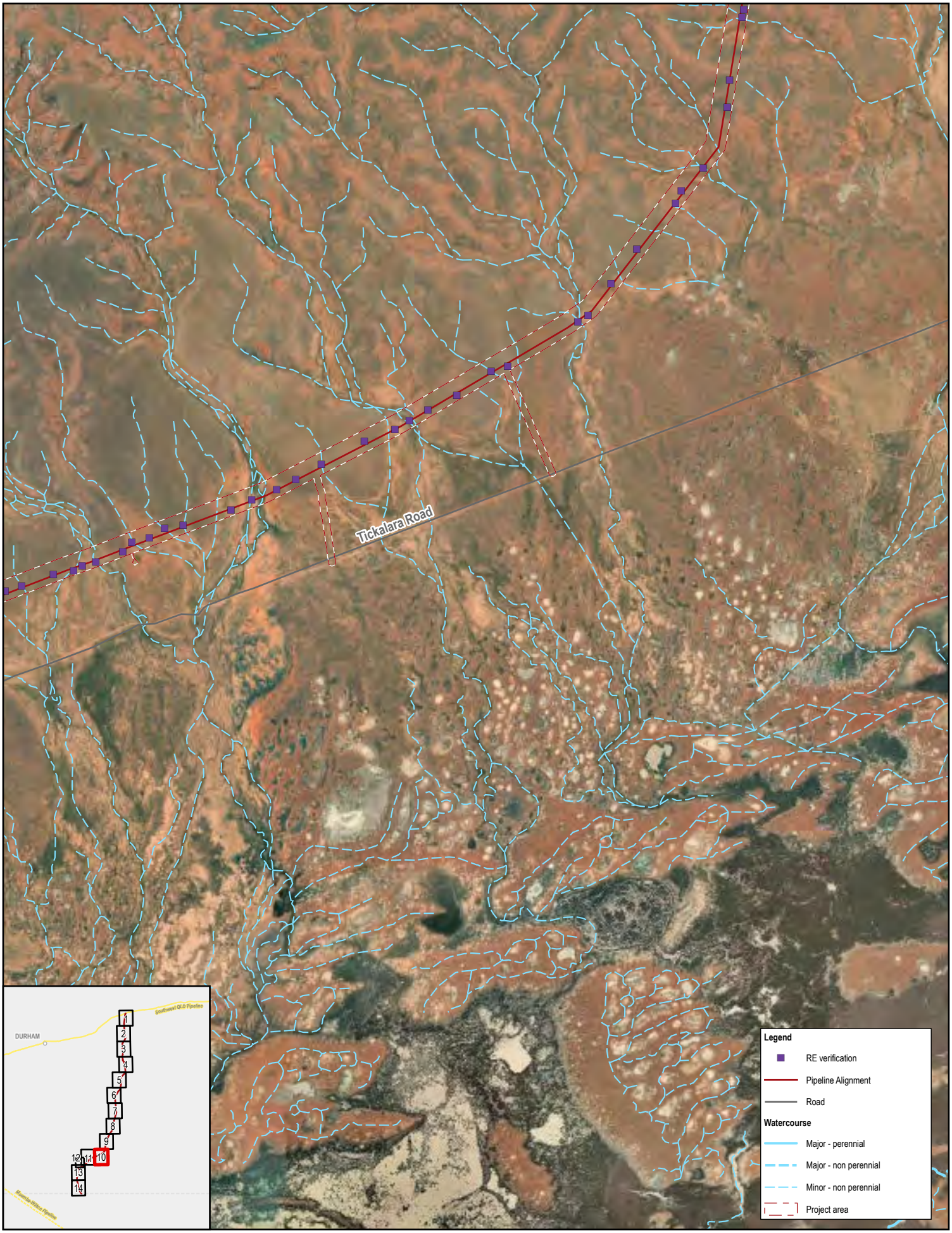
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Flora survey effort

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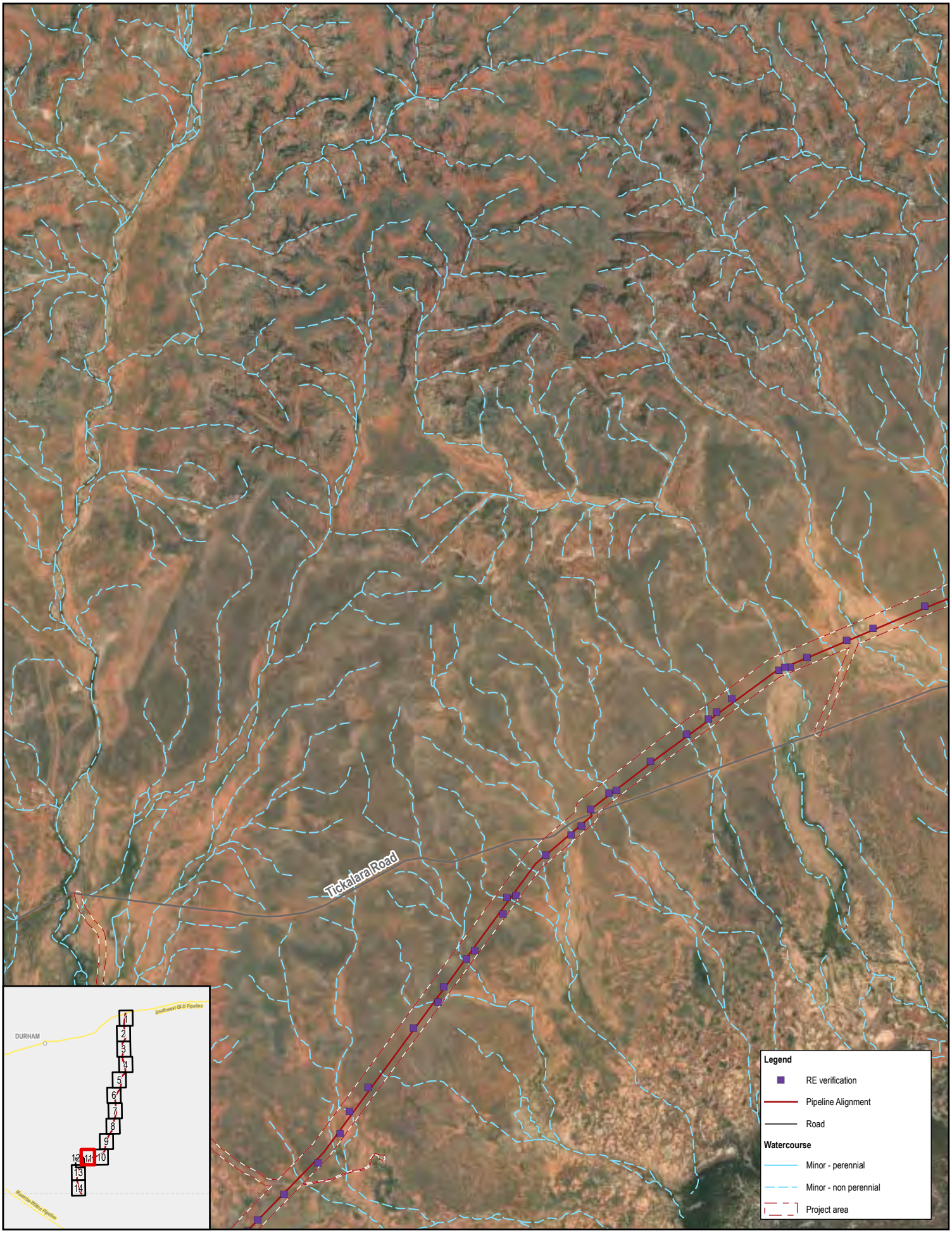
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Flora survey effort

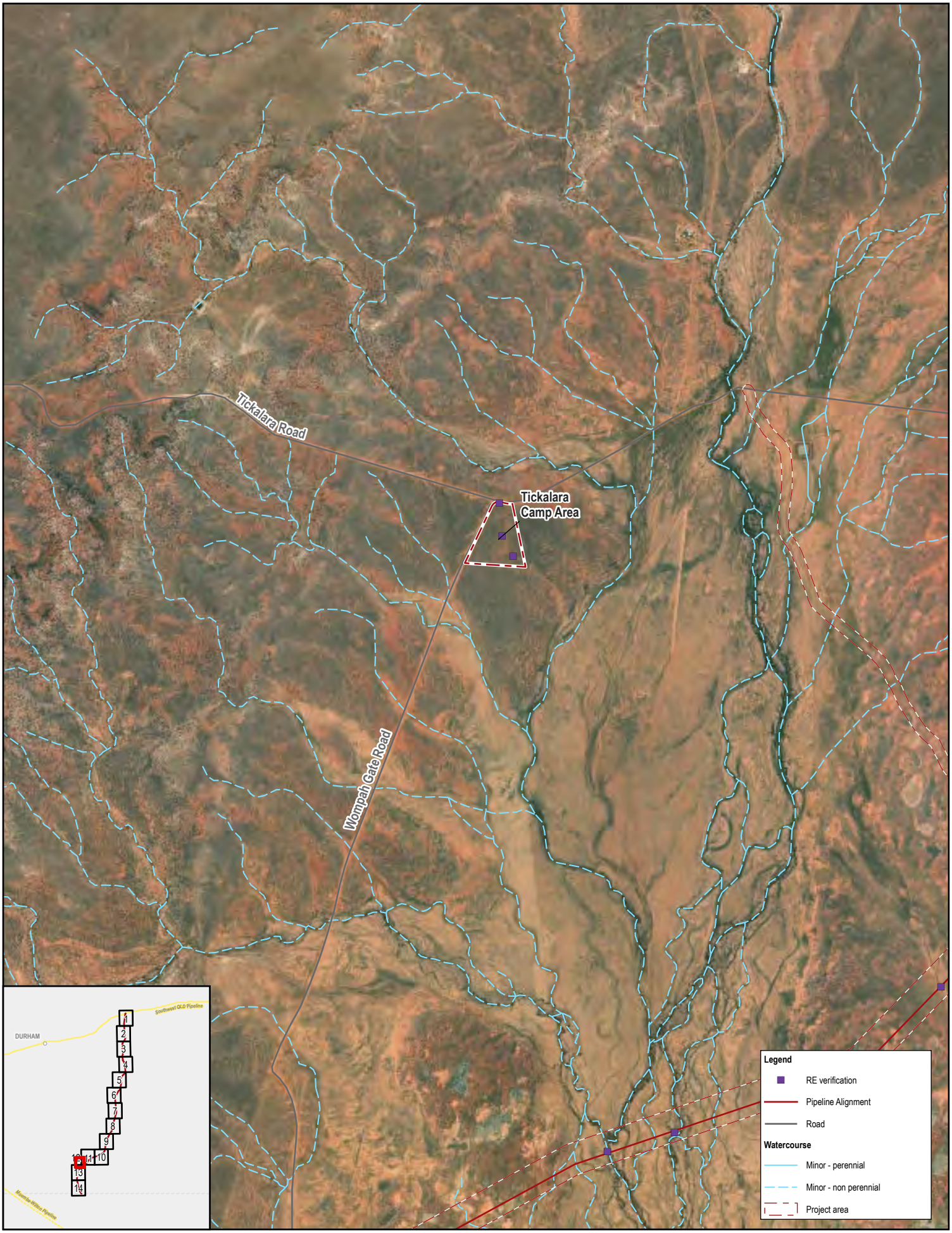
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Bulloo Interlink Pipeline

Flora survey effort

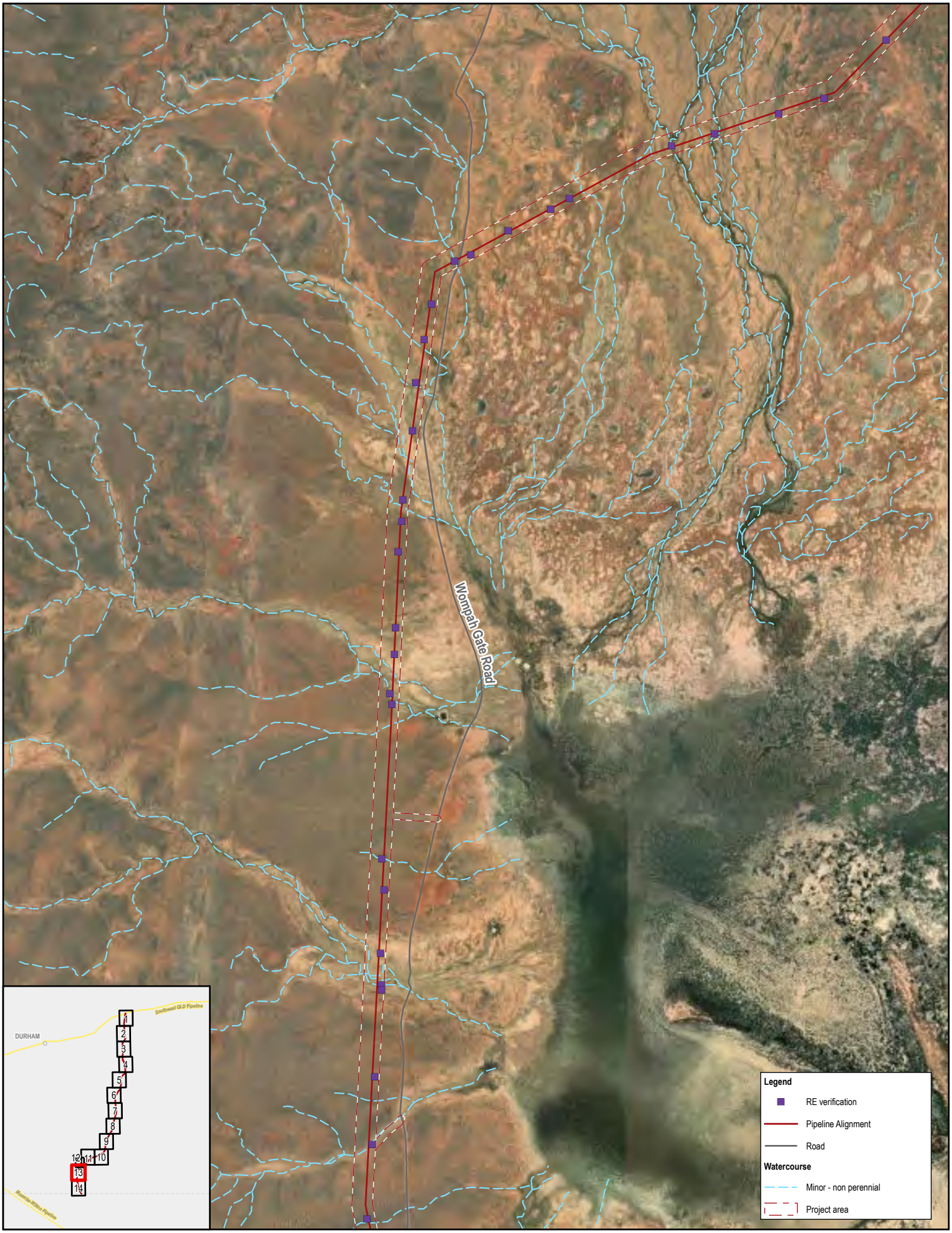
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Flora survey effort

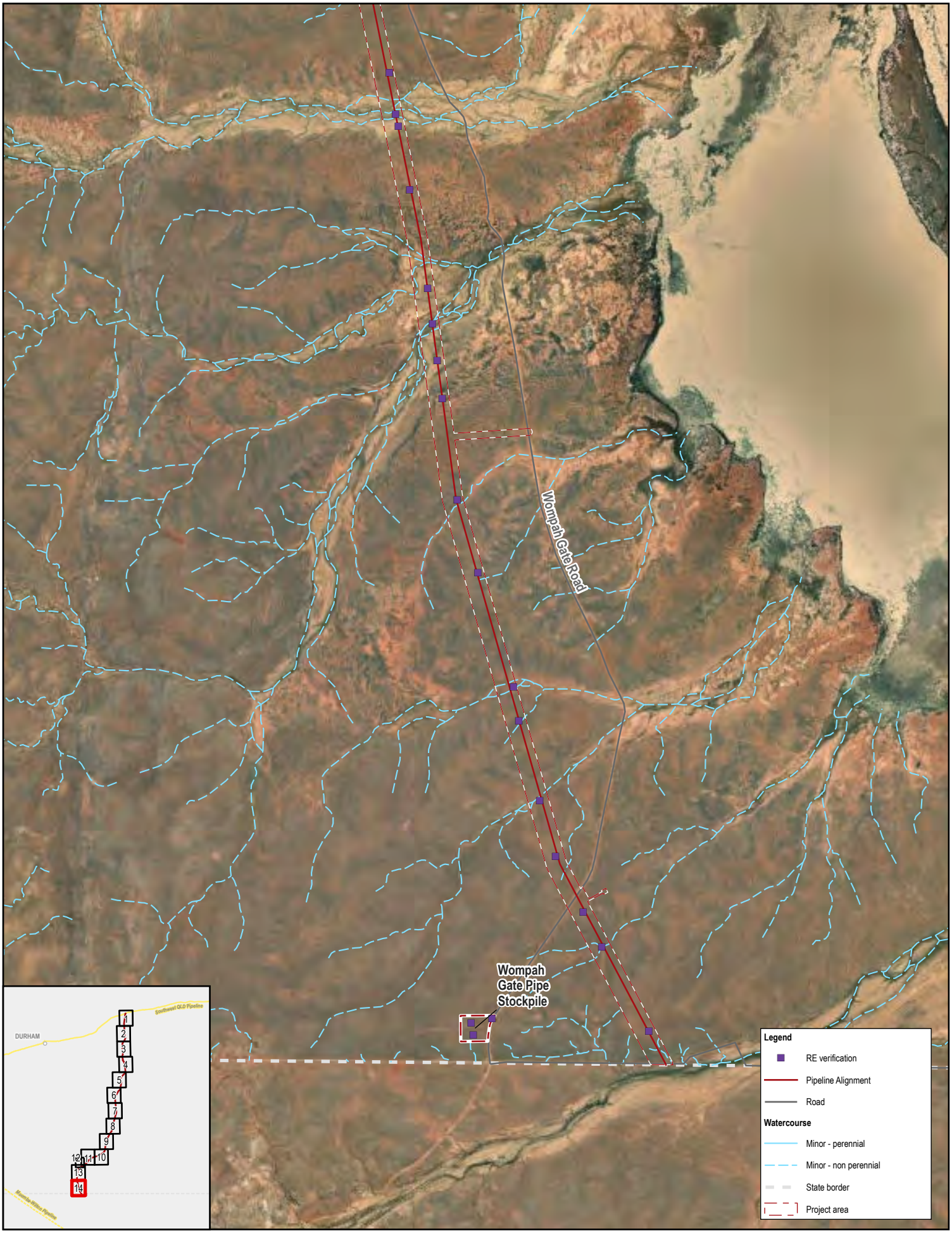
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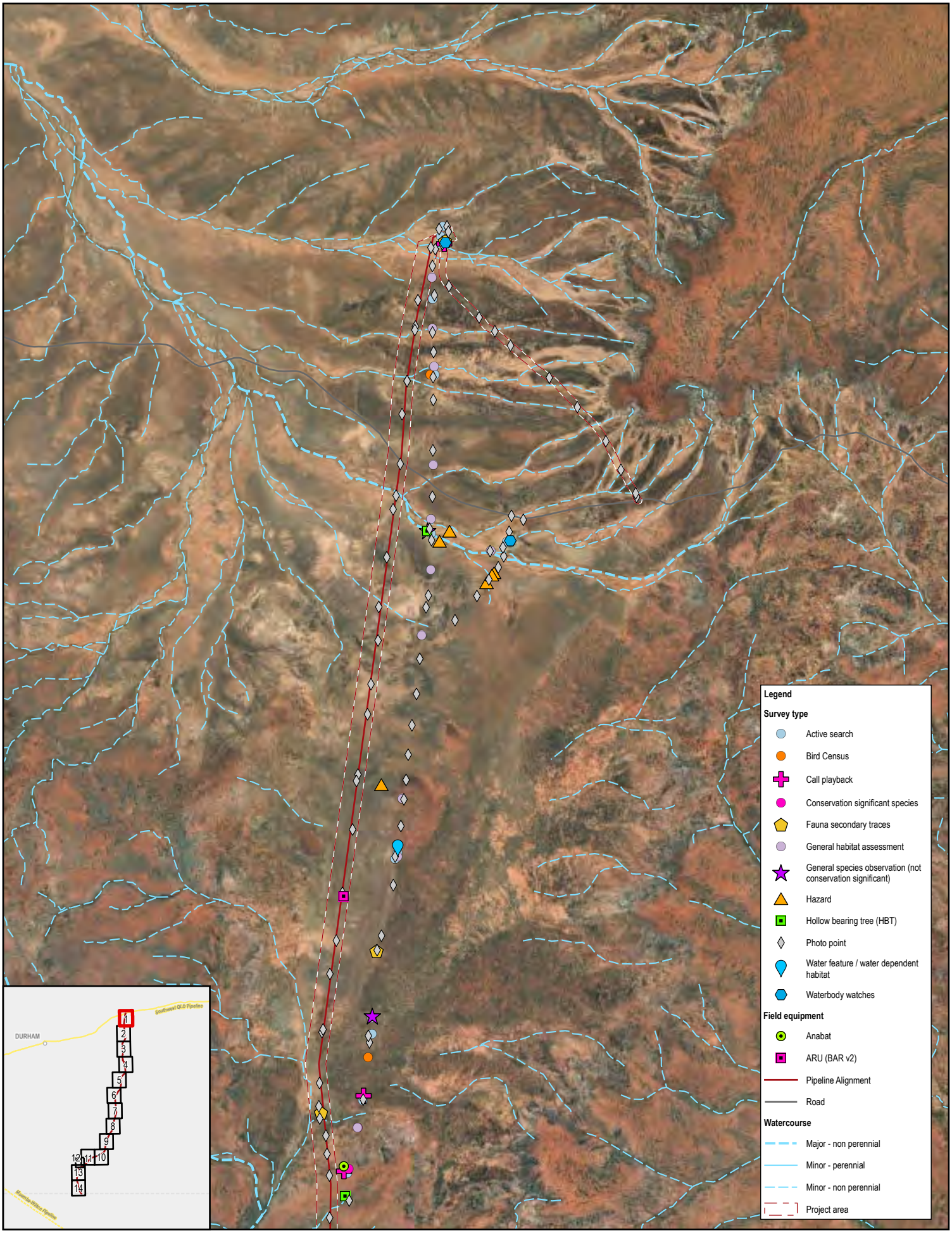
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Grid: GDA2020 MGA Zone 54

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Project No. 12661648
Revision No. 0
Date 09/07/2026

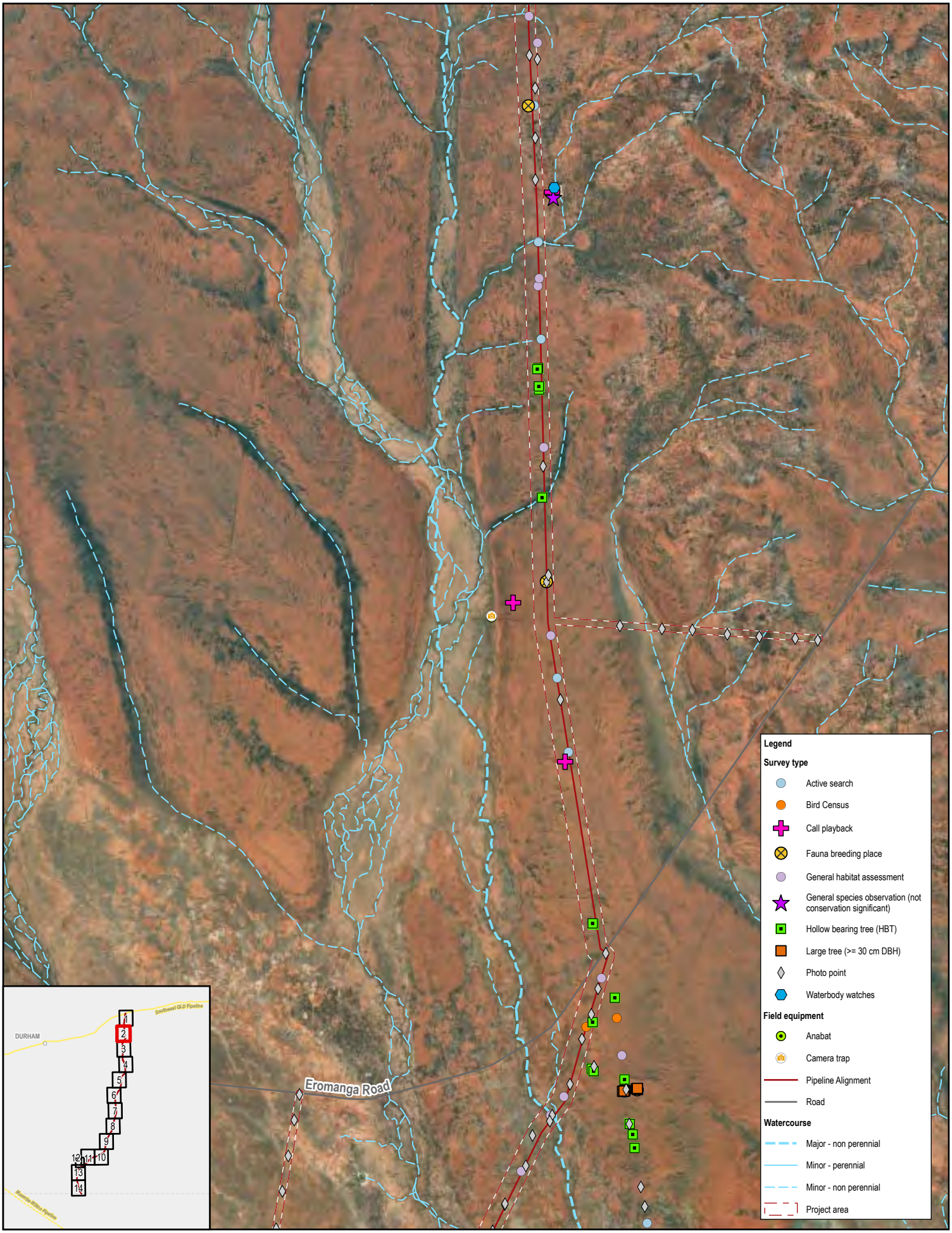
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Fauna survey effort

Figure 3.2

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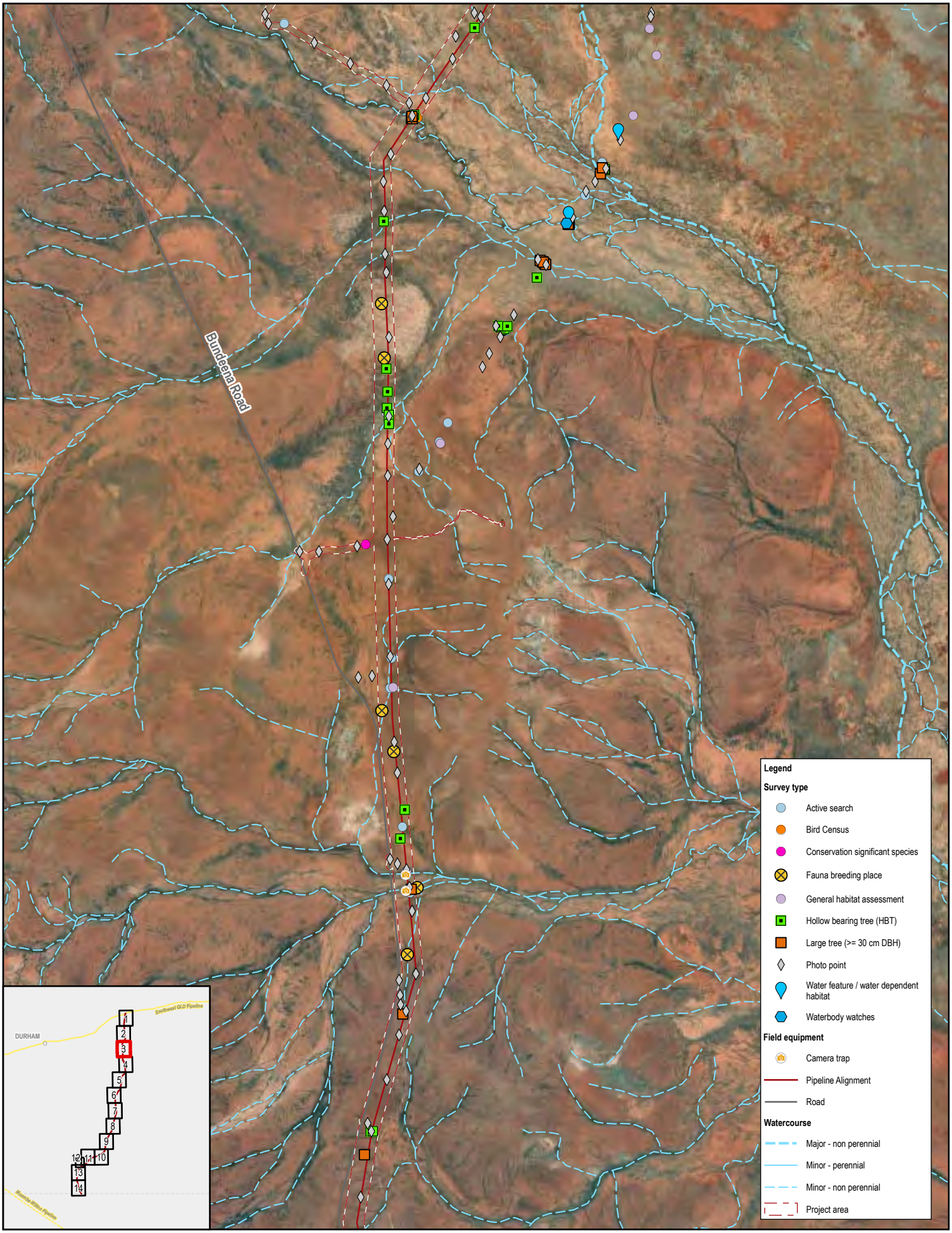
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Figure 3.2

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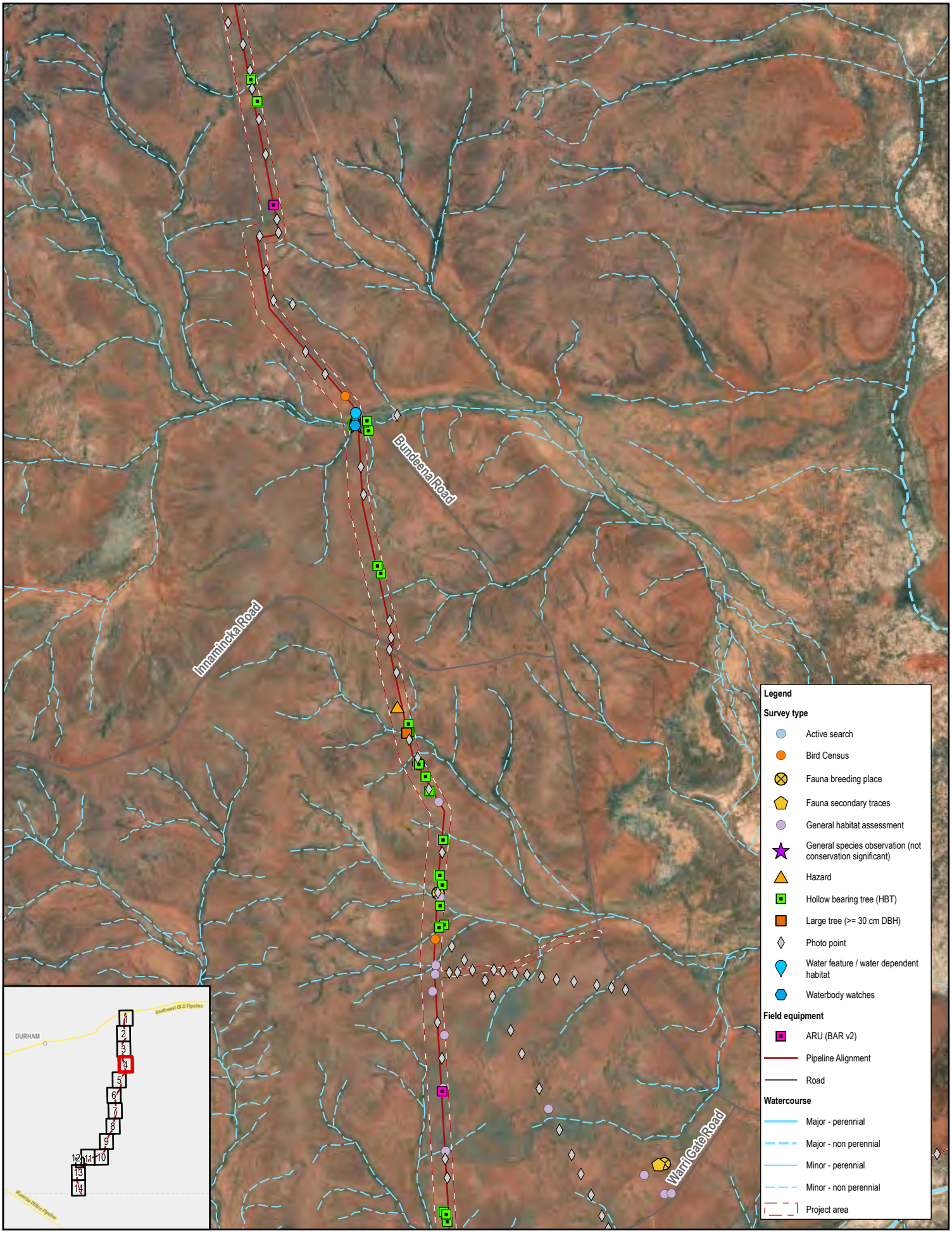
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Fauna survey effort

Figure 3.2

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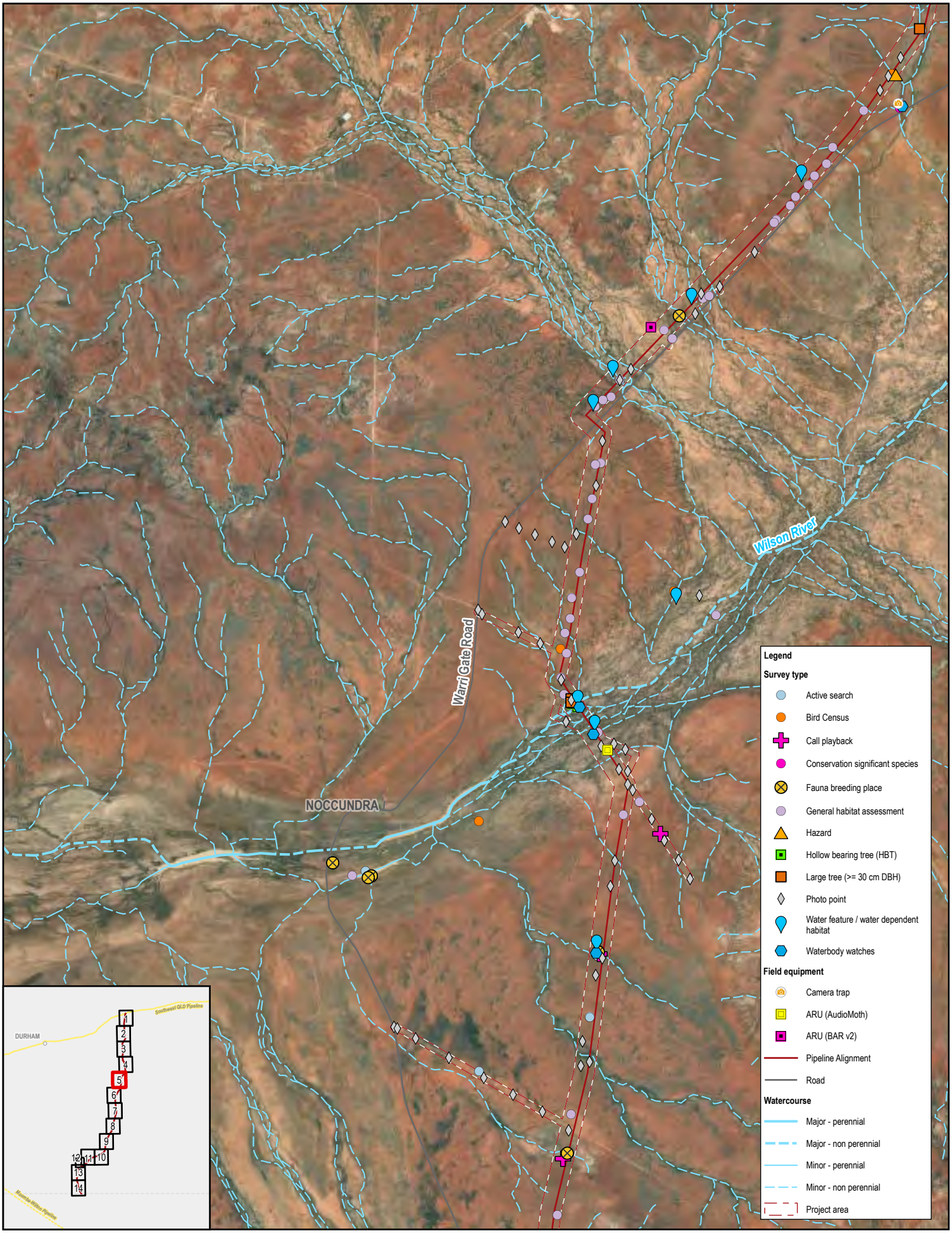
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Fauna survey effort

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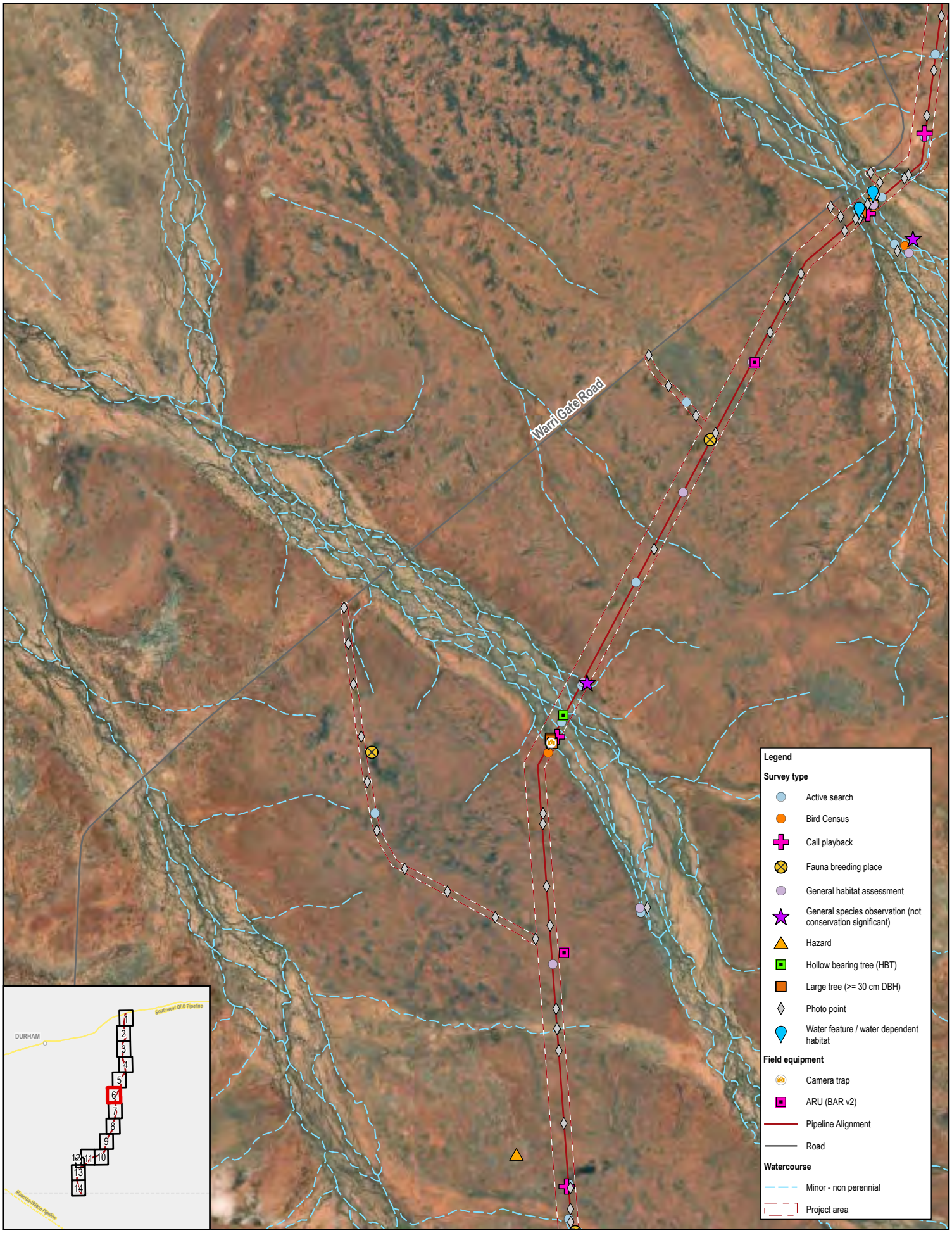
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Fauna survey effort

Figure 3.2

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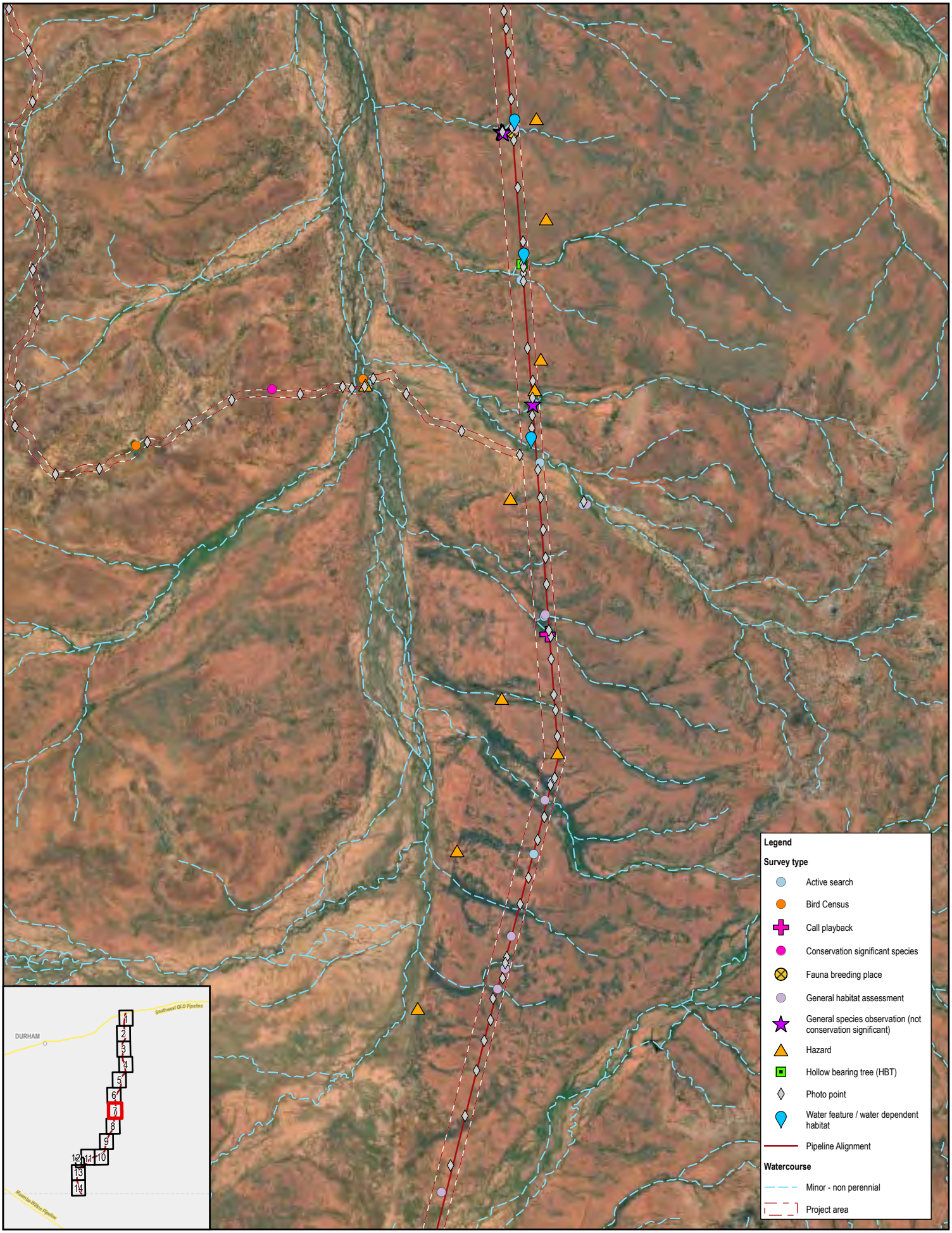
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Fauna survey effort

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Fauna survey effort

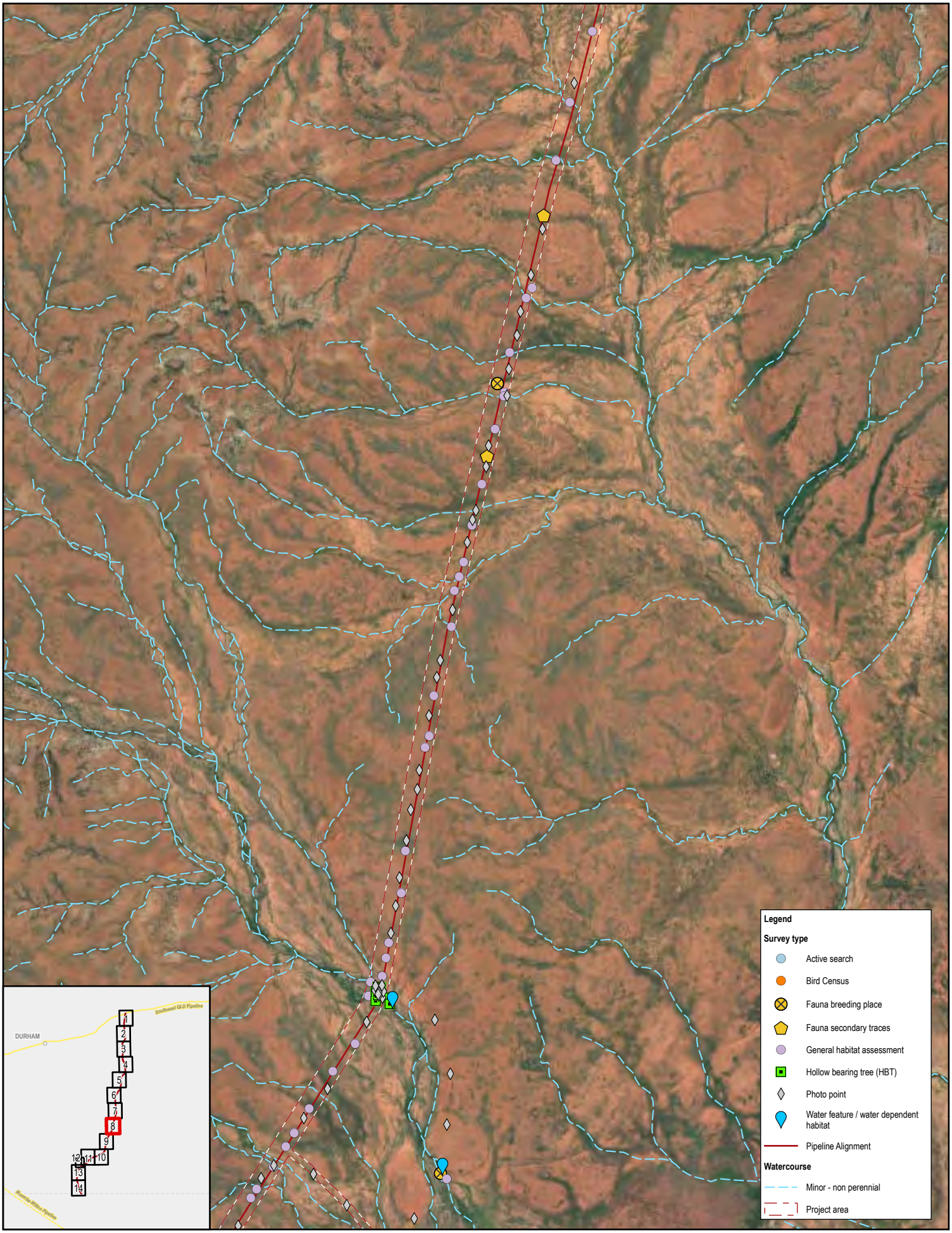
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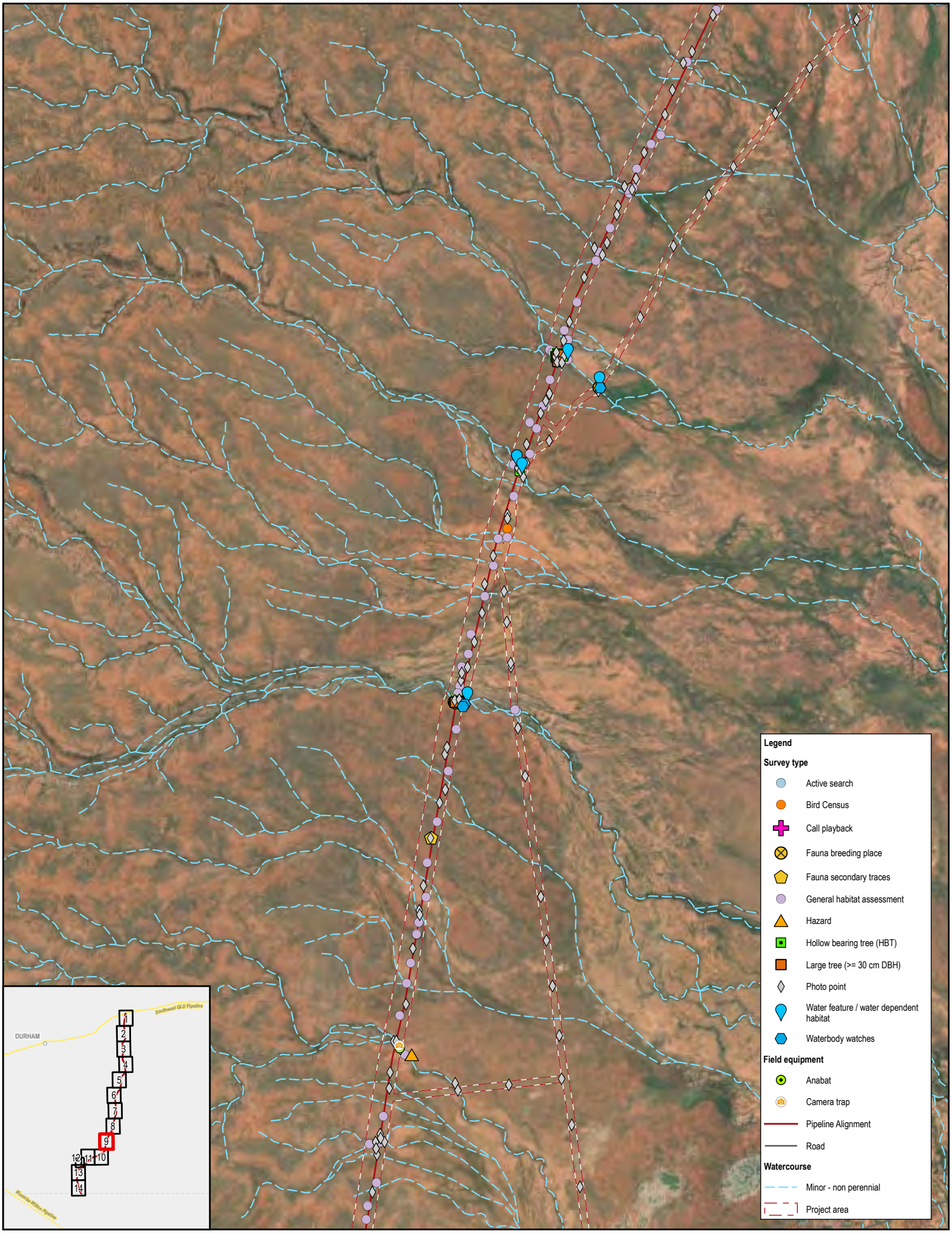
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Figure 3.2

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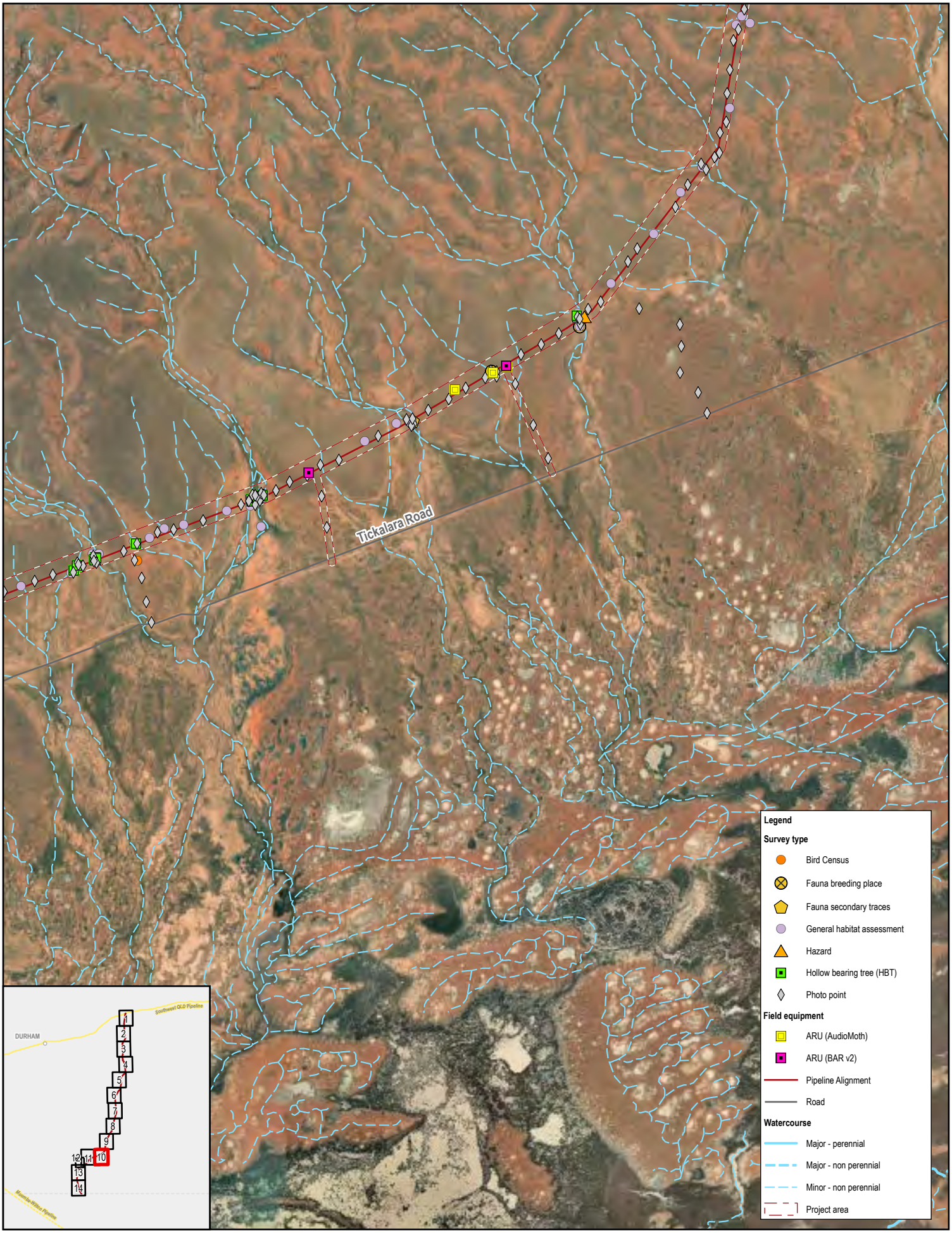
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Fauna survey effort

Figure 3.2

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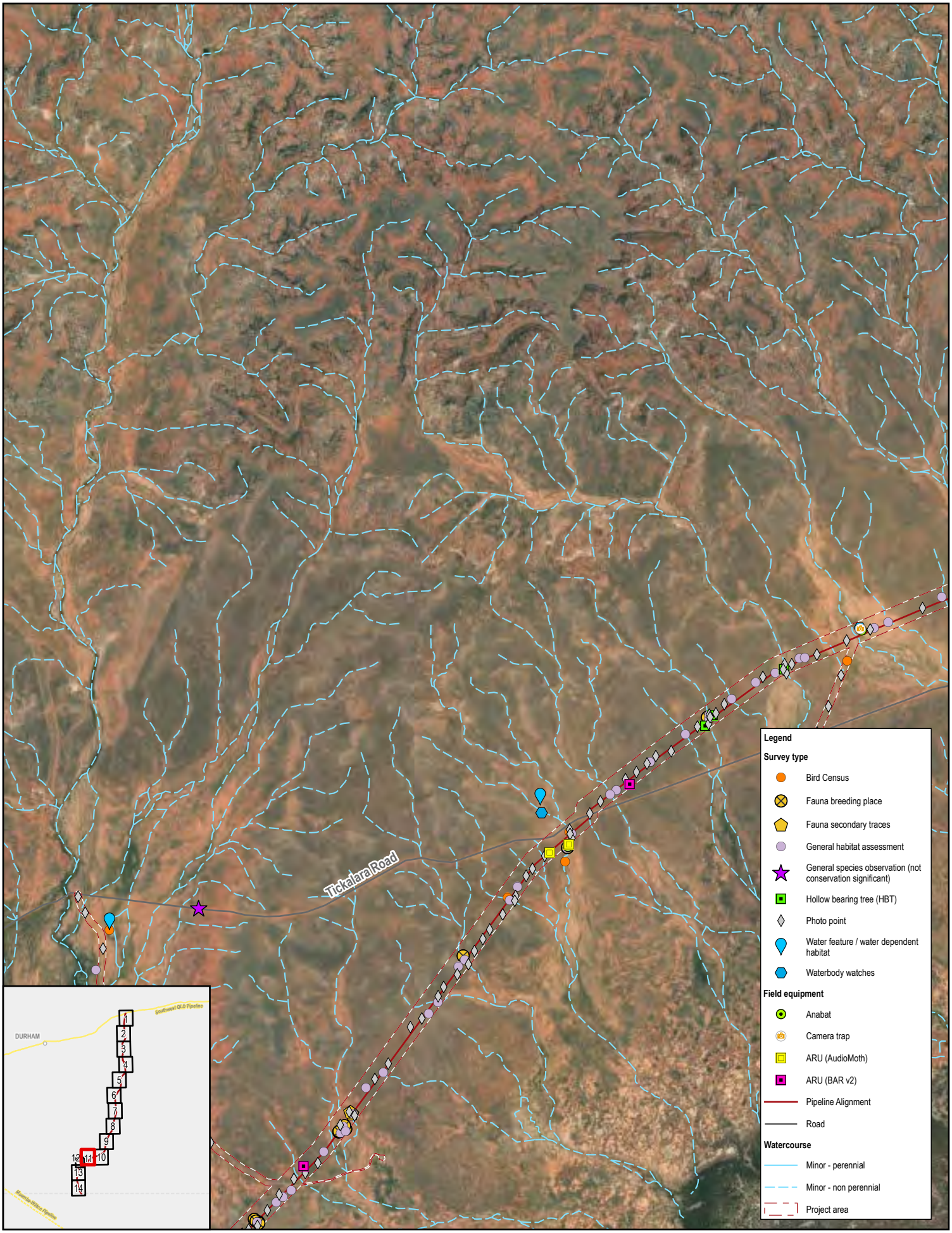
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Fauna survey effort

Figure 3.2

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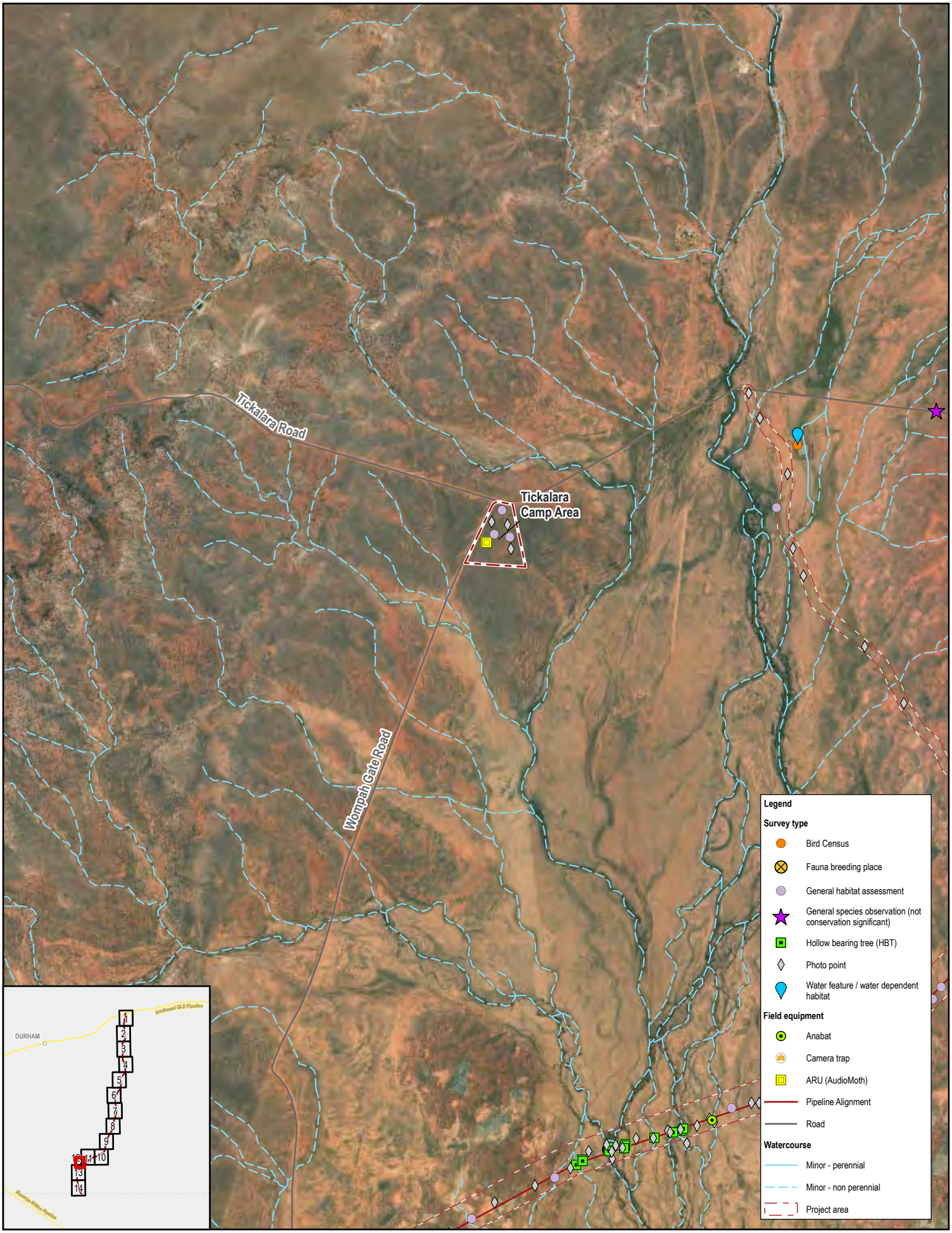
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Fauna survey effort

Figure 3.2

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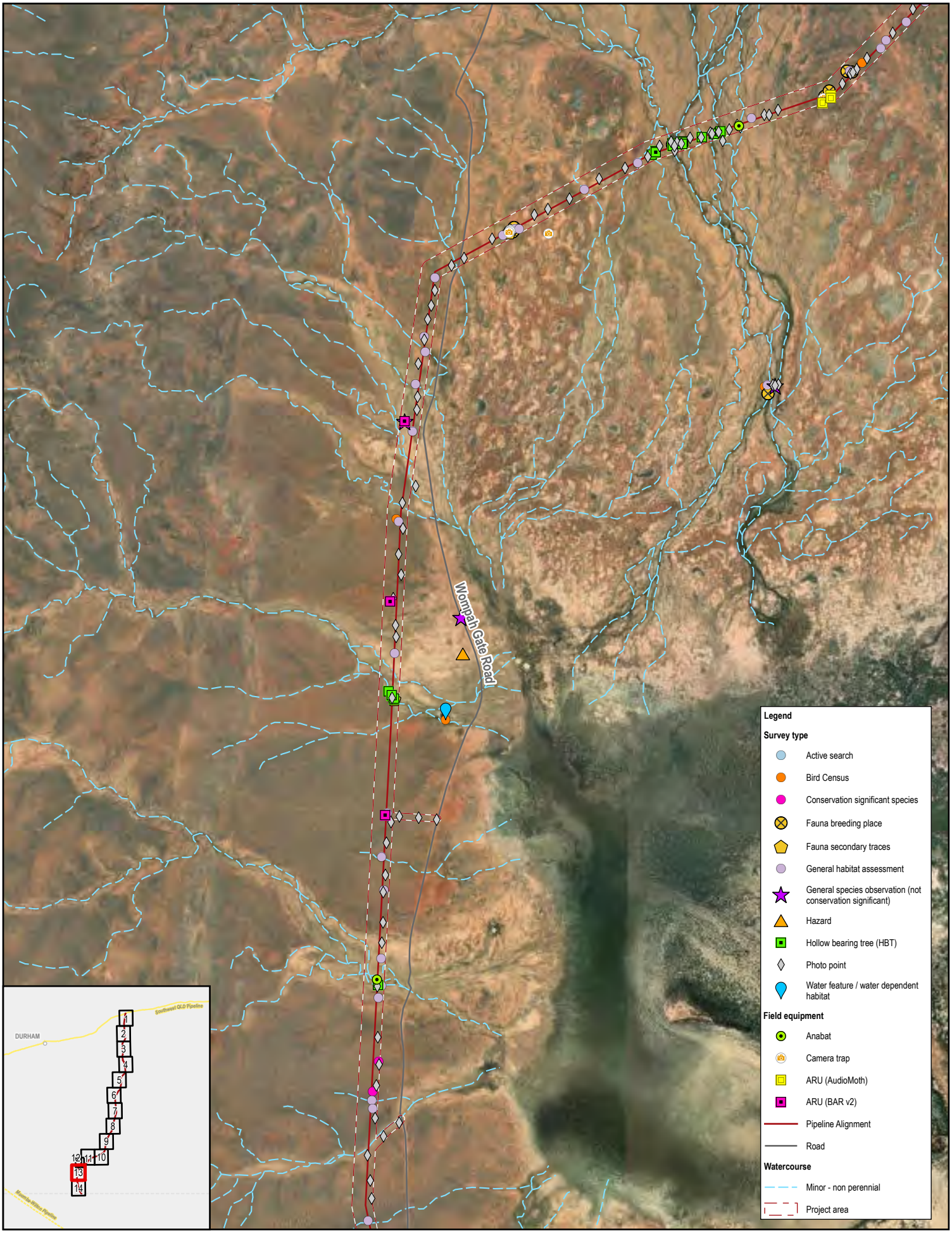
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Fauna survey effort

Figure 3.2

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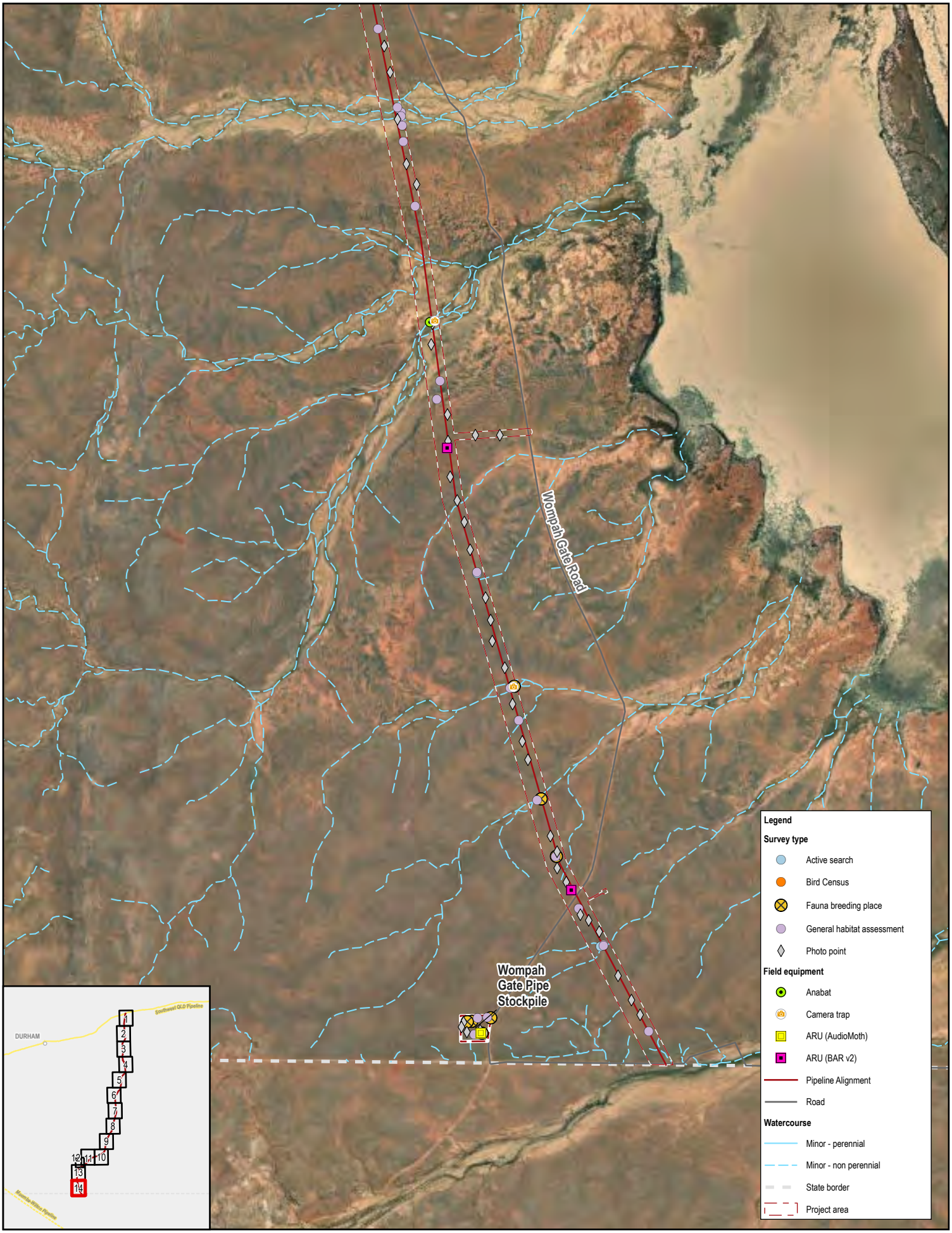
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Fauna survey effort

Figure 3.2

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Fauna survey effort

Figure 3.2

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Field conditions

The initial ecological field survey was undertaken in the project area between 30 July to 8 August 2025. In the lead-up to the survey, 11.8 mm of rainfall was recorded on 26 July, resulting in the presence of water in some ephemeral channels. During the survey period, temperatures ranged from 5–24 °C, and wind speeds varied between 9–20 km/h (detailed in Table 3.4) (BoM, 2025a; BoM, 2025b).

Table 3.4 Summary of weather conditions during the initial survey (Thargomindah Airport, Station ID: 045025)

Date	Max. temperature (°C)	Min. temperature (°C)	Rainfall (mm)	Wind (direction and speed) at 9am
30 July 2025	15.4	8.7	0.2	West at 17 km/h
31 July 2025	15.7	5.5	0.0	South at 15 km/h
1 August 2025	14.1	8.3	0.0	South-south-west at 7 km/h
2 August 2025	17.7	7.5	0.2	South-south-west at 20 km/h
3 August 2025	21.3	6.3	0.0	South at 15 km/h
4 August 2025	23.6	6.8	0.0	North-east at 15 km/h
5 August 2025	23.8	7.8	0.0	Calm
6 August 2025	19.4	8.5	0.0	South-east at 11 km/h
7 August 2025	18.7	8.0	0.0	East-north-east at 9 km/h
8 August 2025	13.2	11.4	0.4	East-north-east at 9 km/h

The second ecological field survey was undertaken in the project area between 8 and 15 October 2025. In the lead-up to the survey, 25.2 mm of rainfall was recorded on 20 September, resulting in a greater presence of water in ephemeral channels than the initial survey. During the survey period, temperatures ranged from 18.1–36.9°C, and wind speeds varied between 9–28 km/h (detailed in Table 3.5) (BoM, 2025c). Note that 7 October 2025 has been included, as three acoustic devices were deployed on the afternoon of arrival.

Table 3.5 Summary of weather conditions during the second survey (Thargomindah Airport, Station ID: 045025)

Date	Max. temperature (°C)	Min. temperature (°C)	Rainfall (mm)	Wind (direction and speed) at 9am
7 October 2025	36.9	19.6	0.0	East-north-east at 9 km/h
8 October 2025	39.1	22.4	0.0	North-north-west at 28 km/h
9 October 2025	35.1	25.6	0.2	South-east at 22 km/h
10 October 2025	34.1	18.6	4.2	South-south-east at 17 km/h
11 October 2025	36.1	18.1	0.2	South at 17 km/h
12 October 2025	33.8	20.1	0.0	West at 15 km/h
13 October 2025	31.0	19.8	0.0	South-east at 20 km/h
14 October 2025	33.7	17.2	0.0	East-south-east at 19 km/h
15 October 2025	36.4	18.8	0.4	East at 22 km/h

The third targeted ecological field survey was undertaken in the project area between 17 and 22 January 2026. No rainfall was recorded during this survey. Daily maximum temperatures ranged from 39.4–42.7 °C, while minimum temperatures ranged from 22.8–28.6 °C. Conditions were consistently hot, with light to moderate winds recorded at 9 am, varying between 6–20 km/h and predominantly from the eastern and northern quadrants (detailed in Table 3.6) (BoM, 2026).

Table 3.6 Summary of weather conditions during the third survey (Thargomindah Airport, Station ID: 045025)

Date	Max. temperature (°C)	Min. temperature (°C)	Rainfall (mm)	Wind (direction and speed) at 9am
17 January 2026	39.4	22.8	0.0	South-south-east at 13 km/h
18 January 2026	42.4	25.0	0.0	East-south-east at 20 km/h
19 January 2026	41.0	28.6	0.0	East at 20 km/h
20 January 2026	42.7	28.0	0.0	North at 17 km/h
21 January 2026	41.9	27.3	0.0	East-north-east at 19 km/h
22 January 2026	41.7	27.0	0.0	North-north-east at 6 km/h

Flora surveys

Extensive flora surveys were undertaken at representative locations along the project area, implementing standardised flora survey methods detailed in Table 3.7, to provide information on existing flora and vegetation communities within the project area and assess the likelihood of occurrence of conservation significant flora species and threatened ecological communities (TECs). A description of the flora survey techniques is detailed in Table 3.7.

Table 3.7 Flora survey methods

Survey technique	Description
RE confirmation and habitat mapping	On-ground vegetation community mapping was undertaken using quaternary level vegetation surveys in accordance with Neldner et al. (2023). Surveys ground-truthed the boundaries of all vegetation communities within the survey area (including wetlands and groundwater dependent ecosystems (GDEs)) and were undertaken with the intensity required by Neldner et al. (2023) with additional point surveys undertaken to extrapolate vegetation mapping to areas with consistent vegetation. A map of ground-truthed vegetation communities and REs was developed following the surveys, at a scale of 1:10,000, and includes supporting data as per the Queensland Biodiversity and Ecology Information System requirements. Due to the large spatial extent of the project site, this field-verified mapping formed the basis for habitat mapping, with habitat suitability for species assessed against criteria defined in the relevant conservation advice, national recovery plans, and the SPRAT database, together with recorded on-ground habitat features where accessible and applicable. RE descriptions used are as per the Regional Ecosystem Description Database (REDD) (v13.1). In addition, key ground-truthed habitat attributes and critical elements relevant to target threatened species (e.g. HBTs, coarse woody debris, riparian condition, structural complexity, floristic composition) were explicitly considered during habitat mapping, to monitor that species-specific habitat requirements, as outlined in relevant conservation advice, were appropriately reflected. The assessment of these critical habitat elements was undertaken at a landscape and community scale, with broad-scale representation of habitat features applied across areas of consistent vegetation. Outside the survey area, habitat mapping is predictive only and based on state RE mapping that has not been field-verified. As such, habitat extent and condition in these areas are indicative only, and represent a desktop interpretation based on available mapping rather than ground-truthed observations.
GDE confirmation and mapping	The presence of GDE indicator species, such as *Eucalyptus camaldulensis*, *E. coolabah*, etc. were recorded with their extent mapped along the pipeline alignment. This assessment of GDEs was incorporated into the RE mapping and occurred concurrently.
Habitat suitability assessments	Habitat suitability assessments were undertaken within areas of potentially suitable habitat for NC Act flora species eg *Sclerolaena walkeri* and *Rhodanthe rufescens*. This involved rapid assessments of habitat suitability and condition. No NC Act threatened species were confirmed present and further survey was not required.
Rapid weed assessments	Identification of weeds was recorded with their abundance throughout the surveys on an incidental basis.

Fauna surveys

Three ecological survey mobilisations were undertaken to document fauna values within the project area, utilising the methods outlined below. The first mobilisation focused on baseline broad fauna habitat assessments and a general species inventory, while the second targeted key conservation-significant fauna and high-value habitats identified during the initial survey. The third survey was focussed on high-level footprint refinement to avoid critical habitat features for target species. Field survey methods applied across mobilisations are detailed in Table 3.8.

Table 3.8 Fauna survey methods

Survey technique	Description
Fauna habitat assessments	Habitat assessments were undertaken at representative locations across the survey area in representative vegetation communities, landforms and geographic locations. At each site, the following key ecological characteristics were documented: – Structural complexity of vegetation at canopy, shrub and ground layers. – Substrate type and the structural complexity of ground-level microhabitats. – Presence of features that provide resources or refuges for wildlife including fallen timber, leaf litter, HBTs and stags, rocks/boulder piles and outcrops, caves and overhangs, nests, termite mounds and waterbodies. – Key resources for conservation significant species including grassland/shrubland resources for plains-wanderer, potential hollow and food trees for pink cockatoos (eastern) and southern whiteface, foraging/den sites for the plains rat, shelter sites for the target species, and suitable water-associated habitats for several conservation significant avian wetland species. – Habitat condition based on existing land use and associated disturbance (e.g. vegetation clearing, fragmentation, cattle grazing, fire, weed and pests). For any potential habitat for conservation significant fauna species, areas of potential breeding habitat were identified and mapped as constraints.
Diurnal searches for secondary traces	Targeted searches were undertaken for bones, feathers, skulls, faecal pellets, tracks, burrows, scratches and other secondary wildlife traces. In particular, secondary traces of conservation significant species were targeted, including husked seeds and chewed bark of the pink cockatoo (eastern) (e.g. scat and diggings).
Bird census surveys	Bird census surveys were undertaken at representative locations, typically at most habitat assessment sites. At each site, 20 minutes were spent searching for birds within a 2 ha area, recording all birds seen or heard calling.
Driving/flushing surveys	Flushing surveys were conducted using walking transects or slow driving transects through areas of suitable habitat (along access tracks (vehicles) and near wetlands (on foot)) in an attempt to flush out any birds hidden in dense vegetation or grassland. Birds were then recorded as they flew away from the group (DEWHA, 2010).
Waterbody watches	Waterbody watches involved stationary surveys conducted at the edge of waterbodies (e.g. rivers, wetlands, dams), where observers scanned for target species using binoculars or spotting scopes. Sessions were typically 20 minutes long and carried out in the early morning or late afternoon to align with peak activity. Observations focused on visual or auditory detection of species using or near the waterbody.
Call playback	Call playback was undertaken to detect conservation significant species with distinctive calls. This involved broadcasting calls of target species through a handheld speaker in areas of suitable habitat and listening for responding individuals. Each species' call was broadcast for approximately 30 seconds, followed by one minute of silence, to listen for a response call from the target species. Call playbacks for nocturnal species were conducted during spotlighting surveys.
Ultrasonic (Anabat) detectors	Ultrasonic (Anabat) detectors were used to record and identify the echolocations of microbat species. Anabat detectors were deployed on nocturnal walking transects and set in situ overnight, with detectors attached to trees in suitable flyways.
Remote camera trapping	A series of opportunistic baited remote surveillance cameras were used to identify both nocturnal and diurnal ground-dwelling fauna. High-quality remote cameras were set across the survey area within areas of suitable habitat. These were baited with universal baits and left for periods of 2–7 nights at a time to record small mammal species diversity.
Acoustic detectors (AudioMoth)	A series of AudioMoths were deployed at representative locations across the survey area to detect conservation significant species that have distinctive vocalisations. AudioMoths are passive acoustic devices that record certain frequencies of fauna up to 400 m away. When deployed, they can trigger event logging based on the classification of pre-programmed algorithms which identify a specific acoustic event (Hill et al., 2017). AudioMoths were attached to trees or staked to the ground and left in situ for 2–7 nights at a time.

Survey technique	Description
Acoustic detectors (BAR V2 devices pre-programmed by acoustic specialist)	BAR V2 bioacoustic recorders were deployed to detect the plains-wanderer, targeting areas of suitable habitat, with a focus on locations surrounding historical records of the species. This method is in line with emerging research supporting the use of passive acoustic monitoring to identify the species in remote landscapes (Rowe et al., 2023). Recording captured the period from 4 pm to 10 am daily, while deployed over 6–7 nights during the survey period, across representative habitats within the survey area. Devices were pre-programmed by an acoustic specialist to optimise detection of target call frequencies. Each unit was securely mounted on a star picket or vegetation structure and positioned to minimise wind interference and maximise recording range. The data collected was analysed manually using Kaleidoscope lite software to analyse spectrograms for the female plains-wanderer's call, compared to a library of confirmed calls.
Targeted large-tree and hollow transects	Targeted 100 m transects were conducted within areas previously identified as potential pink cockatoo (eastern) habitat to record large trees and HBTs suitable for nesting. At each site, tree species, DBH, condition, hollow height and orientation were recorded; with GPS points and photos taken. Hollow suitability was assessed against the pink cockatoo (eastern) nesting criteria outlined in the conservation advice for the species (DCCEEW, 2023b). Where 100 m transects could not be completed due to water-filled channels or unsafe crossings, transects were shortened and endpoints recorded. During the refinement survey, additional large tree transects were used to directly inform the refinement and micro-siting of the pipeline alignment. Identified HBTs and potential nesting habitat were captured using high-accuracy Trimble GPS, and incorporated into spatial datasets to enable iterative design adjustments and avoidance wherever practicable. Where relevant, previously collected data was reviewed and ground-verified to provide consistency with the refinement survey methodology and to support ongoing optimisation of the pipeline alignment.
Targeted driving spotlight transects	Driving spotlight surveys were conducted in accordance with the *Survey guidelines for Australia's threatened birds* (DEWHA, 2010) to detect plains-wanderers in suitable grassland habitat. Transects were driven at <5 km/h using vehicle headlights and a handheld spotlight on nights with calm, dry conditions. Surveys focused on areas of suitable habitat identified in the previous survey, with all detections GPS-logged.

Survey qualifications

All field surveys are subject to qualifications regarding the detection success of targeted species, particularly when conducted within narrow timeframes. These limitations may result in 'false absence' records where a species is not recorded, but is present. To account for this, a likelihood of occurrence assessment was undertaken (section 3.1.3 and Appendix A), in which the information from all field survey mobilisations was considered along with other information sources, to assess the potential likelihood of each species to occur within the project area.

The following qualifications apply to the field surveys but are not considered to fundamentally alter the outcomes of this assessment and its capacity to assess the likelihood of occurrence of conservation significant species and the potential impacts of the project:

– Rapid survey methods were utilised to maximise survey coverage, employing a suite of survey techniques to optimise assessment of the likelihood of occurrence. This approach was considered appropriate given the length of the alignment and is suitable for detecting the presence of conservation significant species with potential to occur.
– Limitations associated with the flora field survey relate to the detectability and presence of species at different stages of their life history (e.g. flowering periods and emergence of annual species). Whilst a narrow field study timeframe cannot confirm that every species was detected, the survey was sufficient in characterising vegetation communities and habitat values within the project area. The timing was also considered ideal for detecting ephemeral plant species that appear only after seasonal rainfall, given heavy rainfalls were recorded in the months prior to survey.
– The seasonality of the survey influenced the likelihood of detecting certain species, particularly wetland and migratory shorebirds. Most of these species breed in the Northern Hemisphere and migrate seasonally to Australia, where they occur between October and March (DCCEEW, 2023a). The July/August and October survey periods fell outside the peak migration window. Given the probability of recording migratory species was low, a conservative approach has been used to assess risk, informed by habitat presence and condition, existing disturbances, and historic records.

– The surveys provide a reliable basis for assessment of risk on threatened species that are MNES and MSES. In the absence of necessary supporting information, a conservative approach has been applied to significant residual impact assessments for MNES and MSES.

3.1.3 Likelihood of occurrence

A likelihood of occurrence assessment was conducted to attribute a 'likelihood rating' to EPBC Act and NC Act threatened species that were predicted to occur in the project area based on a review of species distributions, habitat requirements, historical records for the region, and the results of field surveys conducted within the survey area.

The likelihood of occurrence assessment ranking was based on the framework outlined in Table 3.9.

The full likelihood of occurrence assessment for the project is provided in Appendix A.

Table 3.9 Likelihood of occurrence framework

Likelihood	Criteria	Implication for assessment and reporting
Confirmed present	– Species was recorded within the survey area during field surveys.	**Included in all reporting** These species were included in all reporting to: – assess and map species habitat – define key ecological features including important populations and habitat critical to the survival of the species (HCSS) – assess species-specific impacts – identify avoidance and mitigation measures – undertake significant impact assessments for residual impacts – provide offsets for any significant residual impacts.
Likely to occur	– There are recent (<10 years) and nearby (<10 km) historical records of the species. – Suitable high-quality habitat is present within the survey area.	
Potential to occur	– There are older (10–20 years) and more regional (10–30 km) historical records of the species. – Low to moderate habitat suitability/quality is present within the survey area. – The species has life historical characteristics that warrant increased conservatism in likelihood assessment (i.e. cryptic species or species with temporal or spatial dynamism, such as transient wide-ranging species or species that are dormant for extended periods). – The species is unlikely to occur in the survey area, but has a reasonable likelihood of occurring immediately adjacent, and should be included in impact assessment due to the potential for indirect impacts on the species.	
Unlikely to occur	– The species has been historically recorded locally or regionally; however, no suitable habitat occurs within the survey area, and the species has limited mobility or temporal dynamism, allowing increased confidence that it is unlikely to occur within the survey area even on a transient basis. – The species has NOT been recorded locally or regionally AND only small areas of very low-quality habitat are present in the survey area AND the species is readily detected wherever present.	**Included in likelihood of occurrence reporting only** These species were not included in impact assessment given they are unlikely to occur in the survey area.
Highly unlikely to occur	– The species has not been historically recorded in the region. – No suitable habitat is present, and the survey area is generally outside the species current known range. – The species has well-known and highly specific habitat requirements that are not present in the survey area. – The species has low mobility.	

3.1.4 Habitat modelling

Due to the large spatial extent of the project, habitat mapping for both conservation significant species confirmed present or considered likely or having potential to occur within the project site, was undertaken using field-verified RE mapping as a foundation. Habitat suitability for each species was then assessed against criteria defined in the relevant conservation advice, national recovery plans, the SPRAT database, and published literature, together with recorded on-ground habitat features where accessible and applicable.

Given that the habitat descriptions detailed in species conservation advice are often necessarily broad to apply at a national scale and use definitions that are generally not spatially defined, further refinement of the habitat criteria was required to explain how they have been mapped at a local scale. To provide a preliminary basis for mapping, suitable REs were used as a surrogate for habitat. The RE mapping system provides a spatially defined foundation for habitat mapping, based on a scientifically robust framework developed by the Queensland Herbarium and the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD).

This framework combines bioregion, land zone (geology and substrate) and canopy vegetation composition data, which often closely correlate with the species' habitat requirements detailed in formal listing advice. The methodology outlined by Neldner et al. (2023), also dictates the intensity of survey effort required to field-verify RE mapping and the extent to which mapping can be reliably extrapolated. The RE mapping therefore, provides a spatially defined foundation for habitat mapping that can be adapted with additional criteria relevant for each species.

Habitat mapping for NC Act and EPBC Act listed species was then refined based on a combination of the following:

– Field-verified mapping of REs that align with the formal habitat definition for each species based on the presence of key flora species that provide food, shelter or other essential habitat requirements and suitable land zone and associated substrate and microhabitat.
– Biophysical factors, including elevation, slope, aspect and proximity to water based on existing mapping layers and interrogation of aerial imagery.
– Field observations, noting the presence of key resources such as the relative abundance of HBTs, and native grass cover. The extent of those features was then extrapolated from field observation points via interrogation of aerial imagery.

Where relevant, the above habitat mapping methodology has been adapted to reflect variations in on-site conditions identified during field surveys.

Outside the project area, habitat mapping is predictive only. These areas were assessed using state RE mapping that has not been field verified. As such, the mapped habitat extent and conditions are indicative only and are based solely on available desktop data rather than ground-truthed observations.

3.2 Assessment criteria

3.2.1 Significant impact assessment

A significant residual impact assessment has been undertaken for each MSES value confirmed present, likely to occur, or with potential to occur within the project site. The significance of the potential impacts of the project were assessed against the Queensland *Significant Residual Impact Guideline* (DEHP, 2014). The assessment is based on residual risk, after all identified avoidance and mitigation measures have been applied.

The following components have been considered for each of the species assessed:

– conservation status and documentation
– survey effort and criteria used to map the species' habitat
– potential impacts to the species from activities proposed during the construction and operation phases
– avoidance, minimisation and mitigation measures
– assessment of the species against the relevant guidelines.

Significant residual impact assessments for MSES values are presented in section 7.2.4.

4. Existing environment

4.1 Flora

4.1.1 Regional ecosystems

In Queensland, vegetation communities are classified based on the RE framework which defines communities within a bioregion that are consistently associated with a particular combination of geology, landform, and soil. The Regional Ecosystem Description Database defines each REs biodiversity status (BD status) and its vegetation management class (VM class).

In addition to the criteria used to determine the class under the VM Act, the BD status determines the condition of remnant vegetation. Importantly, the BD status is used to determine ESAs that regulate petroleum activities through provisions in the EP Act as follows:

– Category B ESAs comprise endangered REs
– Category C ESAs comprise of concern REs.

REs associated with MSES under Schedule 2 of the EO Regulation are based on the VM class.

Field verified REs found within the project site are described in Table 4.1 and depicted in Figure 4.1.

Table 4.1 Field-verified regional ecosystems and regulated vegetation

Vegetation community	Extent within project site	Description*	Representative photo/s
5.3.2 – *Eucalyptus camaldulensis* +/- *E. coolabah* open woodland on levees and banks of drainage lines. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Very sparse. – **Structure code:** Open woodland. – **Wetlands:** Riverine. – **Regulated vegetation:** Category B (remnant).	18 ha	The community was observed occurring on sandy-rocky alluvial substrates, minor terraces and floodplain tributaries of the Wilson and Bulloo Rivers. – **T1** – Dominated by a sparse canopy of *Eucalyptus camaldulensis* occurring on sandy channels with subdominant *E. coolibah* on rocky substrates and banks, occasionally fringed *Corymbia terminalis* on adjacent floodplains. – **T2** – *Acacia cambagei, A. aneura* often dominant with subdominant *Atalaya hemiglauca* and occasional *Owenia acidula, Grevillea striata*, and *Capparis mitchellii.* – **S** – Often dominated by *Acacia tetragonophylla* with various subspecies of *Senna artemisioides,* scattered *Rhagodia spinescens* and occasional *Pittosporum angustifolium, Myoporum acuminatum,* and *Acacia victoriae.* – **G** – *Aristida spp., Ptilotus spp., Sclerolaena spp., Eulalia aurea, Themeda triandra, Cymbopogon bombycinus, Sida ammophila, Eleocharis pallens,* and *Juncus usitatus.*	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Sparse. – **Structure code:** Woodland. – **Wetlands:** Riverine. – **Regulated vegetation:** Category B (remnant).	4.6 ha	The community was observed occurring on rocky alluvial substrates with minor sandy deposits in the upper catchments of the Bulloo and Wilson Rivers. – **T1** – Dominated by a sparse canopy of *Eucalyptus camaldulensis* occurring on sandy channels, fringed by occasional *Corymbia terminalis.* – **T2** – Dominated by *Acacia aneura +/- A. cambagei* with subdominant *Atalaya hemiglauca* and occasional *Grevillea striata,* and *Owenia acidula.* – **S** – Often dominated by *Acacia tetragonophylla* with occasional *A. victoriae* and scattered *Rhagodia spinescens*. – **G** – *Aristida contorta*, *A. holathera*, *Sclerolaena* spp., *Eulalia aurea, Lepidium phlebopetalum*, *Themeda triandra, Rhodanthe moschata, Sida ammophila, Enneapogon polyphyllus, Trichodesma zeylanicum, Abutilon leucopetalum,* and *Cullen cinereum.*	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Very sparse. – **Structure code:** Open woodland. – **Wetlands:** Riverine. – **Regulated vegetation:** Category B (remnant).	16.4 ha	The community was observed occurring on loamy alluvial substrates on braided alluvial plains of the Wilson River and tributaries of the Bulloo River. – **T1** – Dominated by a sparse canopy of *Eucalyptus coolabah* with subdominant *E. ochrophloia* occurring on braided channels and alluvial plains with *Corymbia terminalis* occasionally occurring on clay plains. – **T2** – Often dominated by *Acacia cambagei* and *A. aneura* on plains with *A. stenophylla* occurring on drainage channels. – **S** – *Senna artemisioides subsp. oligophylla, S. artemisioides subsp. helmsii, Acacia sibirica, Eremophila bignoniiflora*, and *E. polyclada.* – **G** – *Chenopodium auricomum, Atriplex nummularia, Eragrostis setifolia, Cyperus exaltatus, Eleocharis pallens, Erodium cygnorum, Minuria integerrima*, *Eualia aurea, Sclerolaena bicornis,* and *S. calcarata.*	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.3.9 – *Acacia cambagei* +/- *Eucalyptus coolabah* low woodland on braided channel systems. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Sparse. – **Structure code:** Low woodland. – **Wetlands:** Riverine. – **Regulated vegetation:** Category B (remnant).	38.6 ha	The community was observed occurring on sandy to rocky alluvial substrates on braided channels and terraces of the Wilson and Bulloo Rivers. – **T1** – *Acacia cambagei* and *Eucalyptus coolabah* with *A. stenophylla* on channels. – **S** – *Eremophila bignoniiflora, Acacia sibirica, Maireana aphylla, Rhagodia spinescens*, and *Atriplex nummularia*. – **G** – *Astrebla pectinata, Eulalia aurea, Sclerolaena calcarata, S. lanicuspis, S. tricuspis, Roepera aurantiaca, Atriplex leucoptera, A. angulata, Sporobolus caroli, Dissocarpus paradoxus, Pterocaulon sphacelatum, Eulalia aurea, Ptilotus macrocephalus, Enchylaena tomentosa, Sporobolus actinocladus, Enneapogon polyphyllus*, and *Malvastrum americanum*. With the exotic *Xanthium occidentale* and *Cenchrus ciliaris* occasionally present.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.3.21 – Variable sparse to open herbland, *Senna spp.* open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Other. – **Structure code:** Open herbland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	189.5 ha	The community was observed occurring on floodplains and claypans fringing tributaries of the Wilson and Bulloo Rivers. Structure was variable in response to grazing pressure; however, is consistently comprised of native species. The area also presented as seasonally scaled clay pans and minor gibber plains. – **S** – *Acacia sibirica, Senna artemisioides subsp. oligophylla, Chenopodium auricomum, Rhagodia spinescens, Atriplex nummularia*, and *Eremophila polyclada*. – **G** – *Astrebla pectinata, Sporobolus actinocladus, Sclerolaena calcarata, S. lanicuspis, S. tricuspis, Roepera aurantiaca, Atriplex leucoptera, A. angulata, A. eardleyae, A. spongiosa, Salsola australis, Dactyloctenium radulans, Sida ammophila, Lepidum phlebopetalum*, and *Tecticornia pergranulata subsp. divaricata*. Occasionally with occurrences of the exotic grass *Cenchrus ciliaris* confined to drainage channels.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.5.1 – *Acacia aneura* low woodland on Quaternary deposits. – **VM Act class:** Least concern. – **Biodiversity status:** Of concern. – **Structure category:** Sparse. – **Structure code:** Low woodland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	98 ha	The community was observed occurring on red-orange weathered loamy soils with sections of gibber plain. Localised sections of drought induced dieback predominantly affecting *Acacia* species is present and does not qualify to reduce category B status across mapped area. – **E** – Sparse *Corymbia terminalis*. – **T1** – Dominated by *Acacia aneura* often forming in diffuse groves with scattered *Atalaya hemiglauca*. – **S** – *Acacia tetragonophylla, Senna artemisioides subsp. volucris, Acacia victoriae, Senna artemisioides subsp. helmsii, Eremophila latrobei, E. gilesii*, and *Acacia aneura* recruitment. – **G** – *Rhodanthe floribunda, Salsola australis, Sclerolaena* spp., *Cenchrus ciliaris, Lepidum phlebopetalum, Ptilotus macrocephalus, Rhodanthe floribunda, Tetragonia moorei, Erodiophyllum elderi*, and *Brunonia australis*.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments. – **VM Act class:** Least concern. – **Biodiversity status:** Of concern. – **Structure category:** Sparse. – **Structure code:** Low woodland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	106.3 ha	The community was observed occurring on weathered loamy clay plains and broadly undulating downs with minor drainage features. Soils are red-orange clay loams with iron stone often forming areas of bare gibber. Localised sections of drought induced dieback predominantly affecting *Acacia* species. – **T1** – *Acacia cambagei* dominant with subdominant *A. aneura* often forming diffuse groves with occasional *Atalaya hemiglauca, Corymbia terminalis*, and *Santalum lanceolatum*. – **S** – *Acacia tetragonophylla* with *A. cambagei* and *A. aneura* recruitment often with drought dieback. Scattered *Eremophila duttonii, Senna artemisioides subsp. oligophylla,* and *E. dalyana*. – **G** – *Lepidum phlebopetalum, Rhodanthe floribunda, Sclerolaena* spp.*, Portulaca oleracea, Cheilanthes sieberi, Frankenia serpyllifolia, Roepera ammophila, Atriplex* spp.*, Solanum* spp.*, Enchylaena tomentosa, Eragrostis xerophila, Astrebla pectinata*, and *Gnephosis arachnoidea*.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica, A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Very sparse. – **Structure code:** Open shrubland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	349.9 ha	The community occurs on gently undulating downs and minor drainage features. Soils are red-orange clay-loams with stones and boulders spread throughout often forming gilgai on hillcrests. – **T1** – Very sparse tree layer of *Acacia aneura, Corymbia terminalis, Atalaya hemiglauca*, and *Santalum lanceolata*, with occasional *A. cambagei*. – **S** – *Acacia tetragonophylla, Senna artemisioides, A. sibirica*, and *Rhagodia spinescens*. – **G** – *Aristida contra, Sporobolus actinocladus, Astrebla pectinata, A. lappacea, Sclerolaena calcarata, S. lanicuspis, S. tricuspis, Lepidum phlebopetalum, Roepera aurantiaca, Atriplex leucoptera, A. angulata, A. eardleyae, A. spongiosa, Salsola australis, Dactyloctenium radulans, Sida ammophila*, and *Lepidum phlebopetalum*.	 

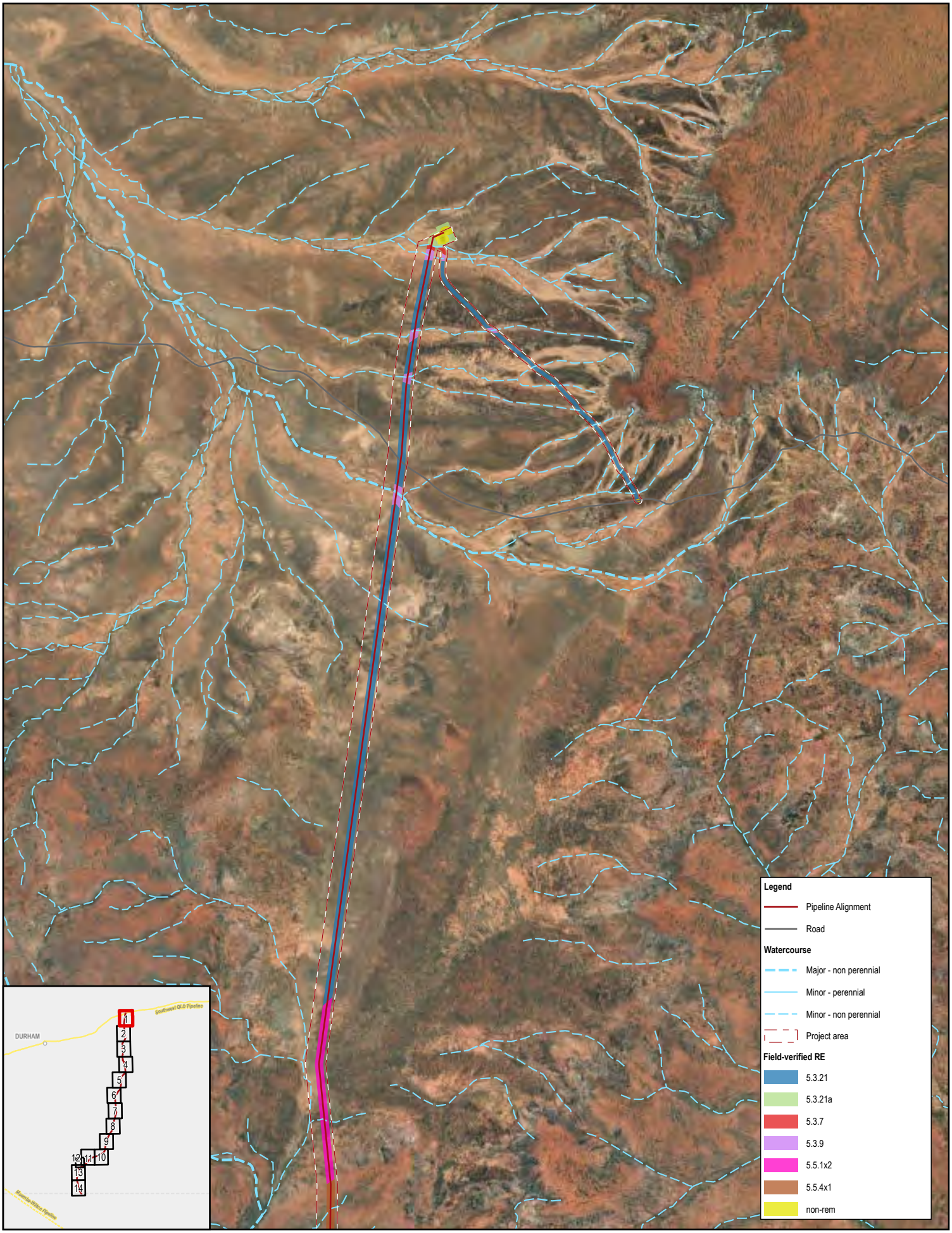
Vegetation community	Extent within project site	Description*	Representative photo/s
5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Very sparse. – **Structure code:** Low open woodland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	25.3 ha	The community occurs on deep residual sand dunes. Soils are an orange-red sandy-clay and includes ephemeral wetlands in the interdunal clay pans. – **T1** – Dominated by *Acacia cambagei* with subdominant *Atalaya hemiglauca* with associated *Owenia acidula*, *Acacia salicina*, and *A. victoriae*. – **S** – *Dodonaea viscosa subsp. angustissima, Eremophila sturtii, E. duttonii, Senna artemisioides subsp. filifolia, Hakea leucoptera, Acacia sibirica, Scaevola spinescens, A. tetragonophylla, A. murrayana, A. cambagei*, and *Rhagodia spinescens*. – **G** – *Trichodesma zeylanicum var. zeylanicum, Osteocarpum acropterum, Eragrostis eriopoda, Aristida contorta, Fimbristylis dichotoma, Einadia nutans, Nicotiana megalosiphon, Chenopodium auricomum, Gnephosis arachnoidea, Lepidum phlebopetalum, Sporobolus actinocladus, Sclerolaena cuneata, S. diacantha, S. bicornis, Tetragonia moorei, Enchylaena tomentosa*, and *Dissocarpus paradoxus*.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.6.4 – *Atalaya hemiglauca +/- Acacia aneura +/- Acacia spp. +/- Corymbia terminalis* low open woodland on reticulate sand dunes. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Sparse. – **Structure code:** Tall shrubland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	12.8 ha	The community occurs on low shallow residual sand dunes which overlie the adjacent clay alluvia. Soils are an orange-red sandy-clay often with small fragments of silcrete. – **T1** – Sparse tree layer of *Atalaya hemiglauca, Acacia aneura*, and *A. cambagei* with subdominant *Santalum lanceolata* and *Grevillea striata*. – **S** – *Hakea leucoptera, Acacia tetragonophylla, Eremophila duttonii Eremophila sturtii, A. sibirica, Scaevola spinescens, H. leucoptera, Chenopodium auricomum*, and *Rhagodia spinescens*. – **G** – *Sclerolaena cuneata, S. diacantha, S. bicornis, Lepidum phlebopetalum, Abutilon leucopetalum, A. ammophila, Euphorbia tannensis, Sporobolus actinocladus, Rhodanthe floribunda, Harmsiodoxa puberula, Atriplex leucoptera, Senecio gregorii, Polycalymma stuartii, Erodiophyllum elderi, Osteocarpum acropterum, Eragrostis eriopoda, Aristida contorta, Fimbristylis dichotoma, Enchylaena tomentosa, Einadia nutans, Nicotiana megalosiphon*, and *Gnephosis arachnoidea*.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
5.9.3 – *Astrebla* spp. +/- short grasses +/- forbs open tussock grassland to herbland. – **VM Act class:** Least concern. – **Biodiversity status:** No concern at present. – **Structure category:** Grassland. – **Structure code:** Open tussock grassland. – **Wetlands:** Not a wetland. – **Regulated vegetation:** Category B (remnant).	239.7 ha	The community occurs on gently undulating downs and minor drainage features. Soils are an orange-grey clay-loam often forming gilgai on hillcrests with sections of iron stone forming gibber. – **S** – A sparse shrub layer occurs predominantly confined to minor drainage features, dominated by *Senna phyllodinea, Acacia sibirica, S. artemisioides subsp. oligophylla, S. artemisioides subsp. helmsii, Rhagodia spinescens, Hakea leucoptera*, and stunted *A. cambagei*. – **G** – *Astrebla pectinata, Sclerolaena calcarata, S. lanicuspis, S. tricuspis, Lepidum phlebopetalum, Roepera aurantiaca, Atriplex leucoptera, A. angulata, Sporobolus actinocladus, Rhodanthe floribunda, Citrullus amarus, Rostellularia adscendens*, and *Swansonia campylantha*.	 

Vegetation community	Extent within project site	Description*	Representative photo/s
Non-remnant vegetation (category X). – **VM Act class:** Not applicable (non-remnant). – **Biodiversity status:** Not applicable (non-remnant). – **Structure category:** Derived grassland/highly modified vegetation. – **Structure code:** Open grassland. – **Wetlands:** Not mapped as wetland (unless applicable). – **Regulated vegetation:** Category X (non-remnant).	12.5 ha	Non-remnant (category X) vegetation occurs in a variety of areas including on clay plains and gently stony (gibber) surfaces. These sites are highly modified and structurally variable due to past disturbance (e.g. clearing and grazing). Vegetation is typically sparse to very sparse, with scattered trees or shrubs and a discontinuous ground layer. Species composition is inconsistent and reflects disturbance history and seasonal conditions. – **T** – Where present, a very sparse tree layer may occur, commonly including *Acacia aneura* and *A. sibirica*. – **S** – A sparse and patchy shrub layer may be present, with species such as *Vachellia farnesiana* (often dominant in disturbed areas) and *Senna artemisioides*. Shrub cover is highly variable and may be absent in some locations. – **G** – The ground layer is generally sparse and dominated by disturbance-tolerant or opportunistic species. Examples include *Astrebla, Sporobolus, Cyperus, Rhodanthe, Portulaca*, and saltbush and copperburr species such as *Sclerolaena*.	 

Note: *T = tree layer, T1 = canopy layer, T2 = subcanopy layer, S = shrub layer; G = ground layer, E = emergent layer.



Paper Size ISO A4

0 0.35 0.7 1.05 1.4

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Field-verified regional ecosystems

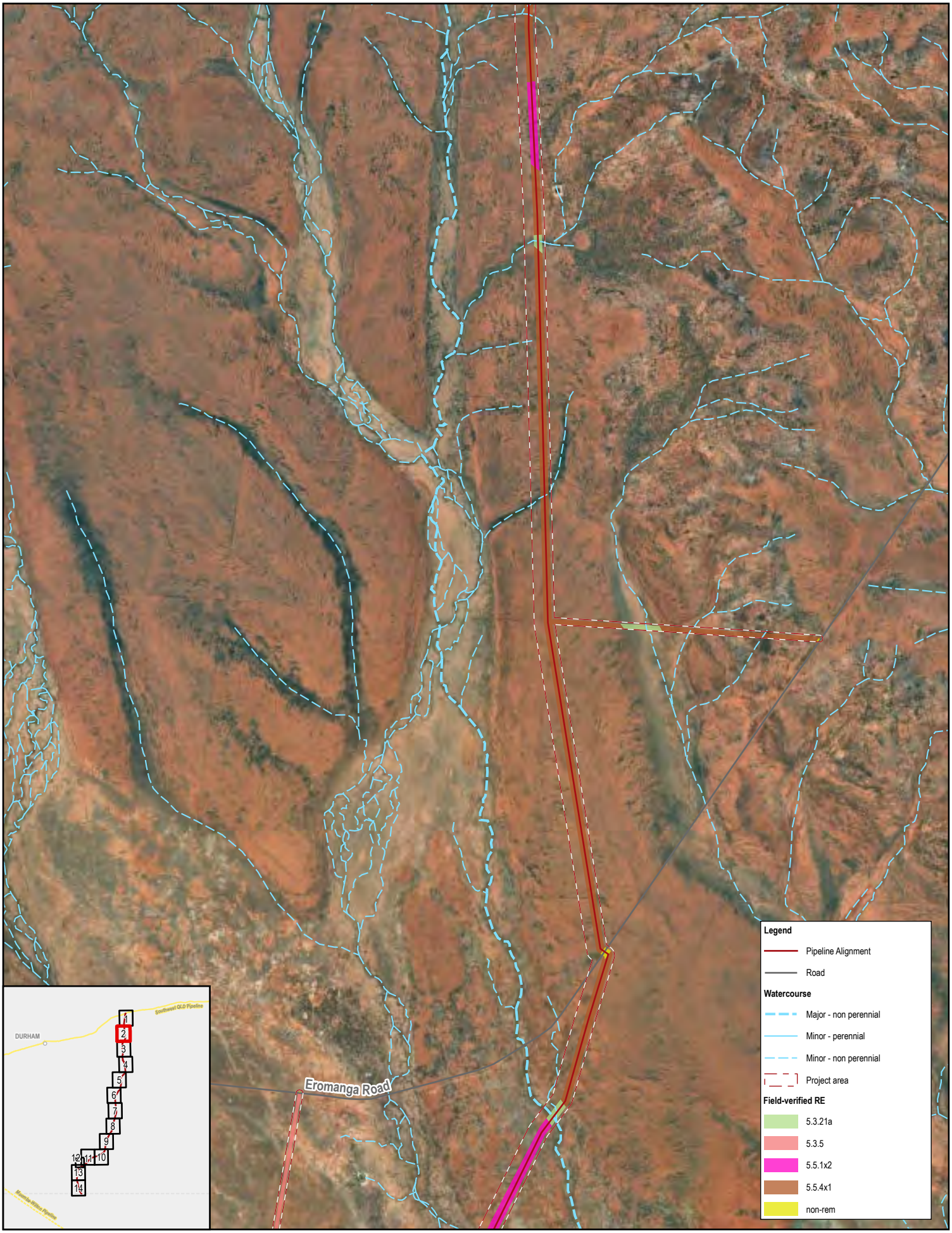
Project No. **12661648**
Revision No. **0**
Date **08/07/2026**

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Figure 4.1

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Bulloo Interlink Pipeline

Field-verified regional ecosystems

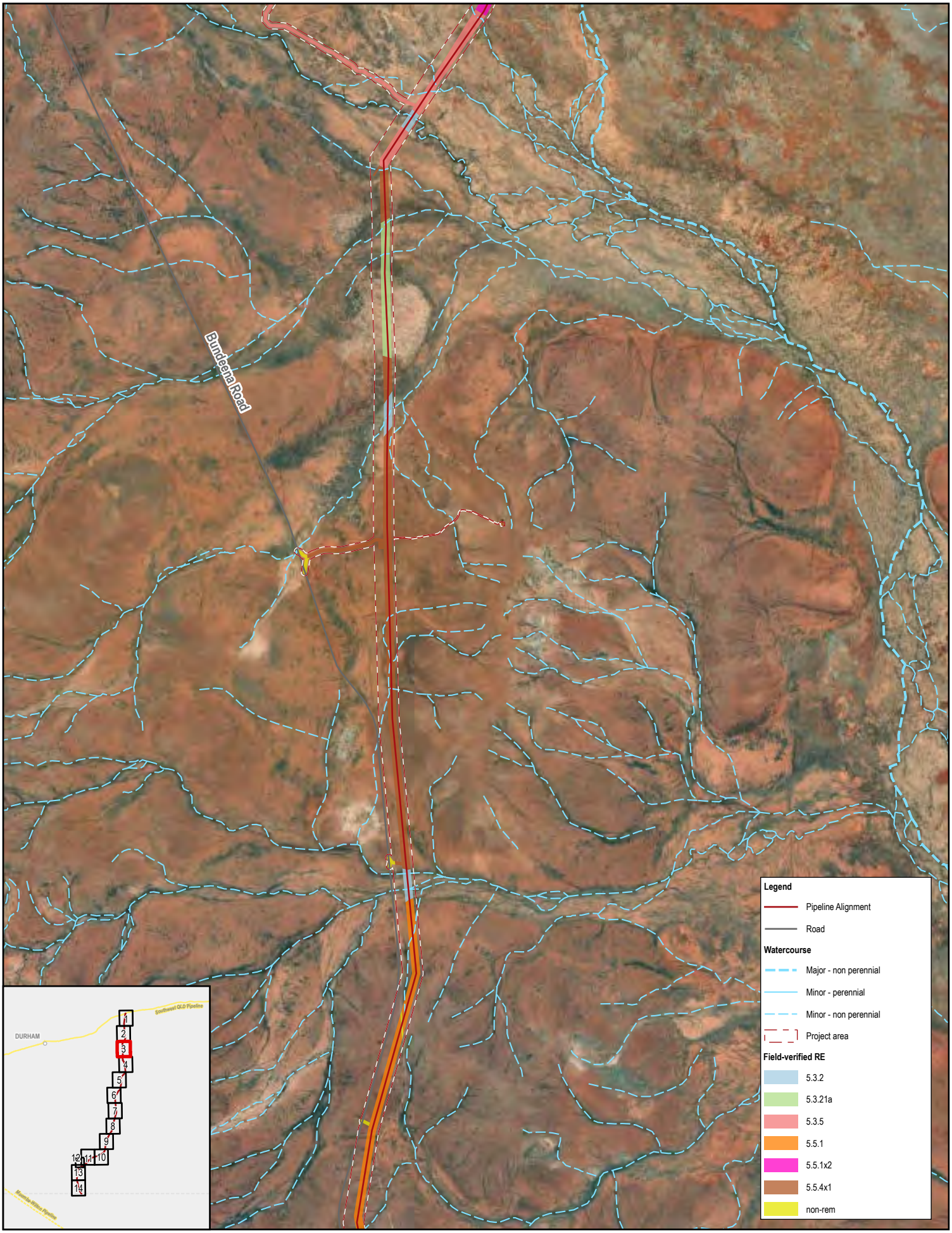
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Figure 4.1

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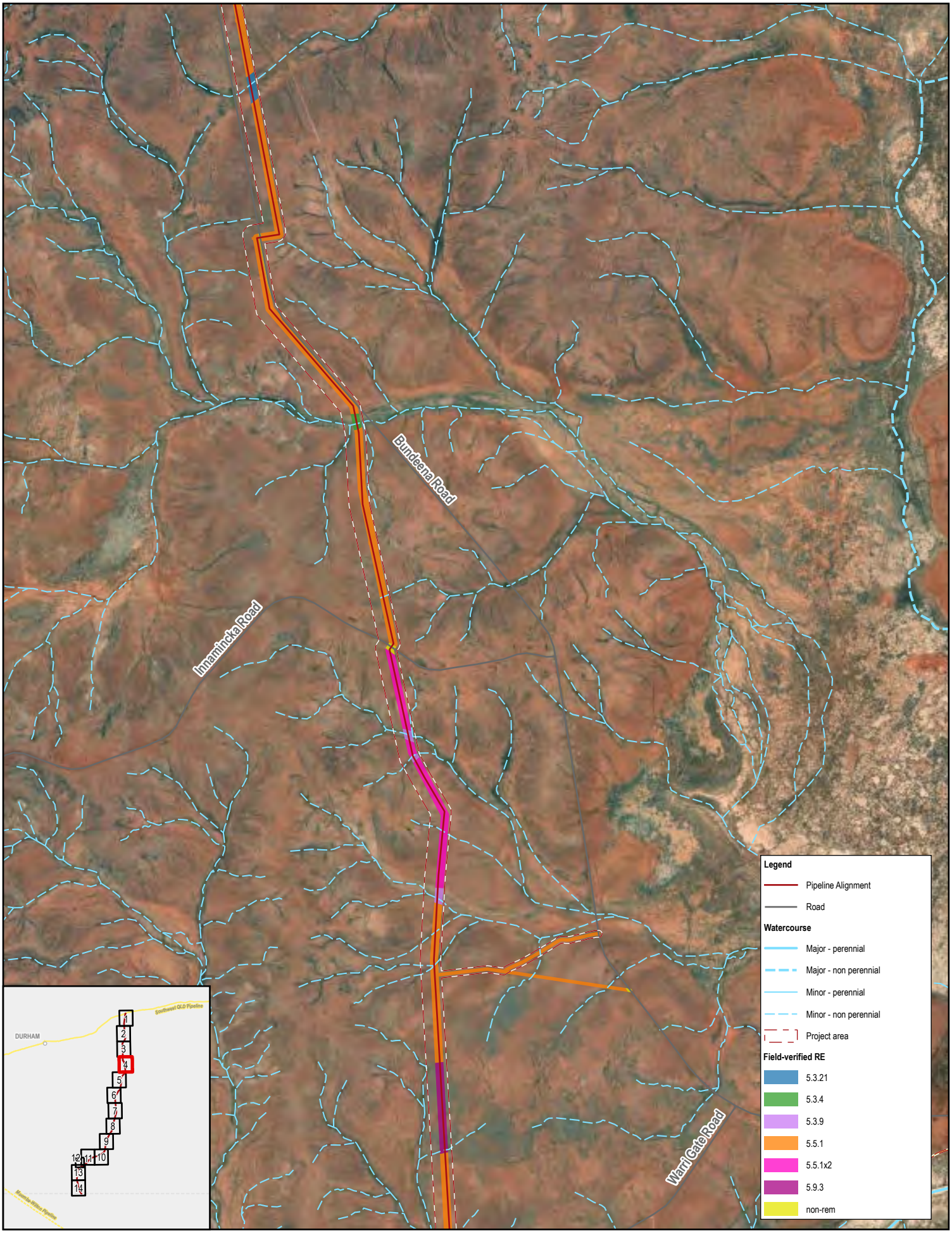
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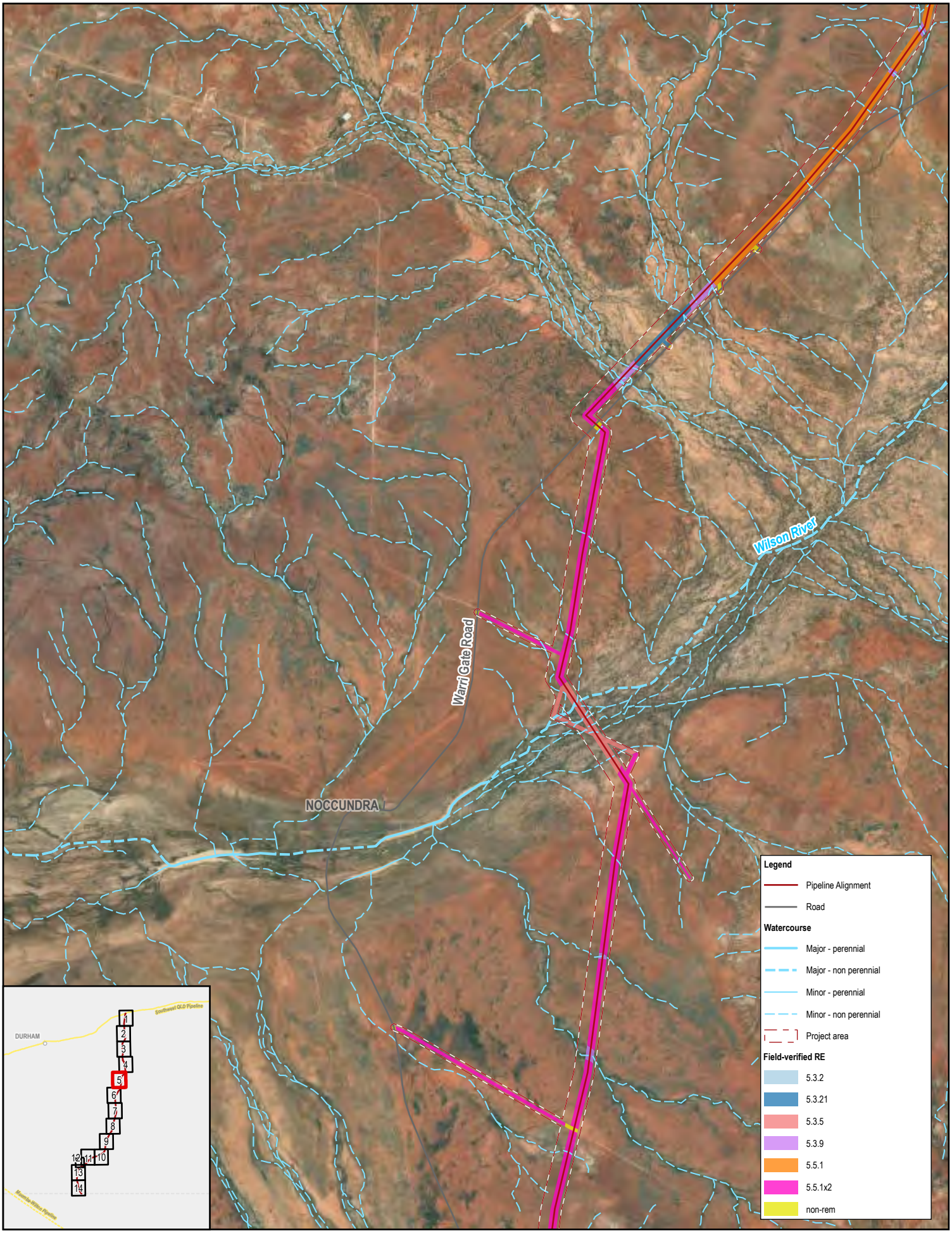
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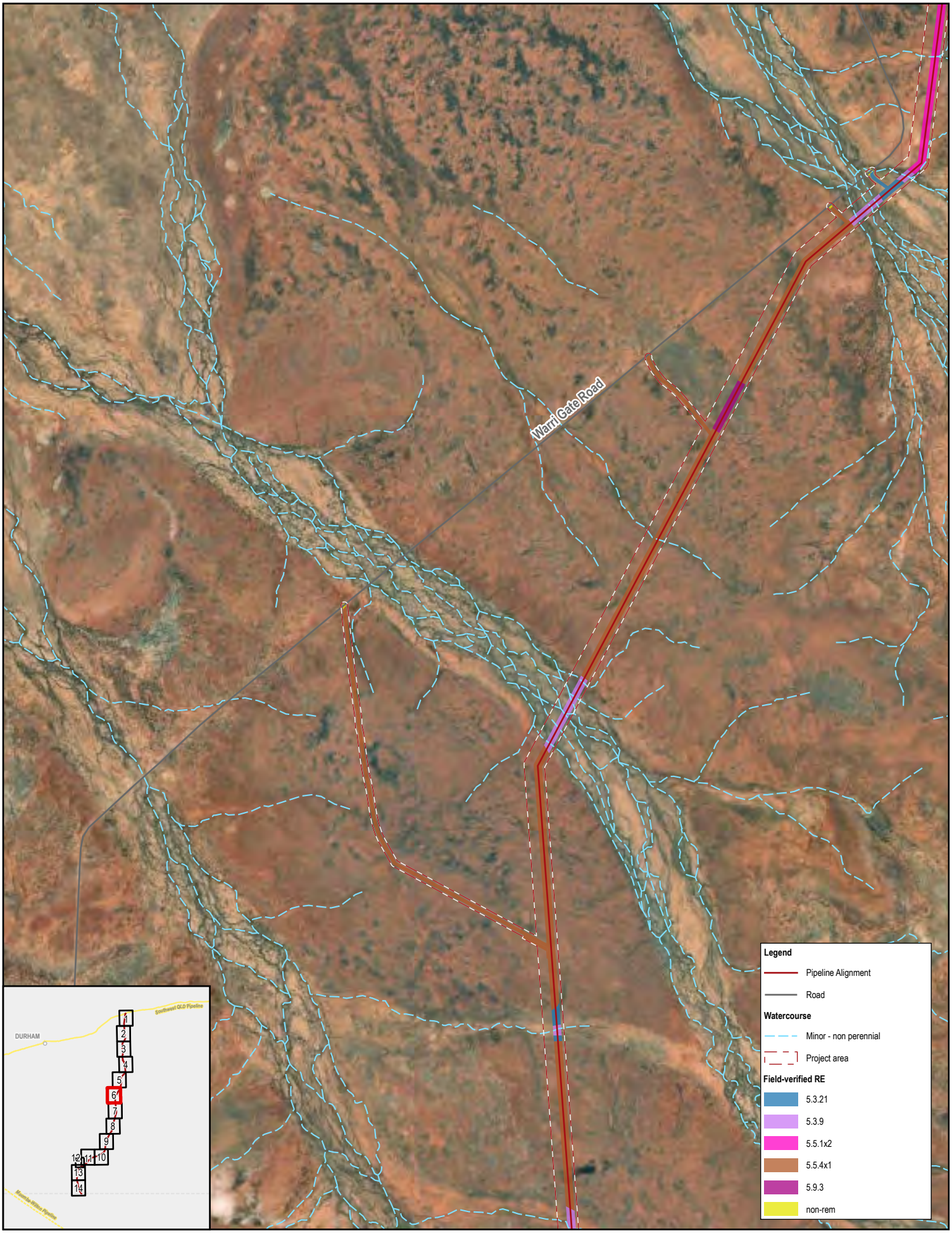
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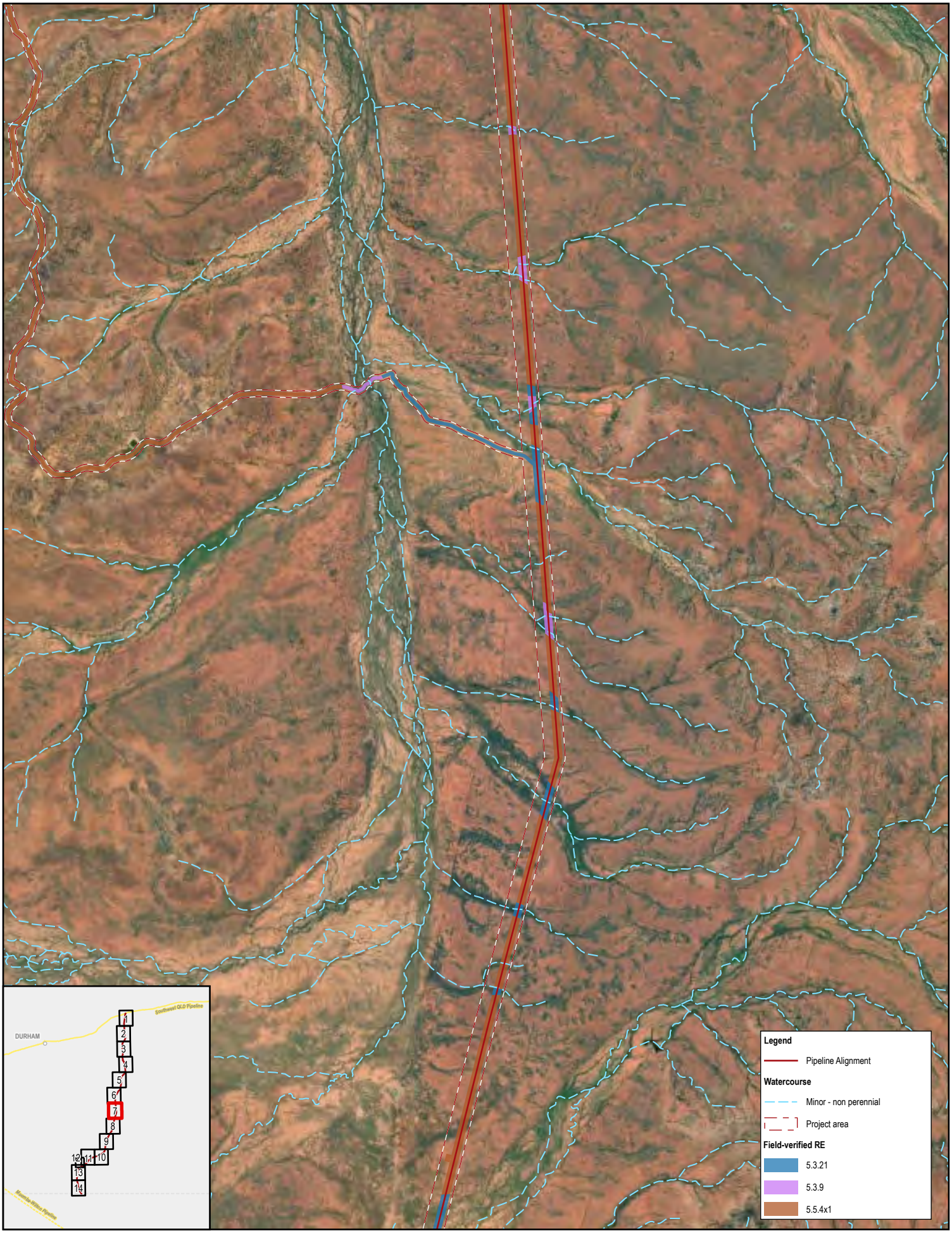
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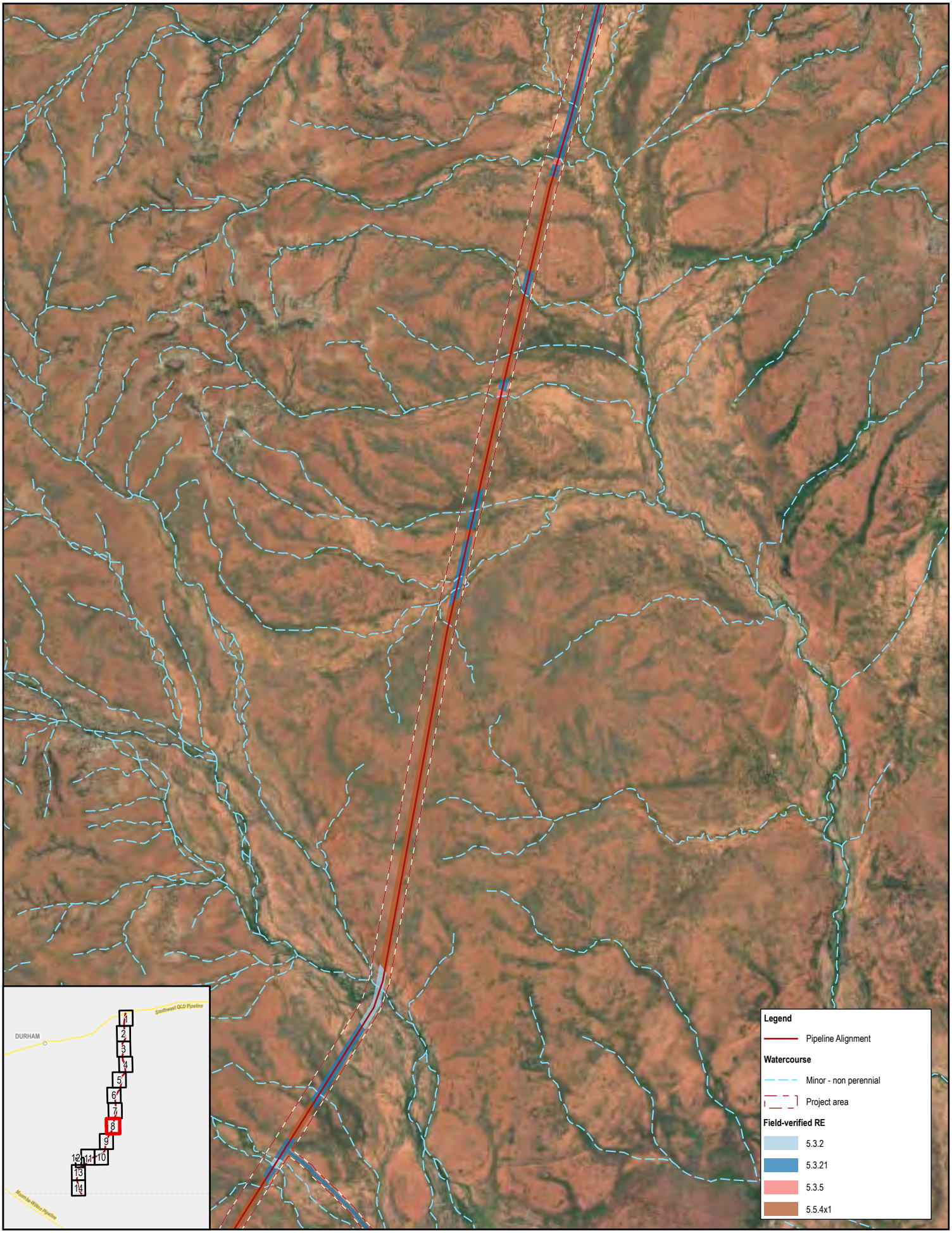
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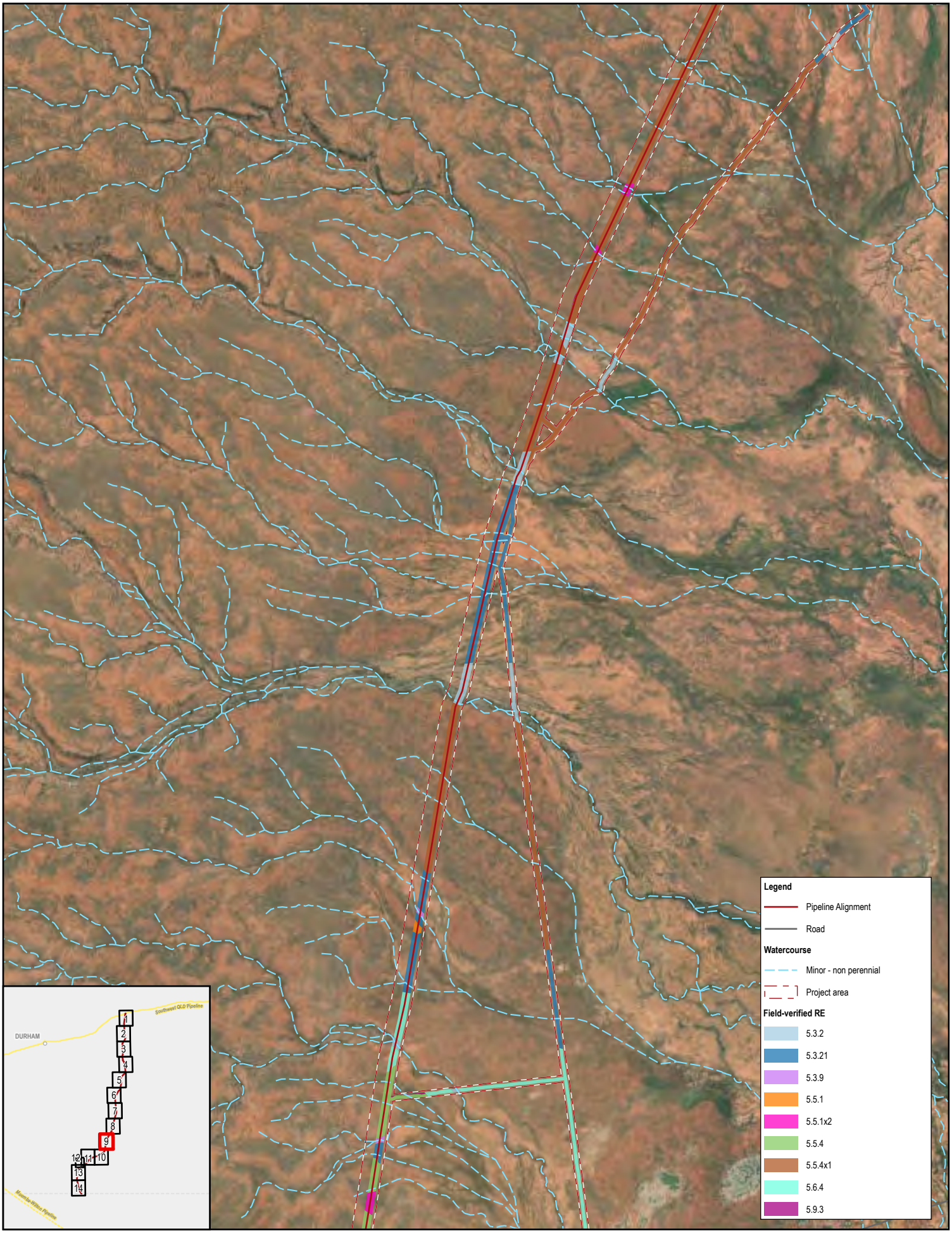
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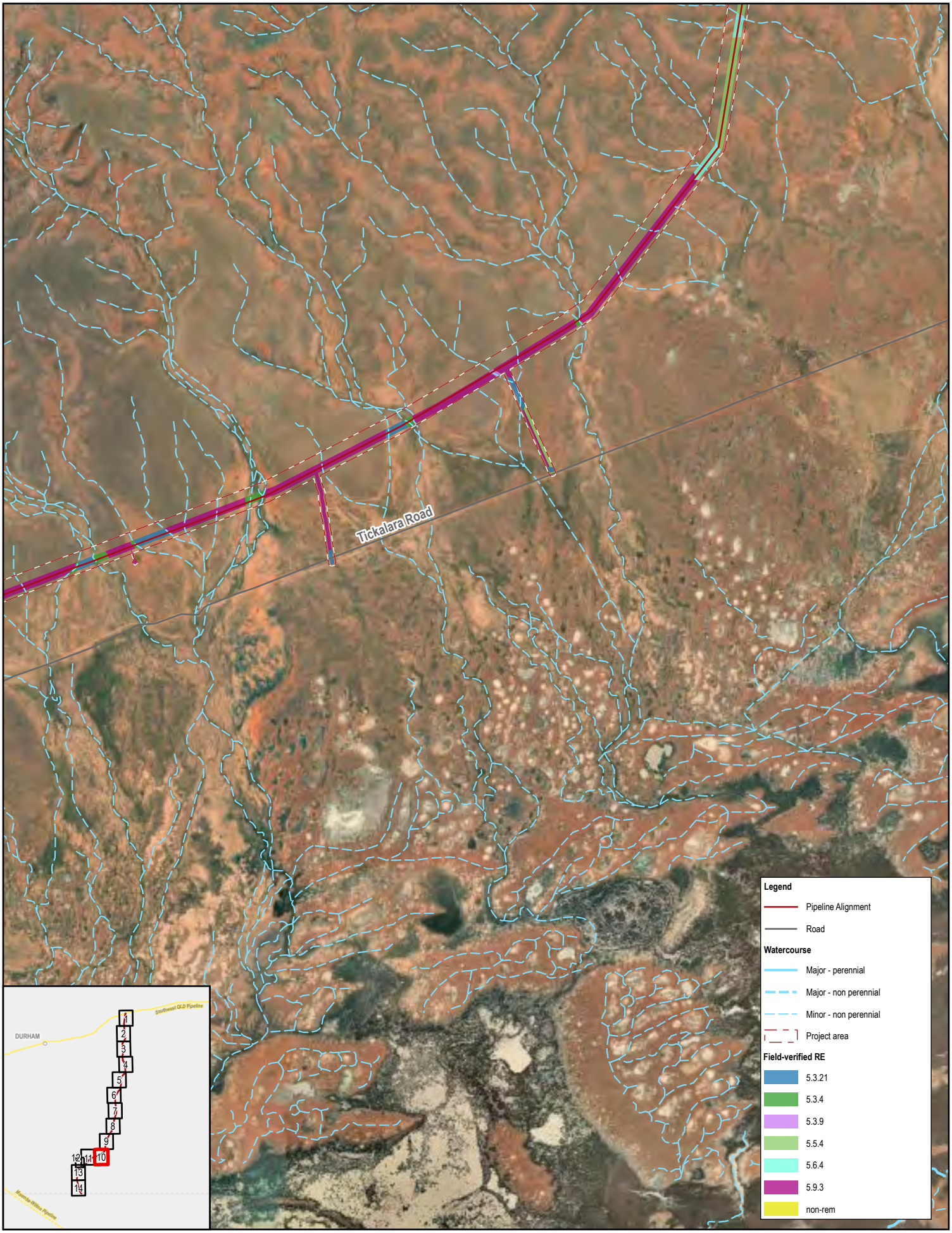
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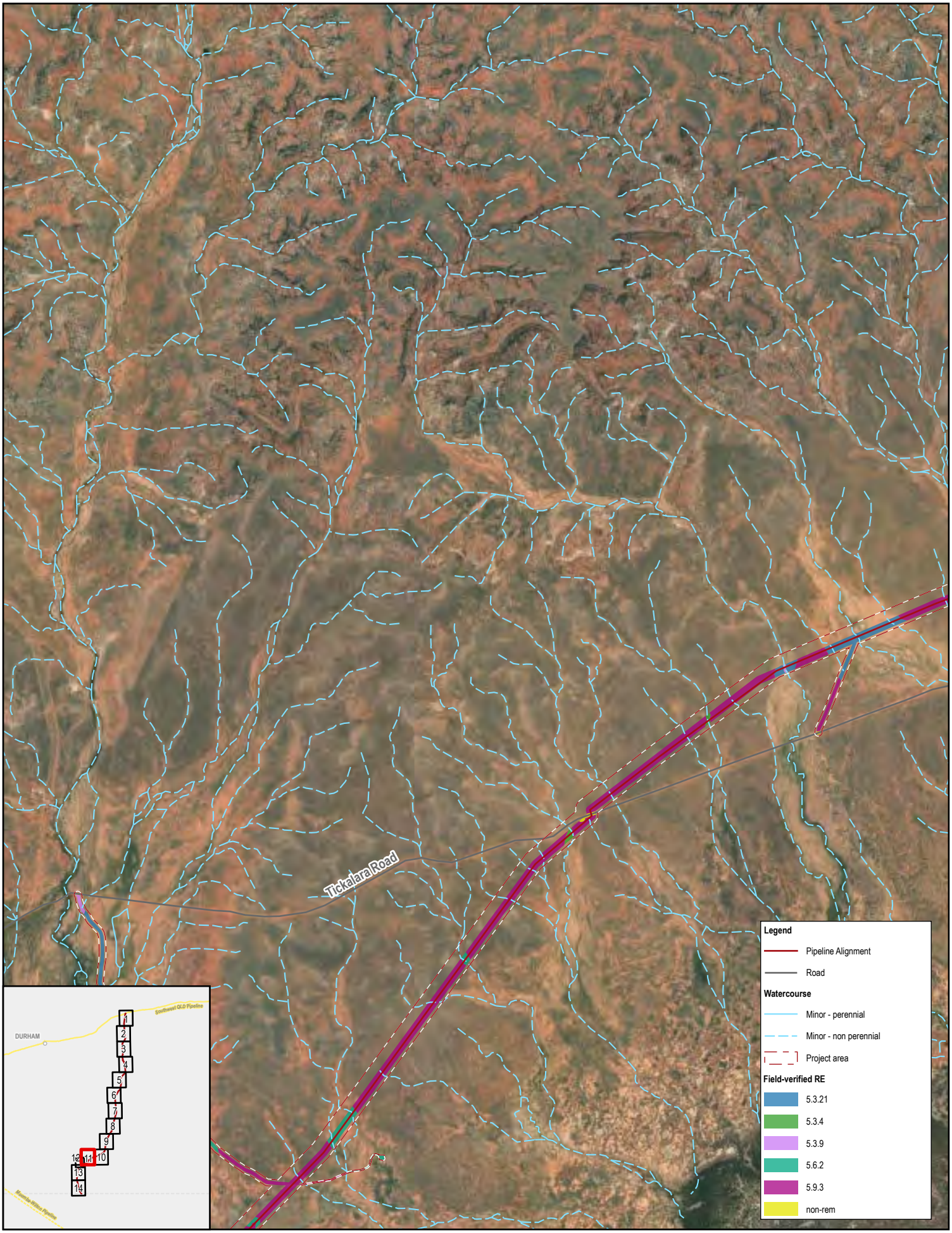
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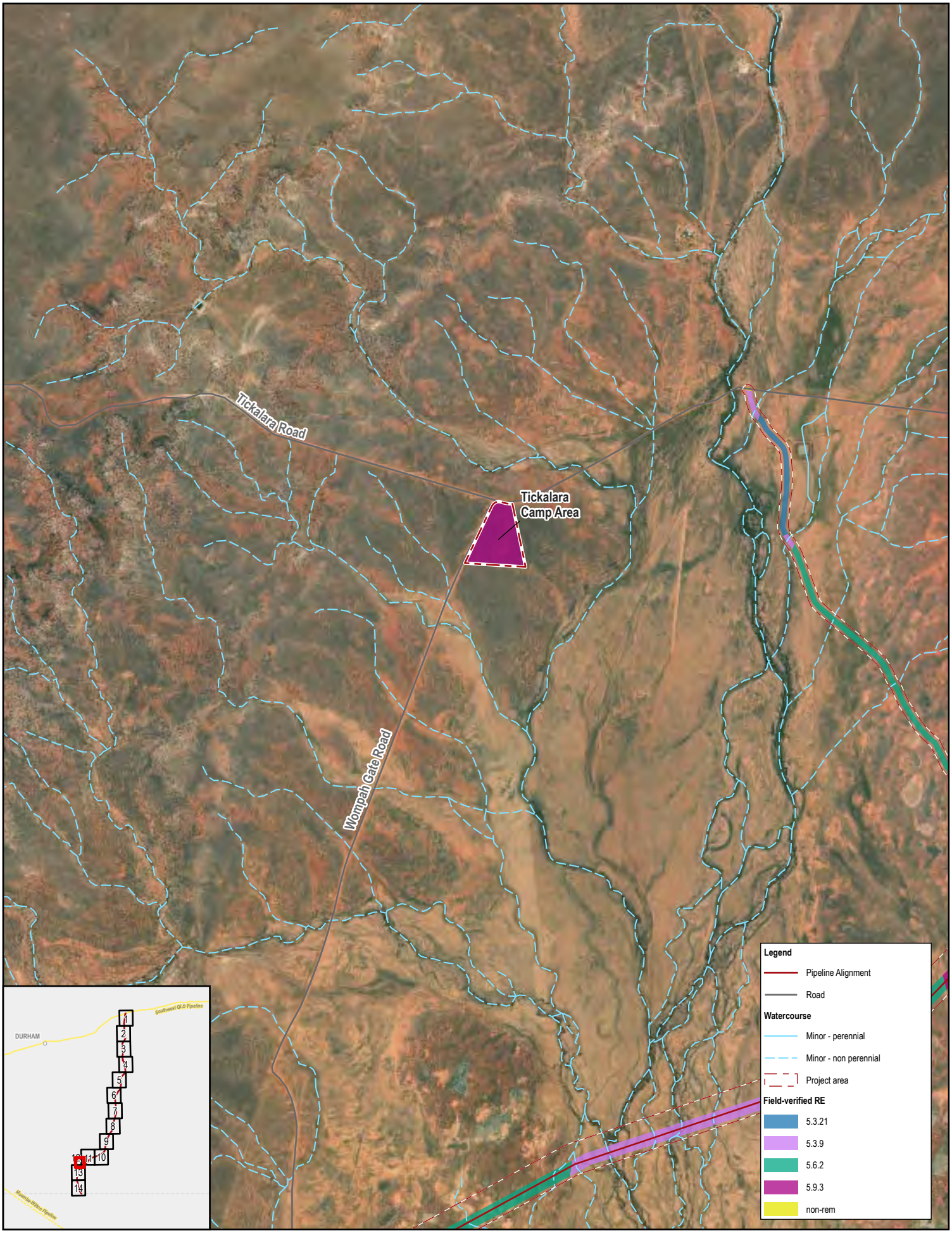
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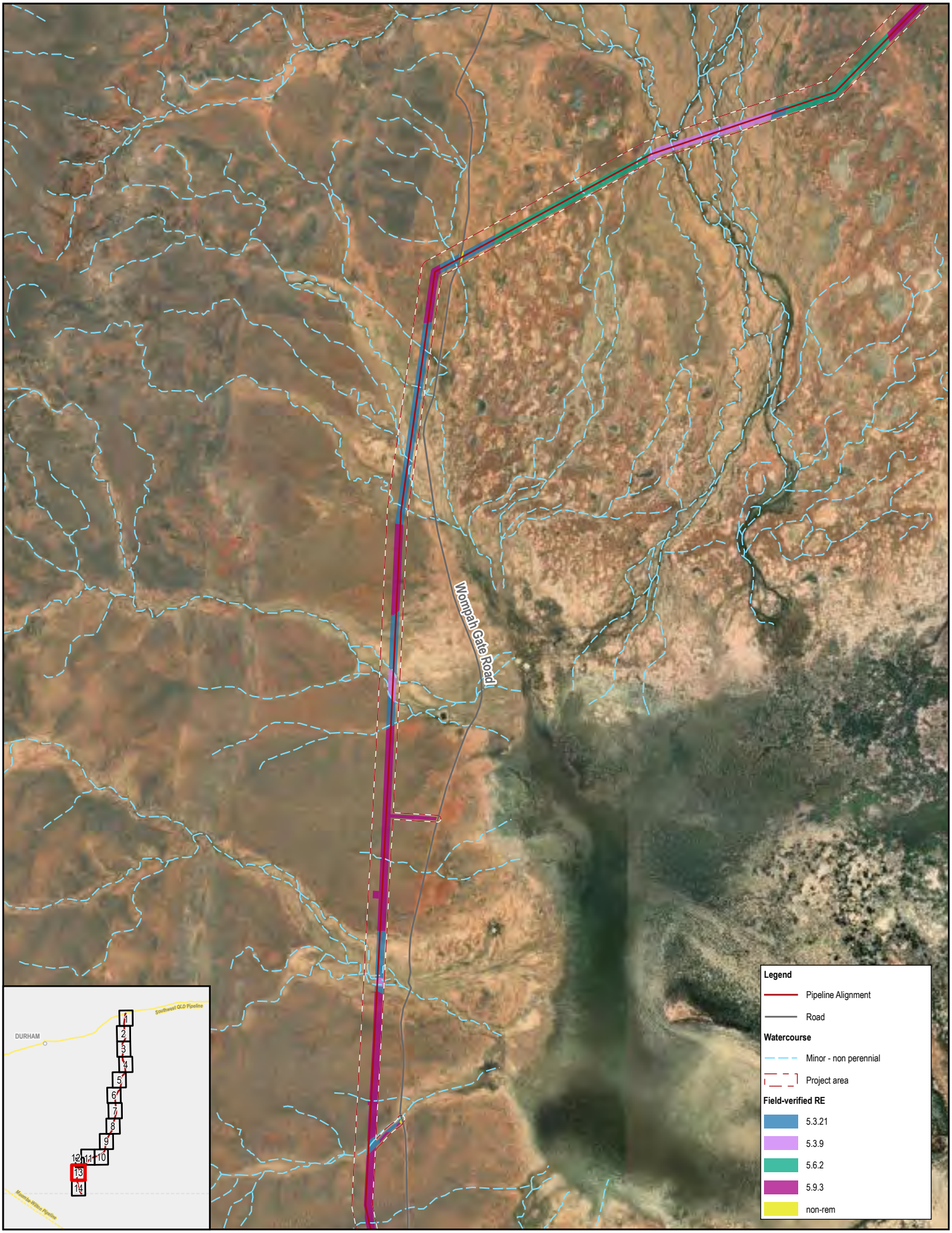
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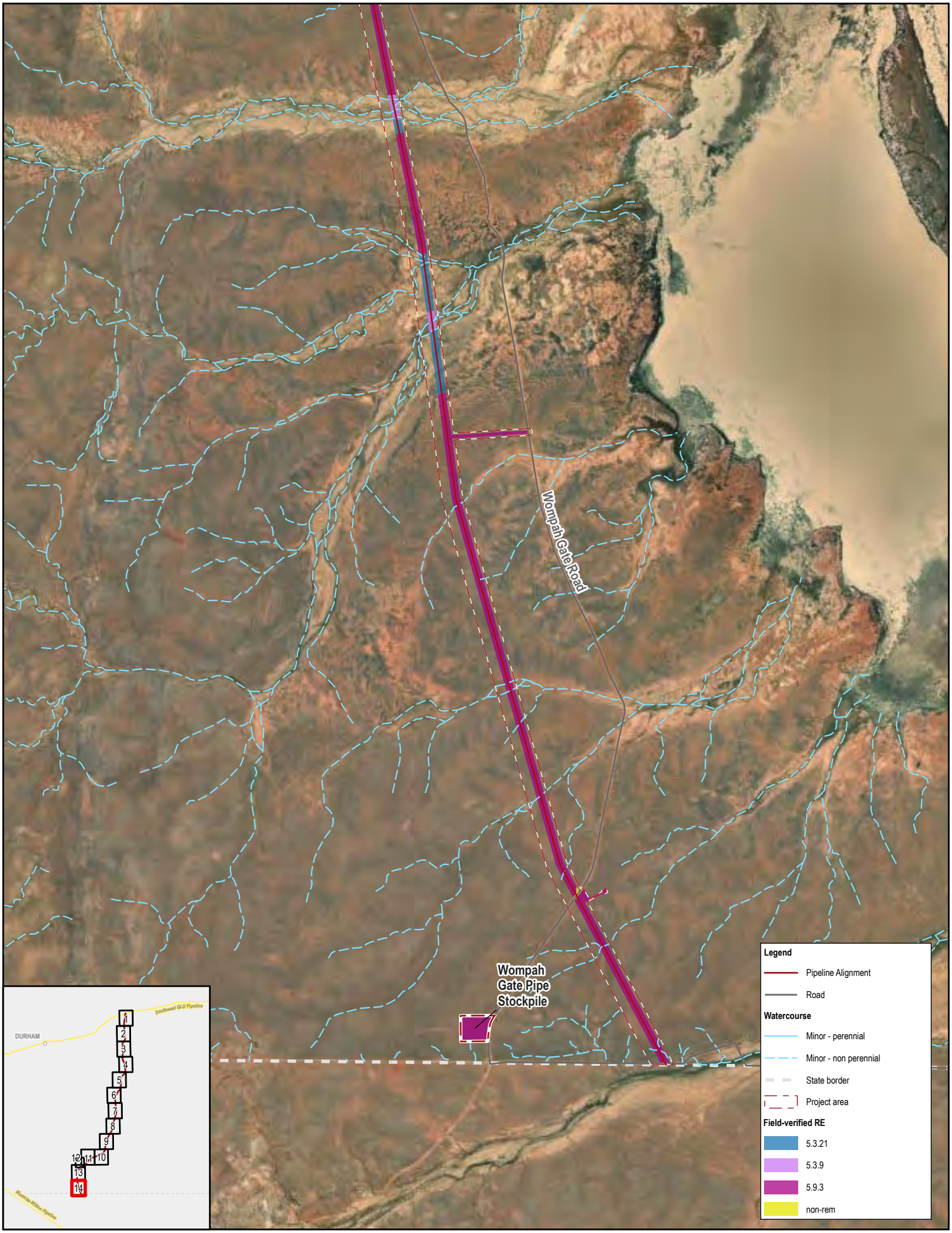
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Field-verified regional ecosystems

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Figure 4.1

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4.1.2 Flora species observations

The Channel Country bioregion experiences seasonal 'boom and bust' cycles which encourage the proliferation of seasonally ephemeral flora species (Silcock & Fensham, 2019). Western Queensland, including the project area, received significant rainfall and flooding over March to April 2025, prior to the first field survey in July. The timing of the flora field survey after these significant weather events supported ideal conditions for detecting seasonally ephemeral plant species within a boom cycle.

Across all surveys, a total of 198 flora species (Appendix C) were observed within the project site, of which 193 are classed as endemic or 'native' to Queensland and five are classed as 'naturalised' in Queensland (Queensland Herbarium, 2025). Of the 193 endemic species observed, all taxa are listed as least concern under the NC Act and no taxa are listed as threatened species under the EPBC Act.

As summarised in Table 4.2 and described in sections below, only two flora species listed under the NC Act were considered to have the potential to occur with the project site. A detailed likelihood of occurrence assessment is included in Appendix A.

Table 4.2 Flora – likelihood of occurrence summary

Scientific name	Common name	NC Act status	Likelihood of occurrence
Rhodanthe rufescens	-	NT	Potential to occur
Sclerolaena walkeri	–	LC	Potential to occur

Note: Under the NC Act, NT = near threatened; LC = least concern

Rhodanthe rufescens

Rhodanthe rufescens is a small herbaceous plant with capitula 2.8–4 mm across; and longest leaves up to 6–15 mm long, 5–15 times longer than they are wide (Bean, 2017). The species is associated with acacia woodlands on low rocky ridges with gibber in alluvial channels (AVH, 2025).

Two records (1987 and 2021) exist for *Rhodanthe rufescens* near Noccundra, with one record (associated with the Noccundra airstrip) within 5 km of the project site. Suitable habitat is present across the project site in RE 5.5.1 as mulga (*Acacia aneura*) woodlands, and RE 5.5.1x2 as gidgee (*A. cambagei*) woodlands. No individuals were located during field surveys.

The project intersects an area shown as a high-risk area on the protected plants flora survey trigger map between Warri Gate Road and the alignment at KP 83 on an existing vehicle access track (section 4.4.1).

The area corresponds to a 1987 record of *Rhodanthe rufescens* occurring at the Noccundra air strip. *Rhodanthe rufescens* is listed as near threatened under the NC Act and is not MSES. Consequently, no further assessment has been undertaken.

Sclerolaena walkeri

Sclerolaena walkeri is a small Chenopodiaceae shrub to 30 cm with dense woolly branches and cottony young leaves becoming hairless with age (DEWHA, 2008a). The species predominantly occurs within the semi-arid Channel Country bioregion in the south-west of Queensland. *S. walkeri* is broadly distributed across an area of over 650 km from the Diamantina National Park in the north, to the Narriearra Caryapundy Swamp National Park in the south. The species is associated with saline floodplains and riverine woodlands (DEWHA, 2008a).

Within the project site, suitable habitat for the species occurs on the braided channels and riverine woodlands where it is associated with yapunyah (*Eucalyptus ochrophloia*) present within the broader coolabah (*E. coolabah*) open woodland (RE 5.3.5) (DEWHA, 2008a). The species is also associated with Queensland bluebush (*Chenopodium auricomum*) within the open herb land to shrub land community occurring on the floodplain alluvia of major rivers (RE 5.3.21) (DEWHA, 2008a). No individuals were located during field surveys.

Sclerolaena walkeri is listed as least concern under the NC Act and does not constitute MSES. On the basis that the species is also listed as vulnerable under the EPBC Act, assessment was undertaken and reported as part of the EPBC Act referral and summarised in section 4.6.

4.1.3 Groundwater dependent ecosystems

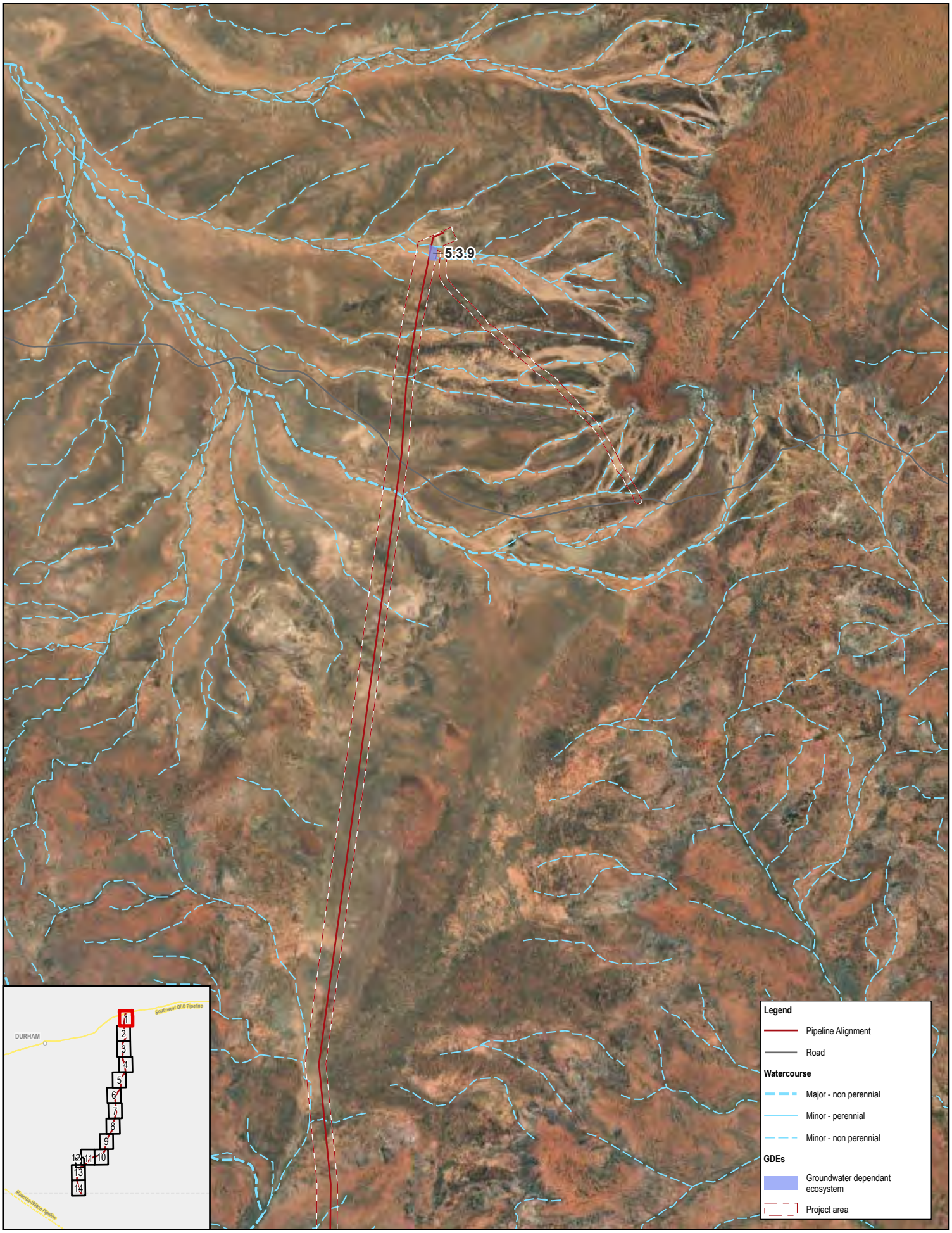
GDEs confirmed as present within the project site comprise ecosystems dependent on the subsurface presence of groundwater on unconsolidated sedimentary aquifers (see Figure 4.2). These terrestrial GDEs are represented by three REs classified as riverine wetlands:

– 5.3.2 – *Eucalyptus camaldulensis* +/- *E. coolabah* open woodland on levees and banks of drainage lines.
– 5.3.4 – *Eucalyptus camaldulensis* +/- *Acacia aneura* +/- *A. cambagei* +/- *A. georginae* +/- *A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges (Plate 4.1)
– 5.3.5 – *Eucalyptus coolabah* open woodland +/- *Duma florulenta* shrubland on braided channel systems.
– 5.3.9 – *Acacia cambagei* +/- *Eucalyptus coolabah* low woodland on braided channel systems.



Plate 4.1 ***RE 5.3.4 – Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla woodland on drainage lines***

These communities occur on the main drainage lines, braided channels and major tributaries of the Wilson River and Bulloo Rivers. No subterranean GDE areas (i.e. cave ecosystems) were observed within the project site, and no surface expression of GDEs as artesian mound springs were observed.



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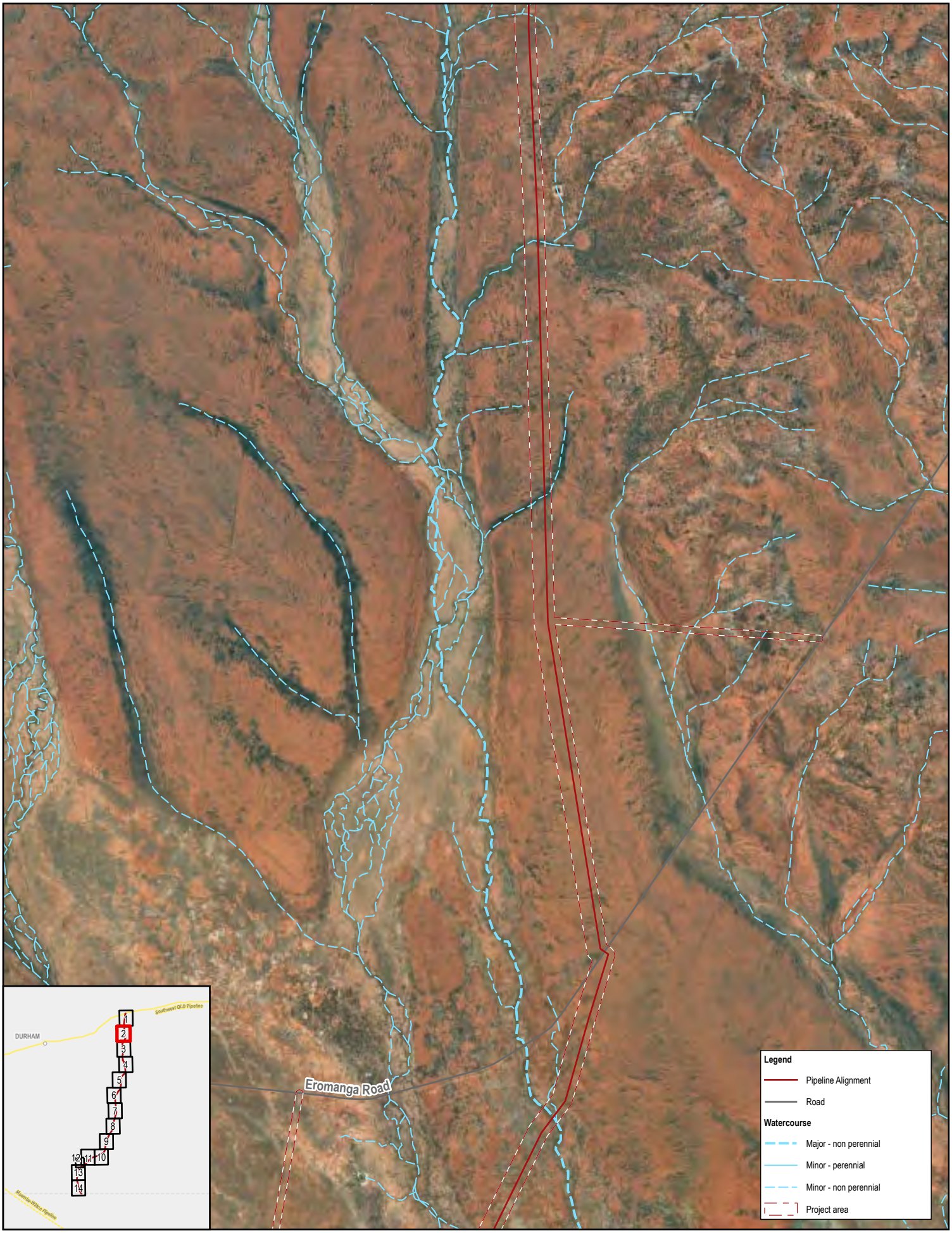
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GDE's within the project site

Figure 4.2

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GDE's within the project site

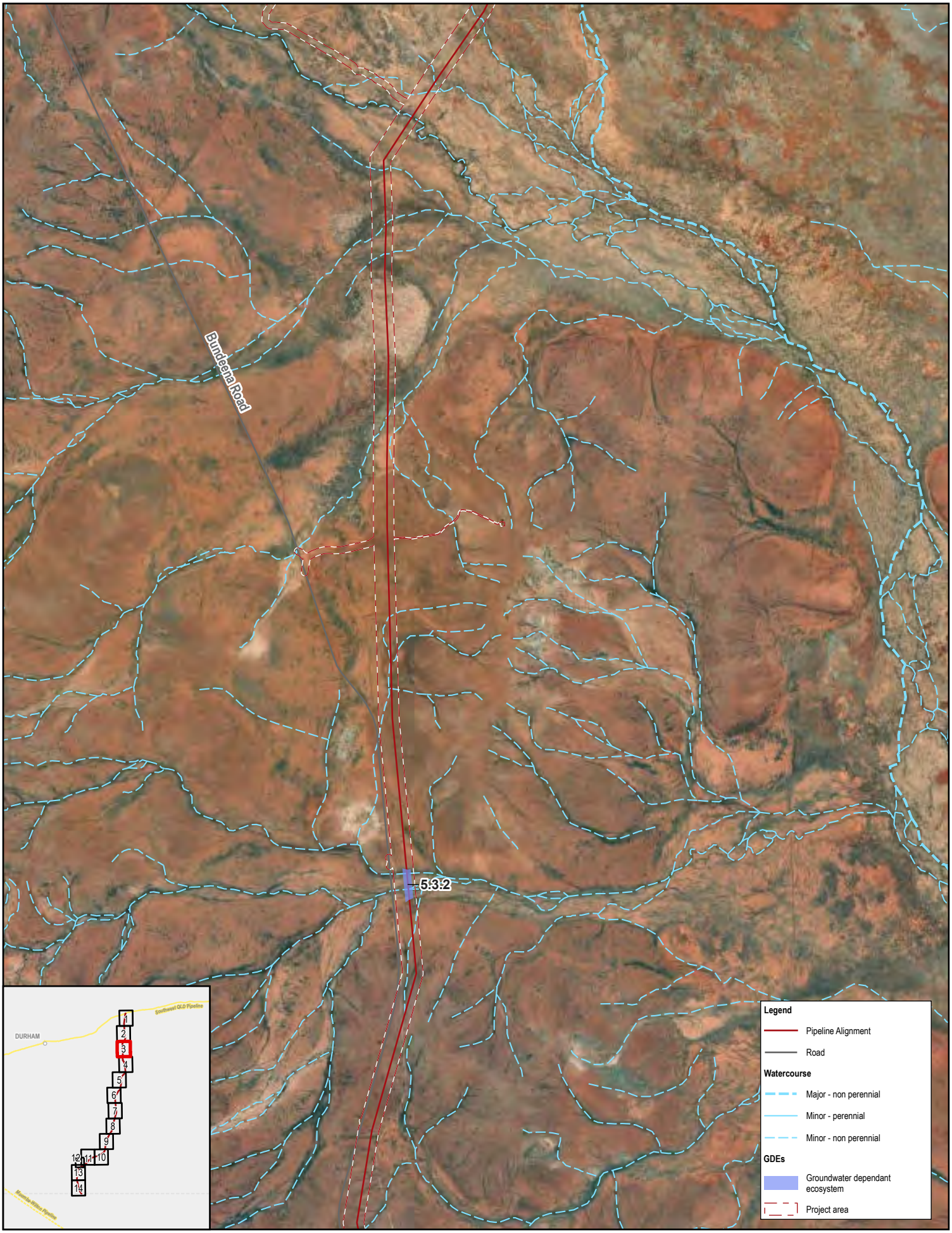
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Figure 4.2

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GDE's within the project site

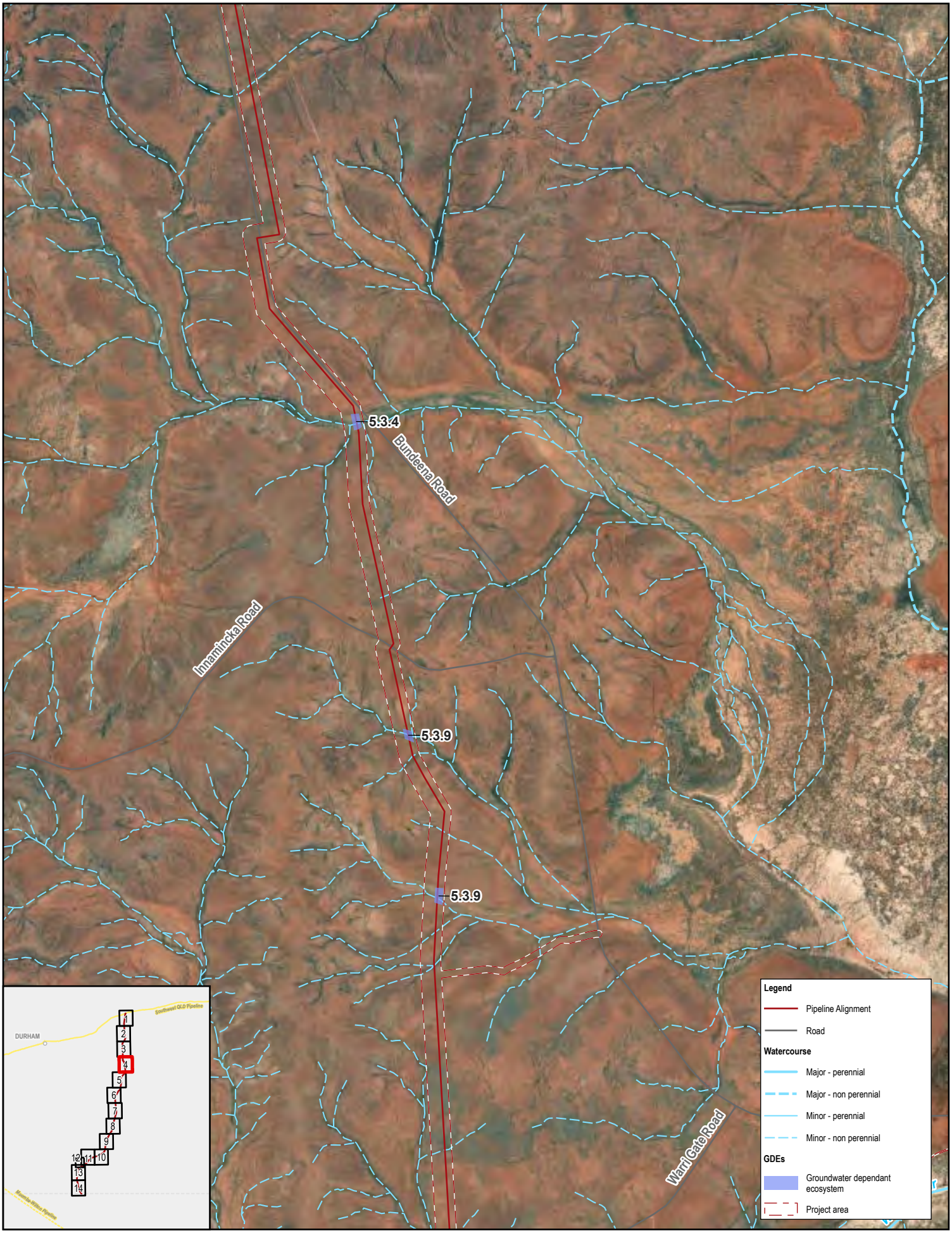
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Figure 4.2

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GDE's within the project site

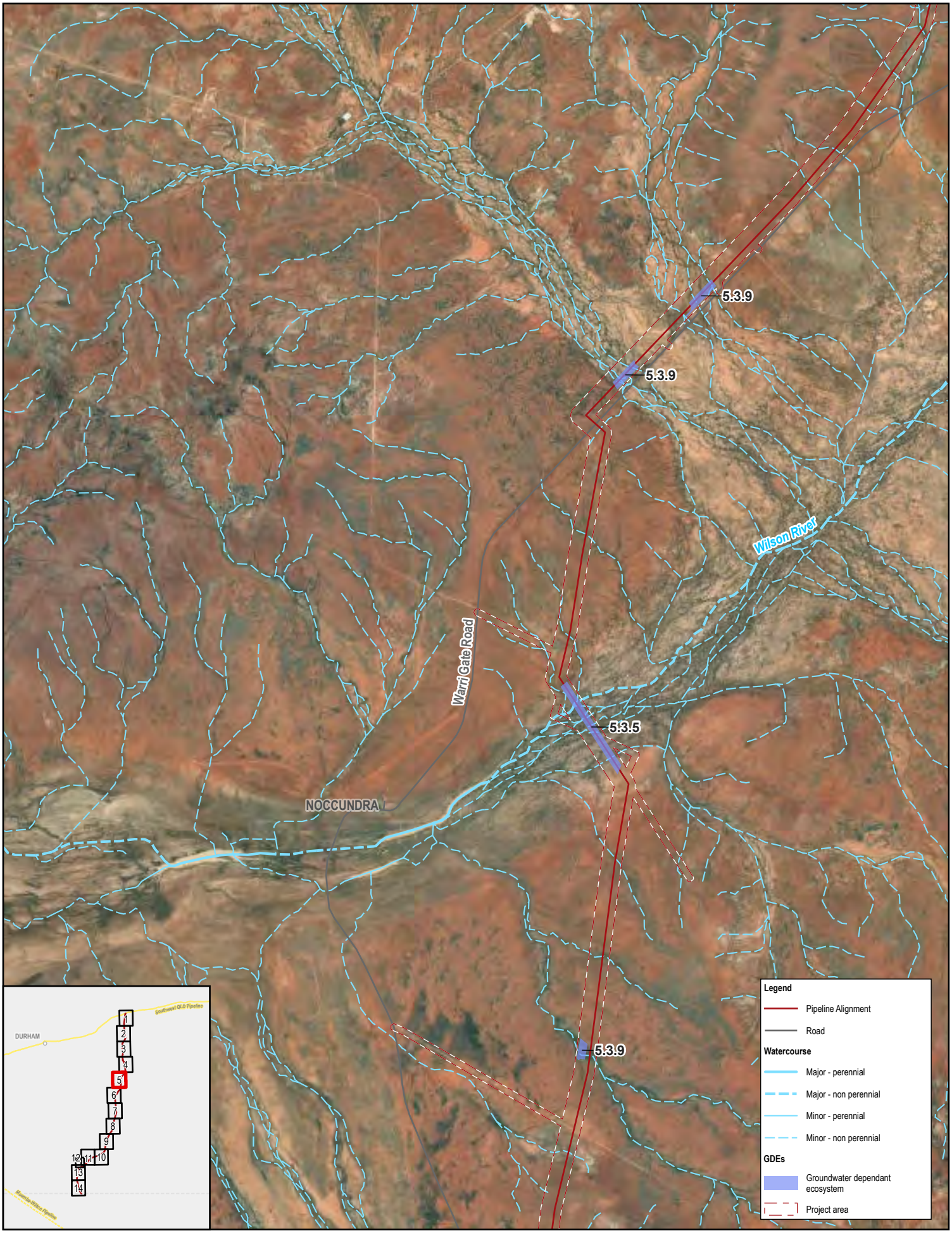
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Figure 4.2

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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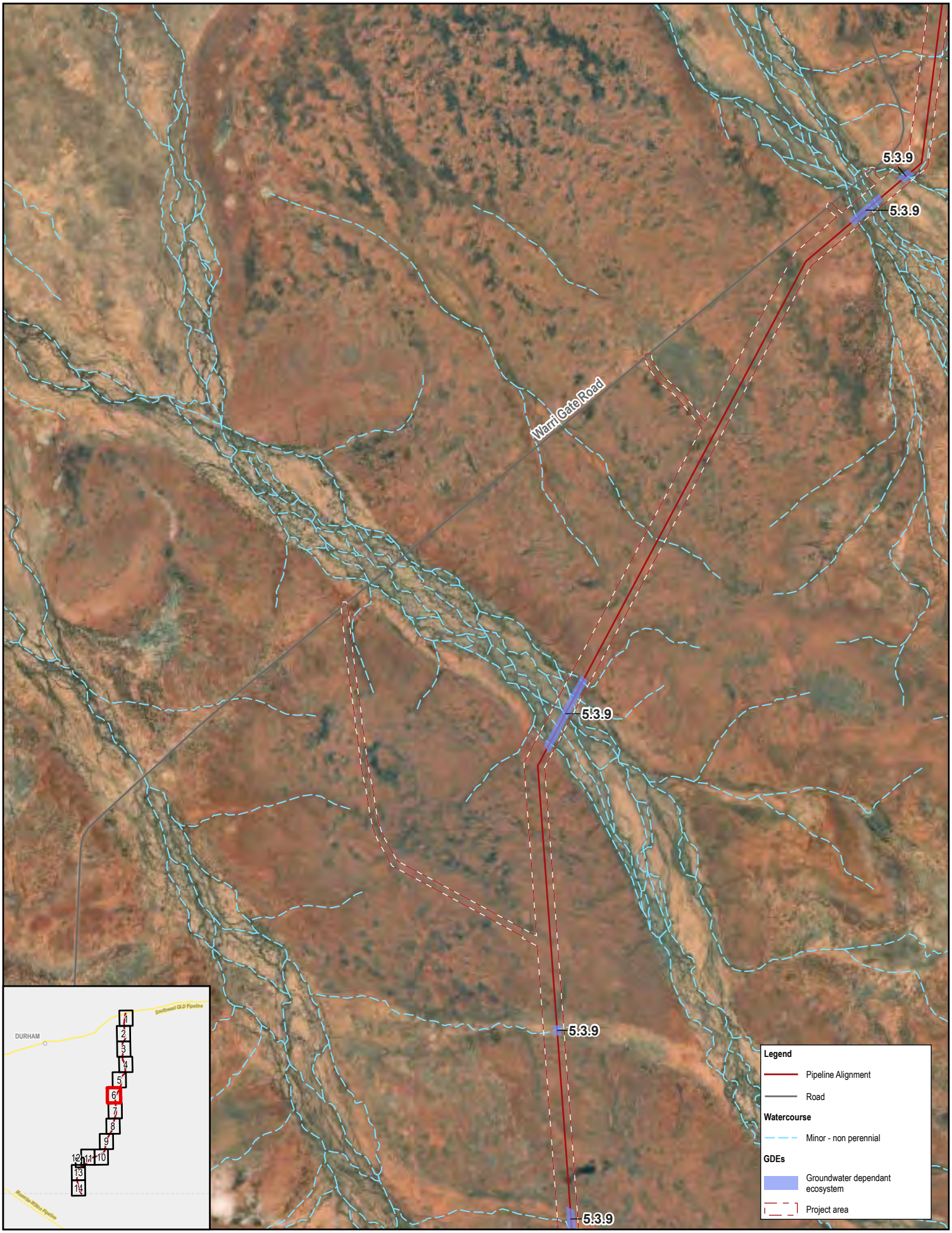
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GDE's within the project site

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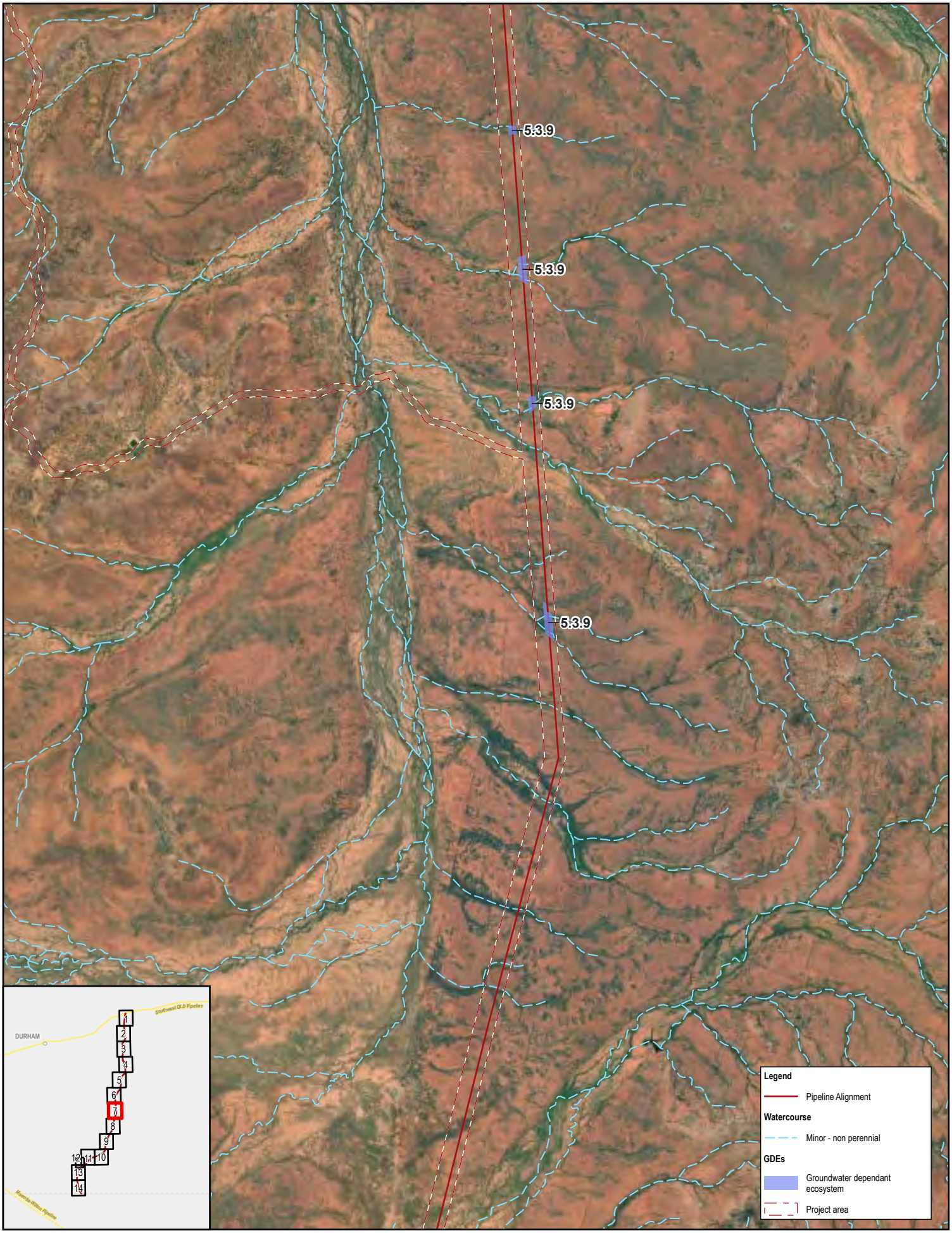
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Figure 4.2

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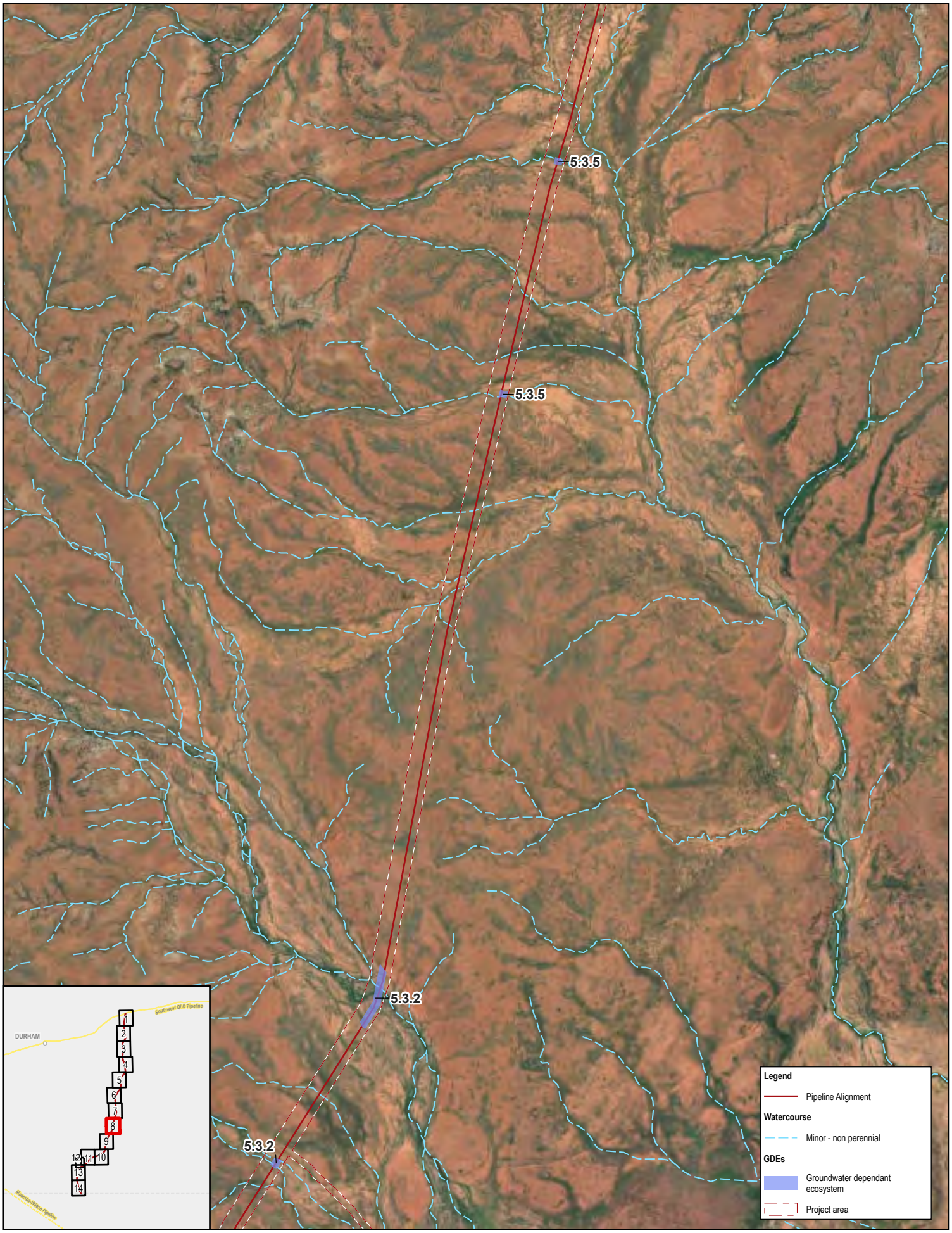
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GDE's within the project site

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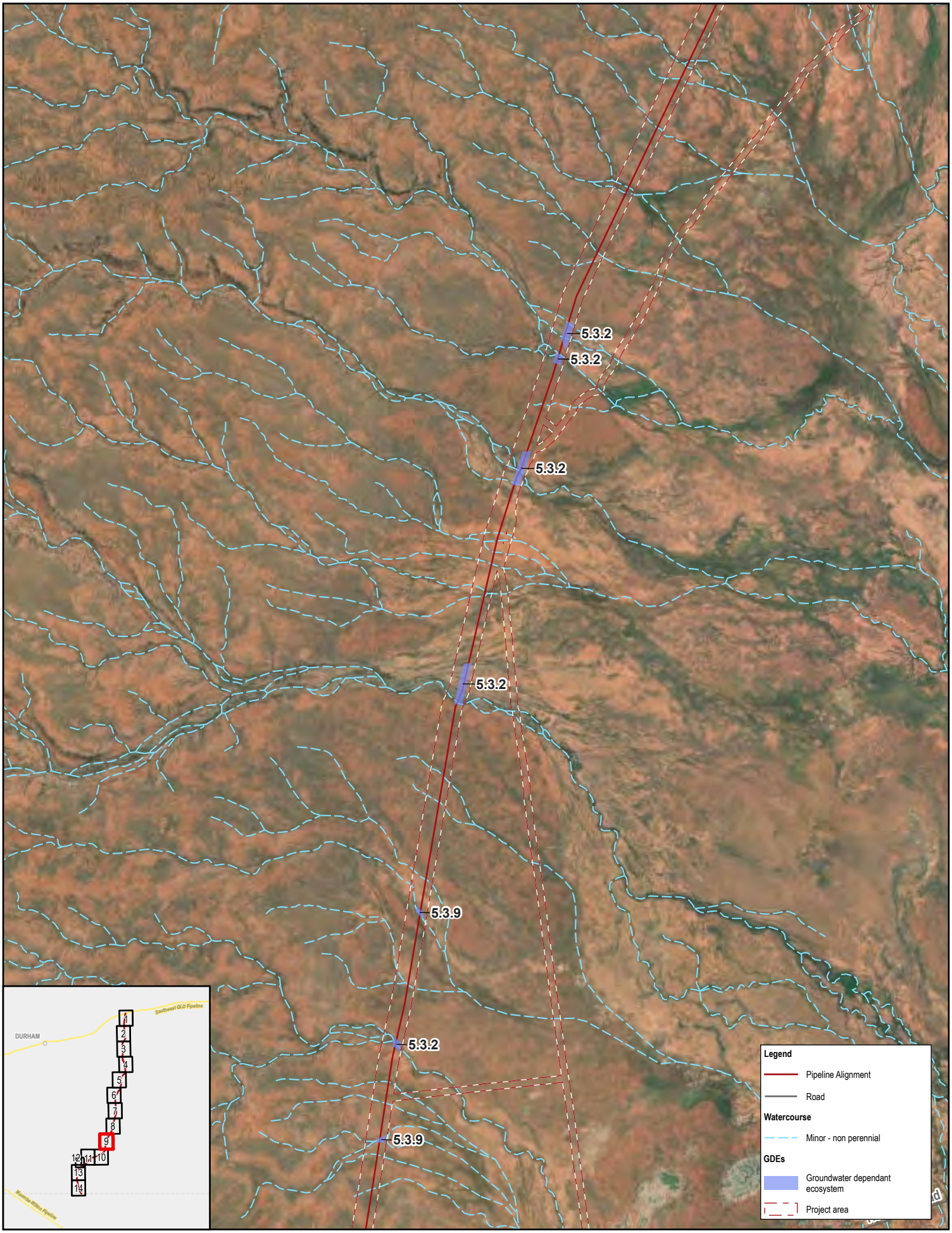
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GDE's within the project site

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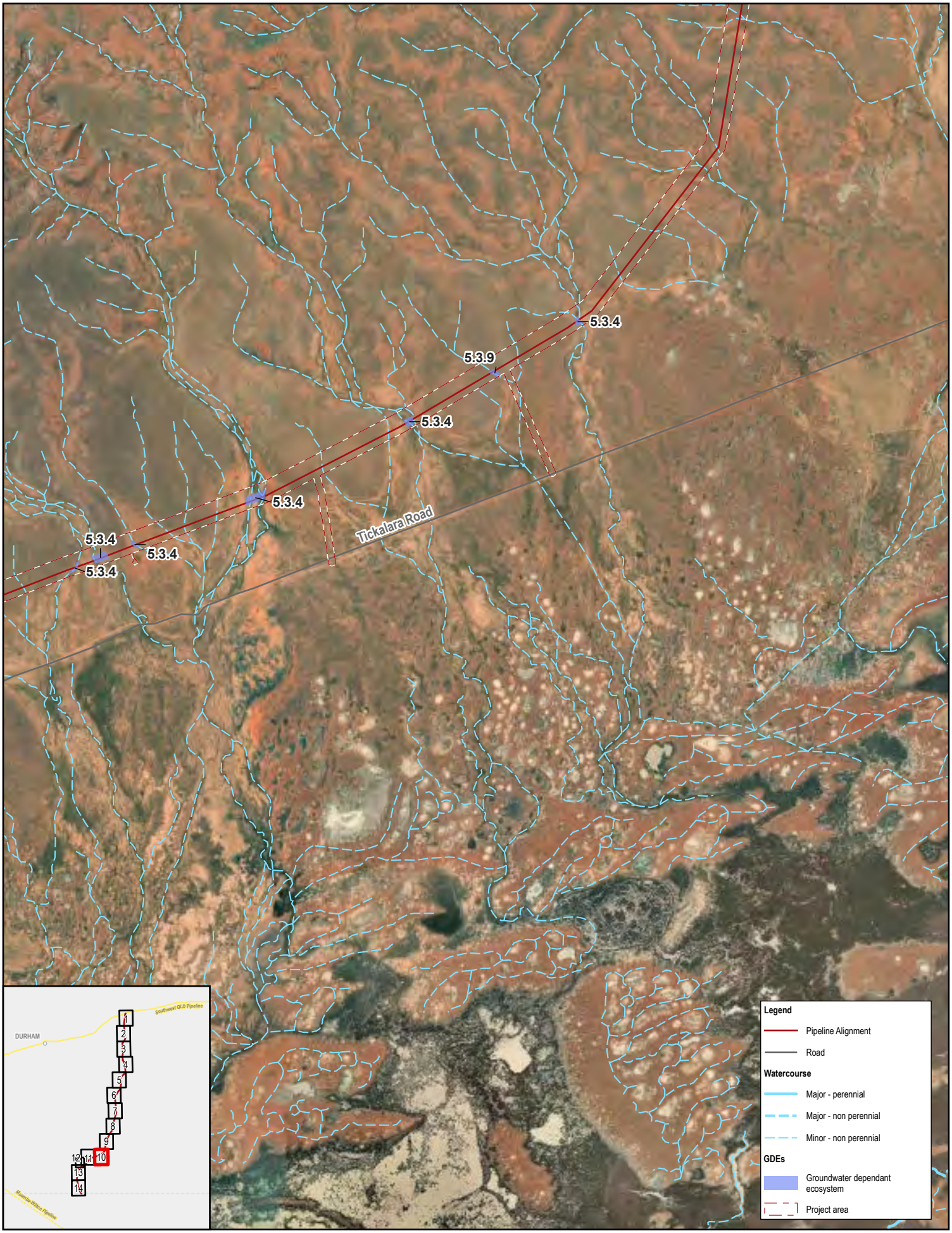
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Figure 4.2

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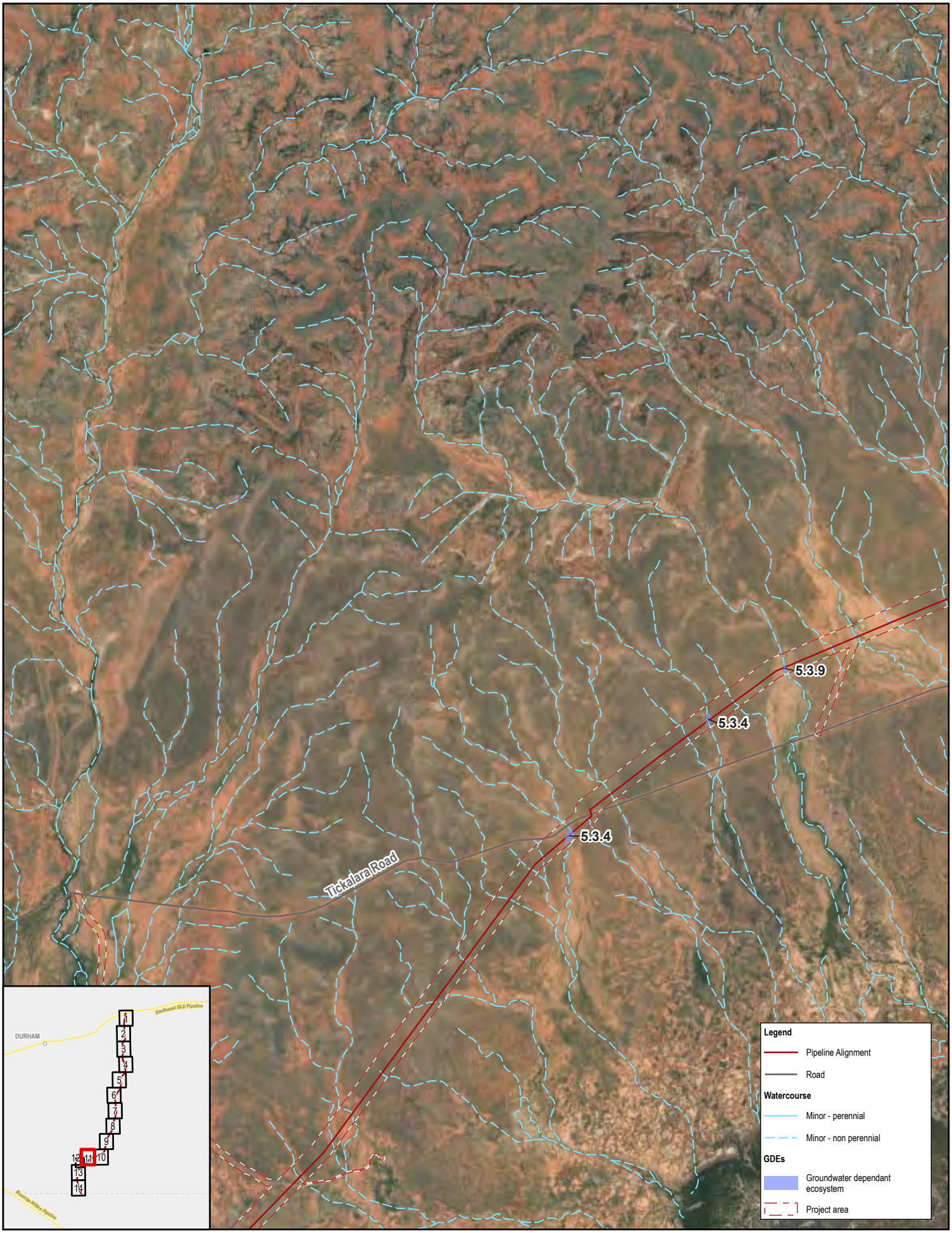
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Figure 4.2

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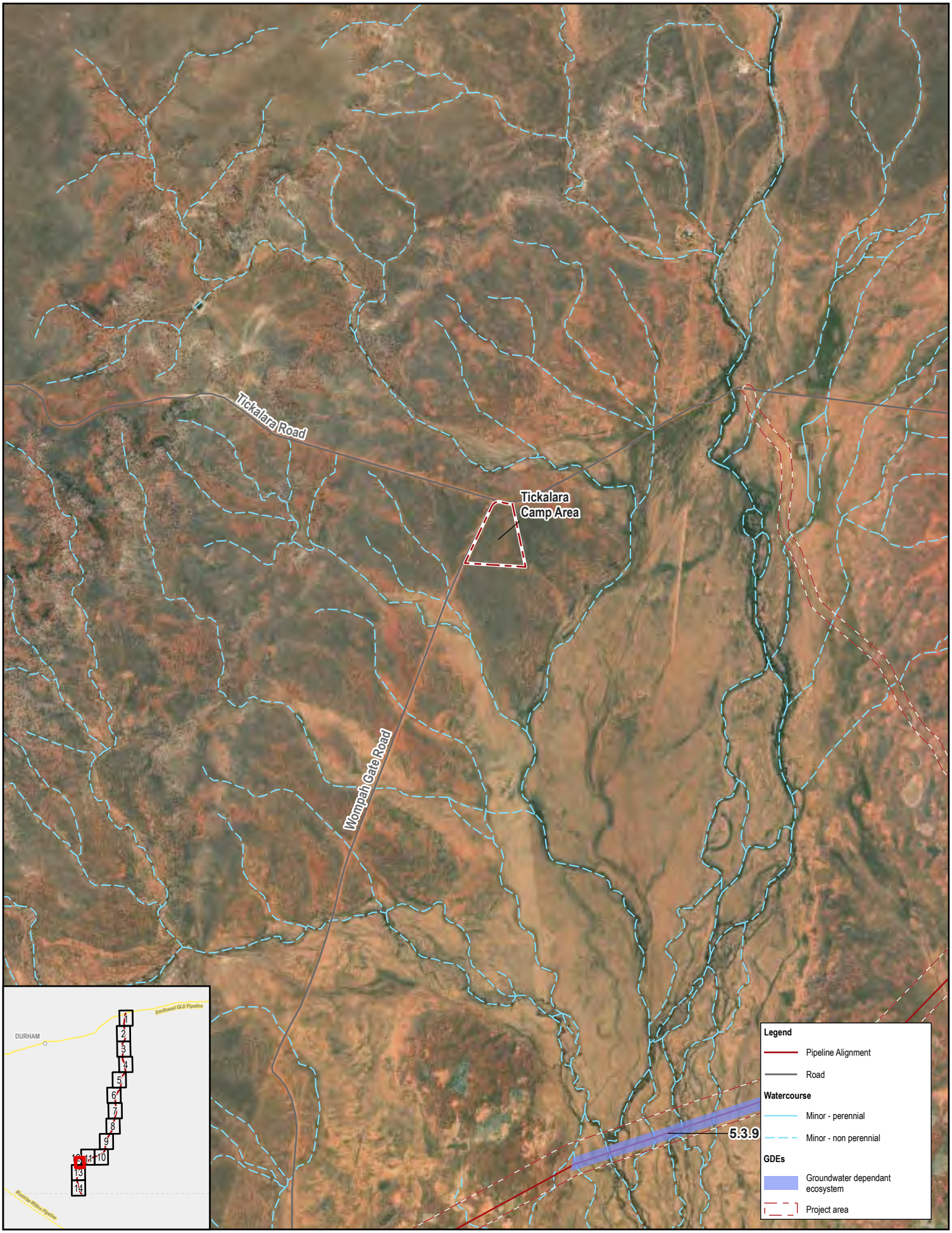
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Figure 4.2

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GDE's within the project site

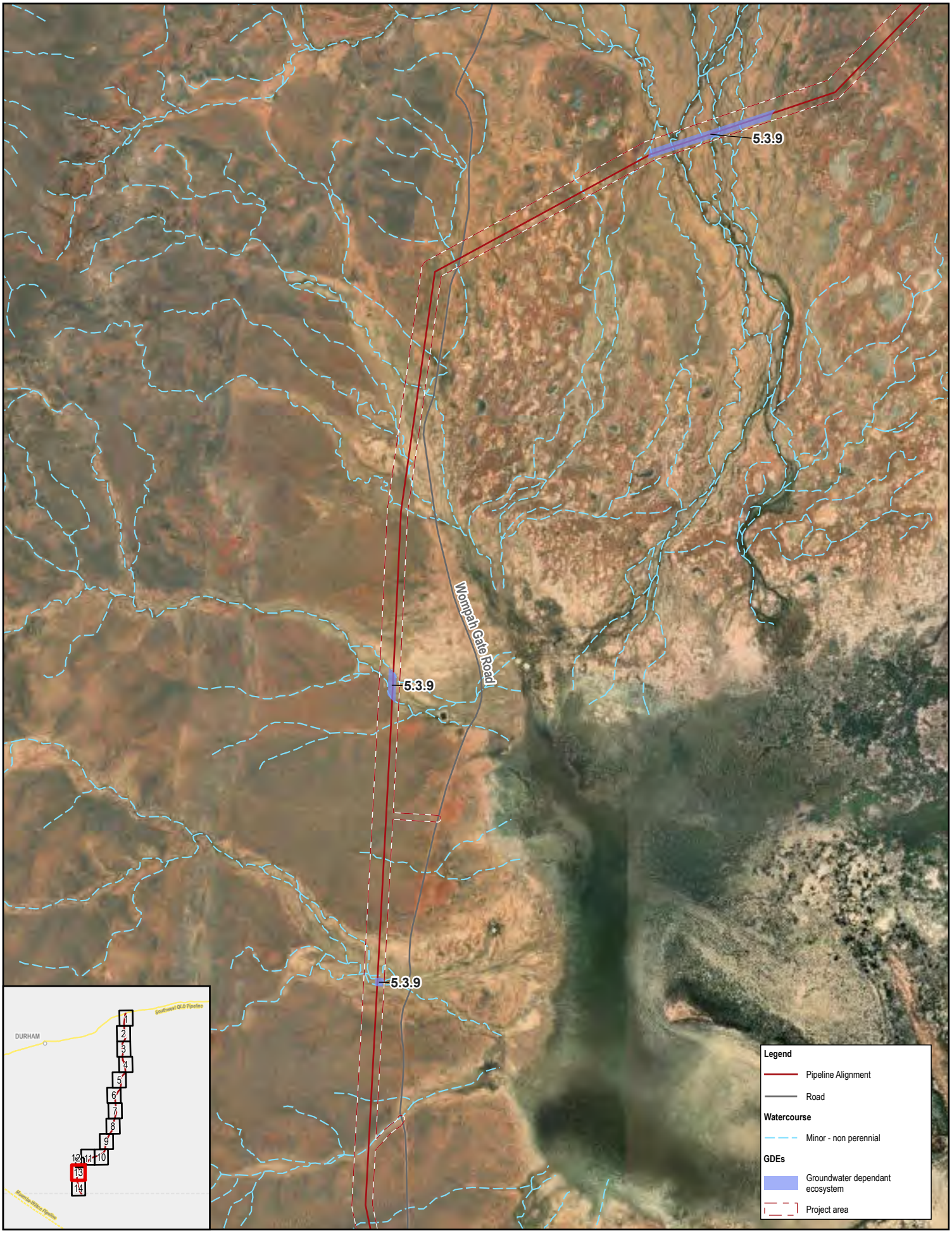
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Figure 4.2

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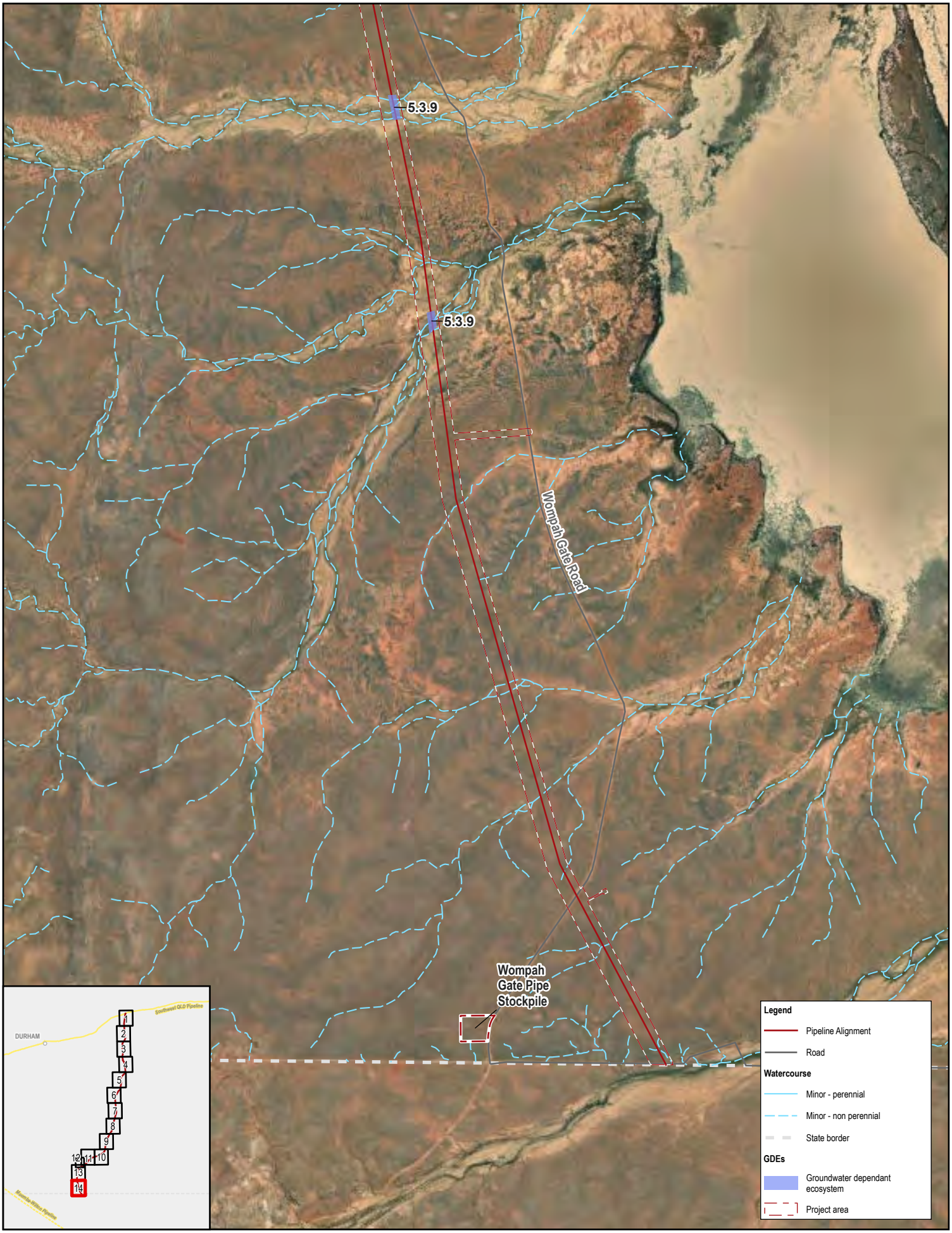
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Figure 4.2

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GDE's within the project site

Figure 4.2

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4.2 Fauna

4.2.1 General species observations

During terrestrial surveys of the project site, a total of 154 fauna species were recorded through direct observation and remote devices (e.g. camera traps, Anabats, and AudioMoths) across both the winter and spring mobilisations (Appendix C). This included 16 conservation significant species which are discussed in detail in section 4.2.4.

A diverse assemblage of avian species was recorded across habitats ranging from arid woodlands and shrublands to ephemeral watercourses and station dams. Passerine and woodland birds were well represented, with species such as white-winged fairywren (*Malurus leucopterus*) (Plate 4.2), chestnut-rumped thornbill (*Acanthiza uropygialis),* red-browed pardalote (*Pardalotus rubricatus*) (Plate 4.2), and red-capped robin (*Petroica goodenovii*) common in the patches of gidgee (*Acacia cambagei*) and coolibah (*Eucalyptus coolabah*) woodlands, as well as mulga and chenopod shrublands. Honeyeaters including spiny-cheeked honeyeater (*Acanthagenys rufogularis*), white-plumed honeyeater (*Ptilotula penicillata*), and singing honeyeater (*Gavicalis virescens*) (Plate 4.2) were frequent in flowering trees including the western bloodwoods (*Corymbia terminalis*), while open-country foragers such as grey butcherbird (*Cracticus torquatus*) and pied butcherbird (*Cracticus nigrogularis*) were widespread.

Waders and waterfowl concentrated around ephemeral waterholes, claypans, and artificial water holes, with records of grey teal (*Anas gracilis*), Pacific black duck (*A. superciliosa*), and black-fronted dotterel (*Elseyornis melanops*). Larger waterbirds such as great egret (*Ardea alba*), white-necked heron *(A. pacifica*), and Australian pelican (*Pelecanus conspicillatus*) were observed alongside Australasian darters (*Anhinga novaehollandiae*) and little black cormorants (*Phalacrocorax sulcirostris*), often foraging communally in areas retaining surface water through the dry season. With suitable habitat for listed migratory, and migratory only shorebird species within the ephemeral wetlands habitat present.

Raptors were featured prominently, including the brown falcon (*Falco berigora*), Australian hobby (*F. longipennis*), black falcon (*F. subniger*), and wedge-tailed eagle (*Aquila audax*) patrolling open plains, riparian corridors, and waterhole fringes, with habitat values for listed raptor species, red goshawk and grey falcon, also present. Parrots were abundant, with large flocks of budgerigar (*Melopsittacus undulatus*) exploiting seasonal seed availability, and sightings of mulga parrot (*Psephotellus varius*), red-rumped parrot (*Psephotus haematonotus*), bluebonnet (*Northiella haematogaster*) and Bourke's parrot (*Neopsephotus bourkii).* Suitable foraging, staging and breeding habitat for several listed parrot species was also identified, particularly along watercourses and within riparian vegetation. Specialist arid-zone species such as cinnamon quail-thrush (*Cinclosoma cinnamomeum*), chirruping wedgebill (*Psophodes cristatus*), Australian pratincole (*Stiltia isabella*) (Plate 4.2), and gibberbird (*Ashbyia lovensis*) were recorded in chenopod flats and stony gibber plains, highlighting the diversity of habitats utilised within the survey area, including call recordings of the critically endangered plains wanderer.

A range of mammal, reptile, and amphibian species were also recorded during the survey. Macropods including red kangaroo (*Osphranter rufus*) (Plate 4.2) and common wallaroo (*O. robustus*) were observed opportunistically across the alignment, particularly in open plains and along watercourses. Small mammal activity was low, with one deceased sandy inland mouse (*Pseudomys hermannsburgensis*) recorded during active searches.

Bats were detected through Anabat recordings, with calls attributable to the white-striped free-tailed bat (*Austronomus australis*), Gould's wattled bat (*Chalinolobus gouldii*), little pied bat (*C. picatus*), lesser long-eared bat (*Nyctophilus geoffroyi*)*,* inland broad-nosed bat (*Scotorepens balstoni*), and little broad-nosed bat (*S. greyii*). Several of these species are known colonial breeders who utilise tree hollows as maternal roosts.

Reptiles were predominately recorded opportunistically along roadsides, including central bearded dragon (*Pogona vitticeps*) (Plate 4.2), central netted dragon (*Ctenophorus nuchalis*), and Burns dragon (*Amphibolurus burnsi*). Larger reptiles such as the Murray Darling carpet python (*Morelia spilota*), mulga snake (*Pseudechis australis*), and strap-snouted brown snake (*Pseudonaja aspidorhyncha*) were also encountered. Amphibians were limited to isolated moist areas, with desert tree frog (*Litoria rubella*) and spotted marsh frog (*Limnodynastes tasmaniensis*) recorded.



Plate 4.2 ***Species observations in the project area from top left: white-winged fairywren (Malurus leucopterus), red-browed pardalote (Pardalotus rubricatus), singing honeyeater (Gavicalis virescens), Australian pratincole (Stiltia isabella), red kangaroo (Osphranter rufus), and central bearded dragon (Pogona vitticeps)***

4.2.2 Fauna habitat types

Fauna habitat types within the project site comprise the following as described in Table 4.3 :

- Riparian woodlands on ephemeral creek beds and floodplains
- Gidgee and mulga woodlands on alluvial plains
- Shrubland on sandy plains
- Forb/herb/grasslands and gibber plains
- Seasonal wetlands and floodplains.

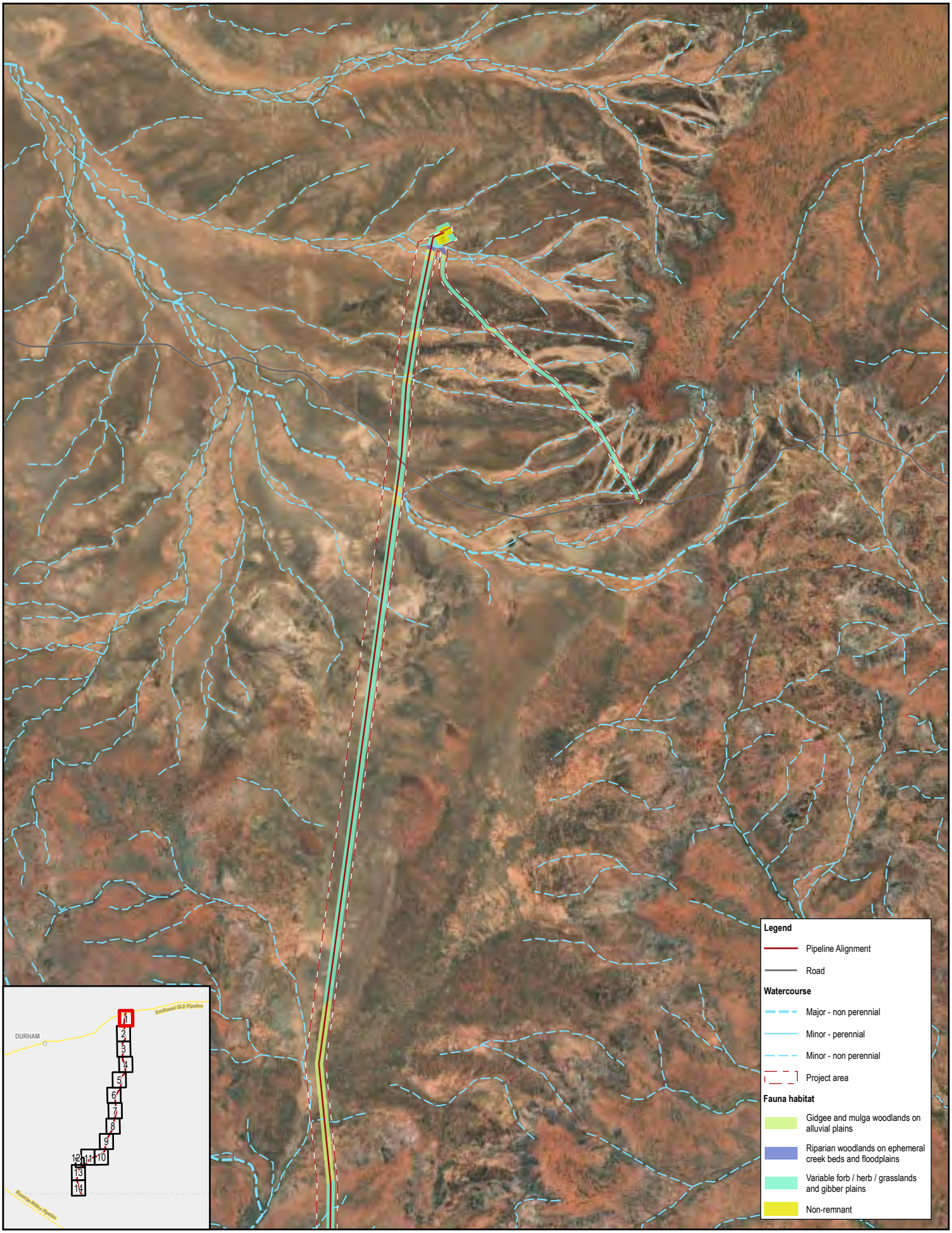
The distribution of fauna habitat types observed within the project site is shown on Figure 4.3.

Table 4.3 Fauna habitat types

Fauna habitat type	Description of habitat type
Riparian woodlands on ephemeral creek beds and floodplains	
 	These areas were represented across the project site, with greater prominence on braided channels toward the northern-central portion of the pipeline alignment. **Total area:** 55.2 ha **Associated REs:** 5.3.2, 5.3.4, 5.3.5, and 5.3.7. **Description:** Occurs along ephemeral creek lines, levees, and braided drainage channels, often dominated by *Eucalyptus camaldulensis, E. coolabah,* and associated *Acacia* spp. Dense mid-storey patches and chenopod shrubs occur where grazing pressure is low. Large hollow-bearing eucalypts, coarse woody debris, and moisture-retentive alluvial soils provide important shelter and nesting habitat. **Fauna values:** – Movement corridors for woodland birds (honeyeaters, woodswallows, parrots) and arboreal reptiles. – Foraging habitat for raptors including red goshawk, brown falcon, and black falcon. – Seasonal amphibian breeding habitat in inundated areas. **Target species:** Painted honeyeater, pink cockatoo (eastern), southern whiteface, fork-tailed swift, short-beaked echidna, blue-winged parrot, migratory shore/wetland birds, red goshawk, and grey falcon.
Gidgee and mulga woodlands on alluvial plains	
	Large patches of this habitat were distributed across the project site. **Total area:** 268.2 ha **Associated REs:** 5.3.9, 5.5.1, 5.5.1x2, and 5.6.2. **Description:** Low to open woodland dominated by *Acacia* spp. (e.g. *Acacia cambagei*). Occasional *Eucalyptus coolabah* on braided channels. Occurring largely on cracking clay plains and minor drainage lines. Understorey varied from chenopod shrubland to sparse tussock grasses. Mistletoe (*Amyema preissii*) common in some patches, supporting specialised nectar- and fruit-eating birds.

Fauna habitat type	Description of habitat type
	**Fauna values:** – Foraging and shelter for woodland birds including rufous whistler, red-capped robin, and honeyeater species. – Fallen timber may support reptiles and small mammals. – Seasonal productivity pulses after rain provide food for nomadic granivores. **Target species:** Southern whiteface, painted honeyeater, blue-winged parrot, fork-tailed swift, plains rat, migratory wetland birds, red goshawk, grey falcon, short beaked echidna, and pink cockatoo (eastern).
Variable shrubland on sandy plains	
 	Patches of this fauna habitat were distributed across the project site. **Total area:** 12.8 ha **Associated REs:** 5.6.4, and 5.9.1. **Description:** Shrublands dominated by whitewood, mulga, and bloodwood and mixed flowering lignum (*Eremophila polyclada*) on deep red sands. Ground layer observed to have ephemeral herbs. High structural heterogeneity with patches of dense shrubs and open sandy interspaces. **Fauna values:** – Burrowing habitat for reptiles and small mammals. – Nectar and fruit from shrub layer supports honeyeaters. – Foraging habitat for raptors. **Target species:** Plains-wanderer, painted honeyeater, blue-winged parrot, plains rat, migratory wetland birds, red goshawk, grey falcon, pink cockatoo (eastern), and short-beaked echidna.
Variable forb/herb/grasslands and gibber plains	
	This habitat type dominated the majority of the project site. **Total area:** 763.2 ha **Associated REs:** 5.3.21, 5.5.4x1, and 5.9.3. **Description:** Open tussock grasslands (*Astrebla*, *Aristida*, *Sporobolus*) and bare stony gibber surfaces interspersed with gilgai microrelief and occasional low shrubs (*Acacia tetragonophylla*, *Senna artemisioides*). Claypans and saline depressions are seasonally inundated, supporting ephemeral herbs and aquatic invertebrates.

Fauna habitat type	Description of habitat type
	This habitat type also includes areas mapped as category X (non-remnant) vegetation, comprising derived grassland and heavily modified vegetation associated with pastoral land use. These areas provide low-structure but potentially useful foraging habitat for some generalist fauna species. **Fauna values:** – Plains with low grass cover and patchy herbs suitable for ground-dwelling birds. – Open foraging habitat for bustards, pratincoles, and seed-eating birds. – Waterbird congregation sites during wet periods. **Target species:** Plains-wanderer, blue-winged parrot, plains rat, grey falcon, fork-tailed swift, and migratory shorebirds.
Seasonal wetlands and floodplains	
 	As a seasonal variation, this habitat was difficult to delineate from the winter survey, but is presumed to be present across the project site. This habitat type sits as proportions of the listed REs below and has seasonal variation, and variations between years, dependent upon rainfall, making it difficult to define and calculate area. **Associated REs:** 5.3.2, 5.3.4, 5.3.5, and 5.3.21. **Description:** Seasonally inundated channels, floodplains, and depressions holding water after significant rainfall events. Substrate varies from sandy to heavy clays with fringing vegetation. **Fauna values:** – Breeding and foraging habitat for waterbirds (ducks, herons, stilts) and migratory shorebirds. – Seasonal small mammal/amphibian boom-bust cycles. – High productivity pulses attracting raptors and scavengers. **Target species:** Southern whiteface, blue-winged parrot, migratory wetland birds, plains rat, painted honeyeater, grey falcon, red goshawk, pink cockatoo (eastern), and short-beaked echidna.



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Kilometres

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Field verified fauna habitat types

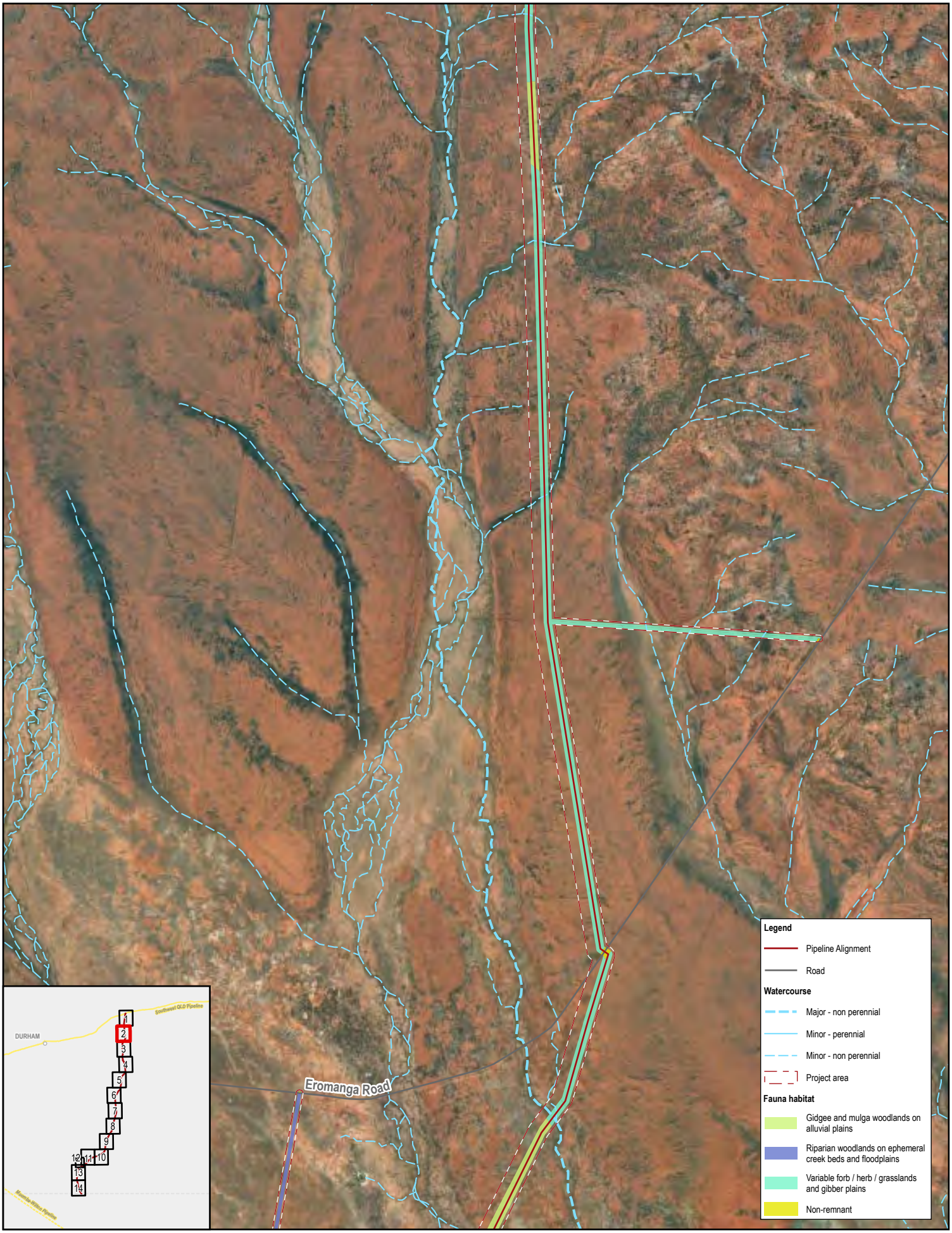
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Figure 4.3

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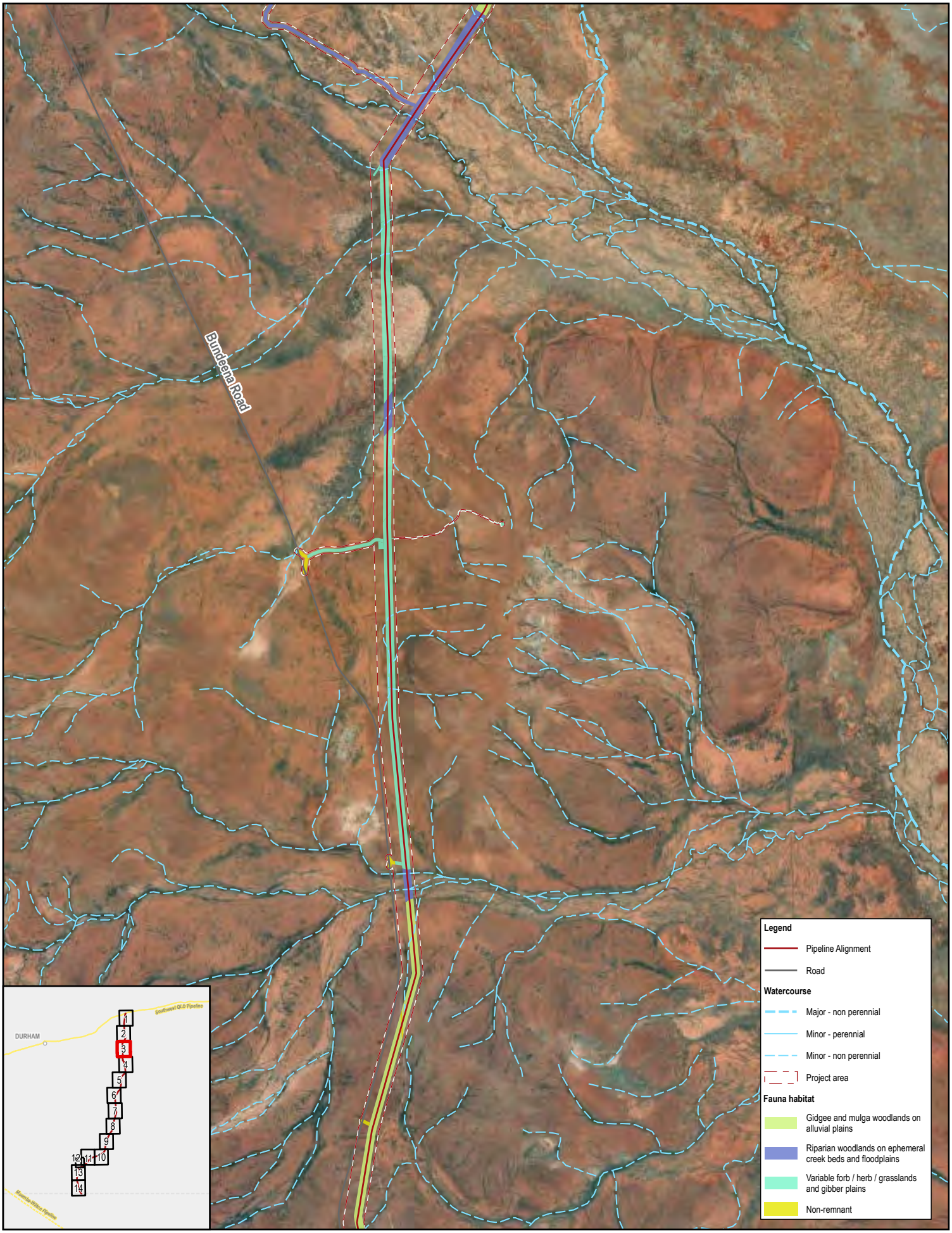
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Figure 4.3

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Data source: Earthstar Geographics, Esri, HERE, GarminDNRMMRRD; Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Fauna habitats (2025). Created by: calburo2



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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Field verified fauna habitat types

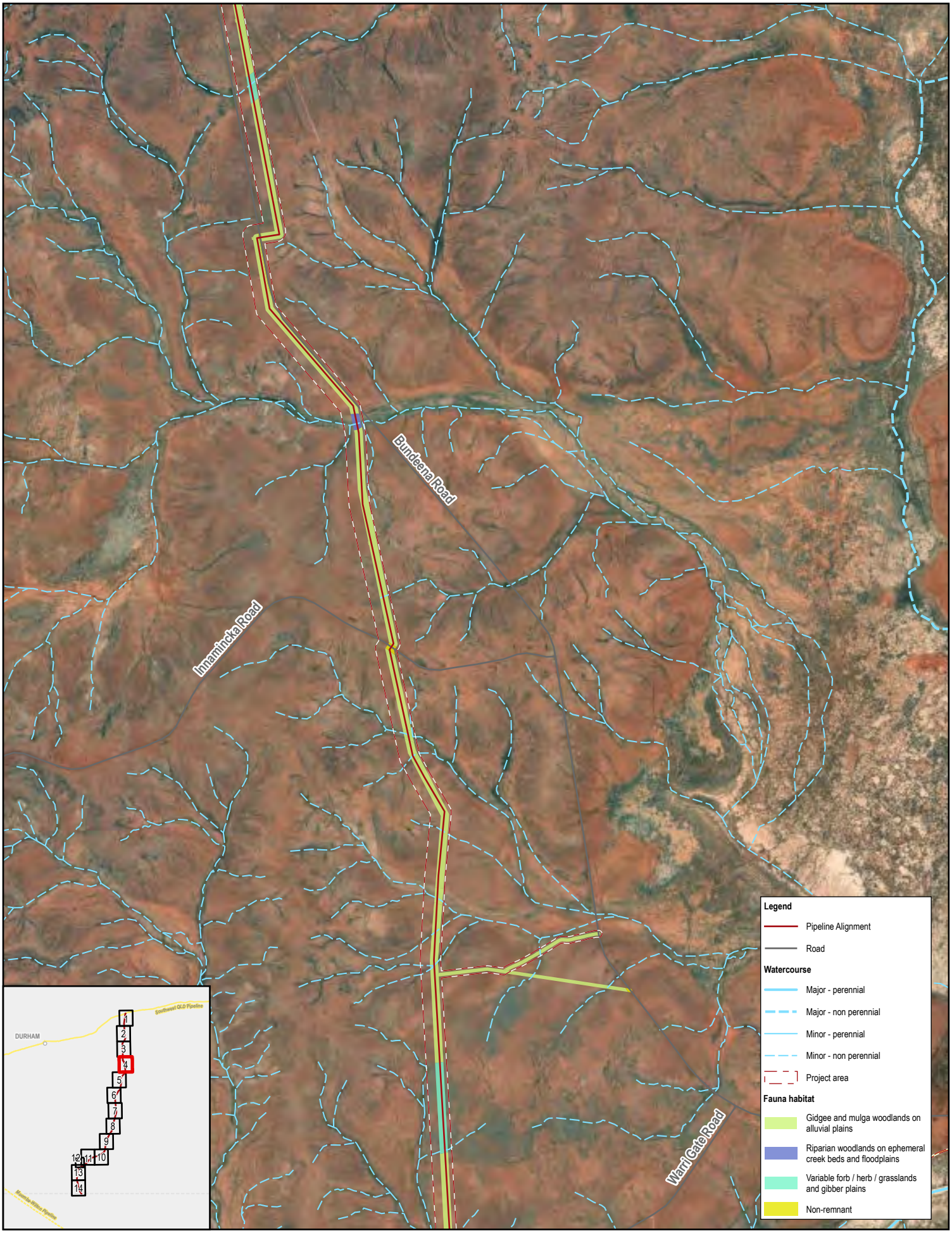
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Figure 4.3

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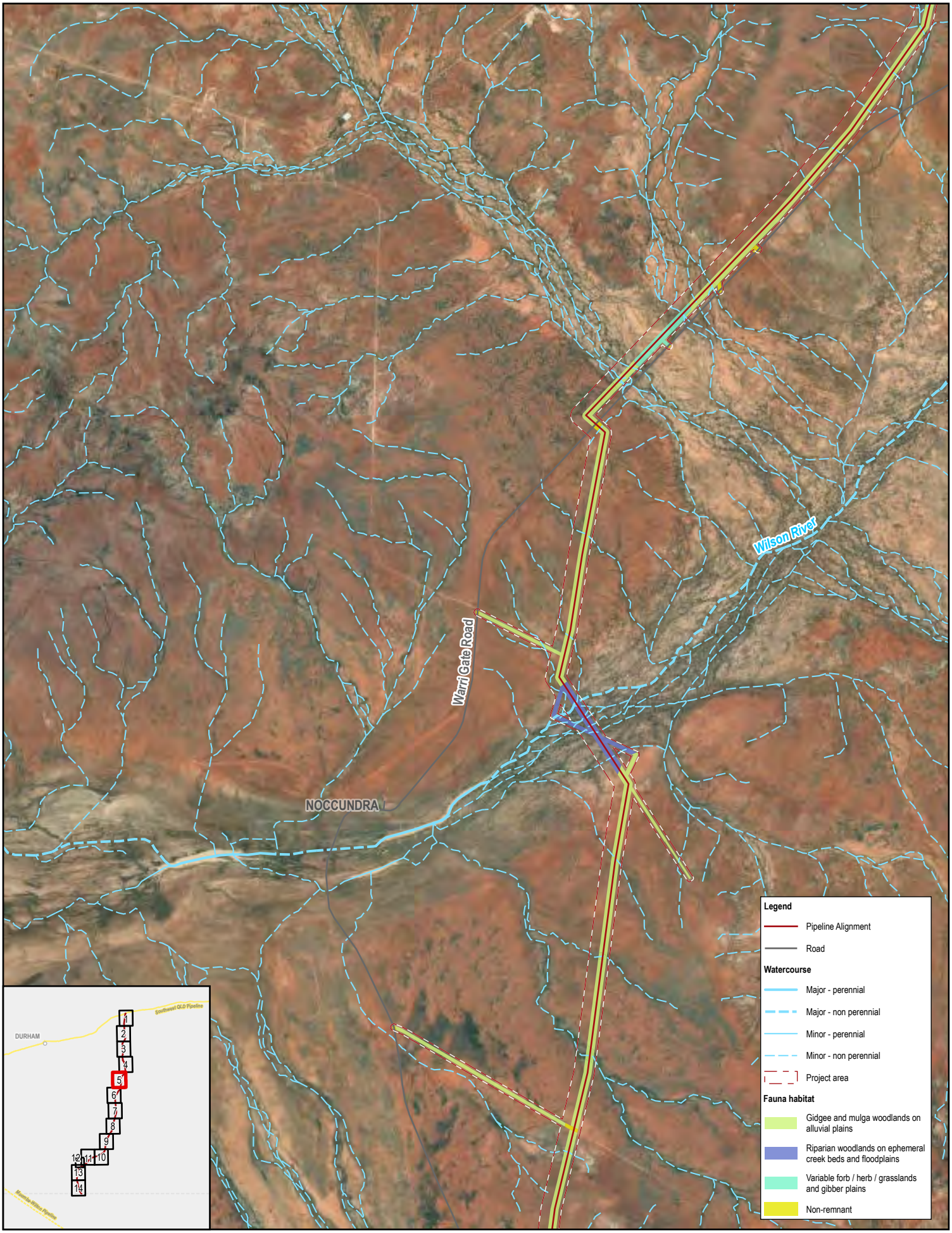
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Figure 4.3

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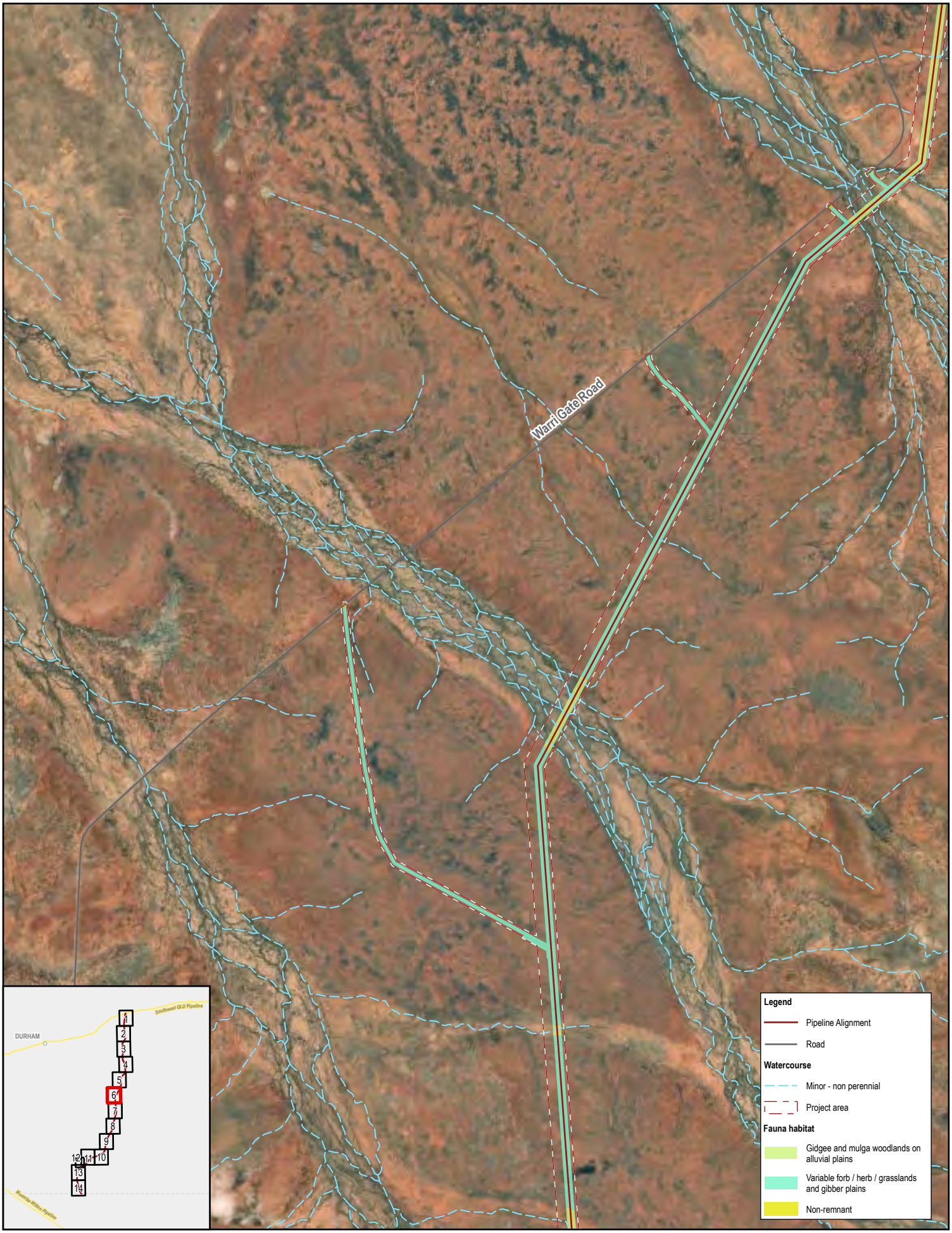
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Figure 4.3

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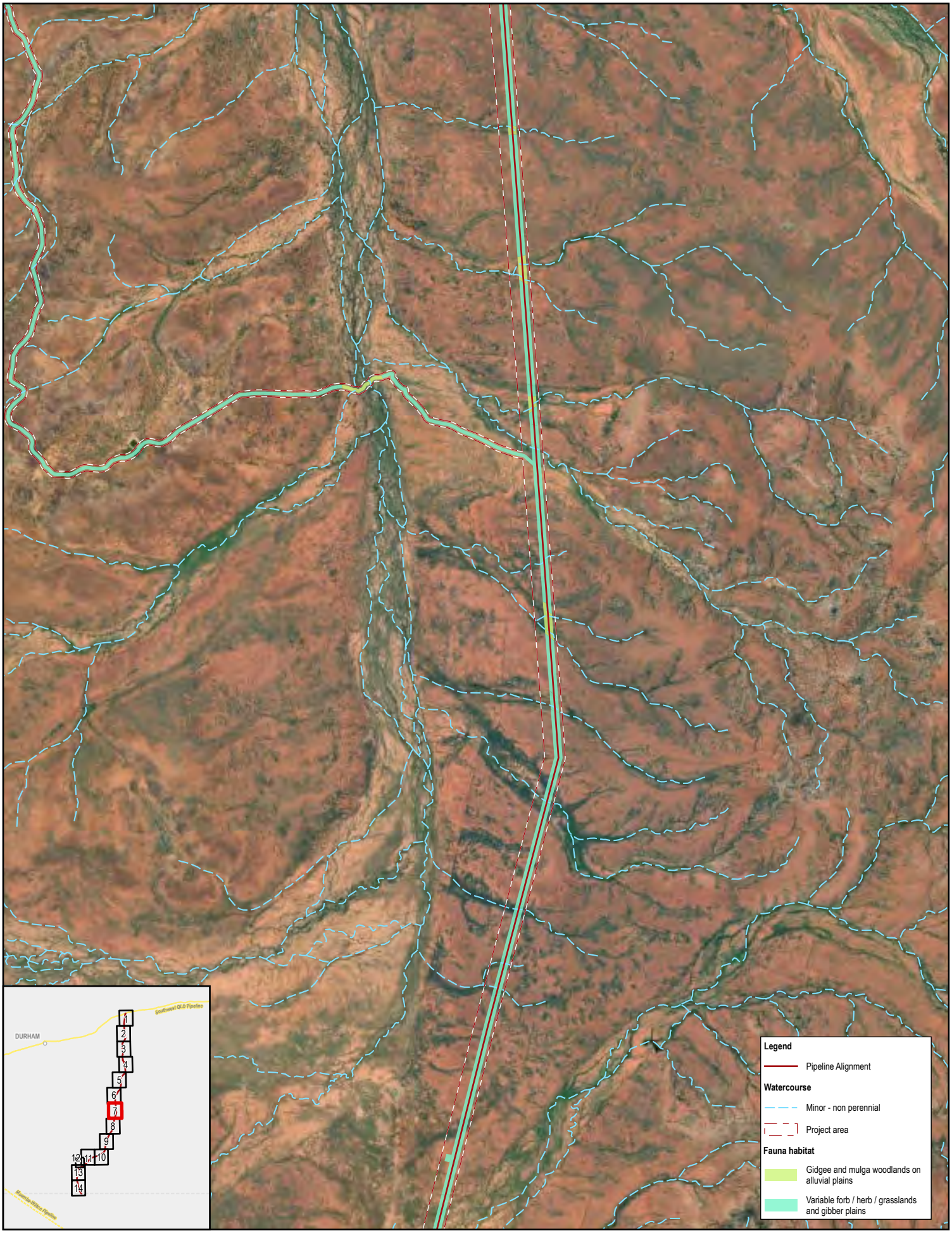
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Figure 4.3

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Bulloo Interlink Pipeline

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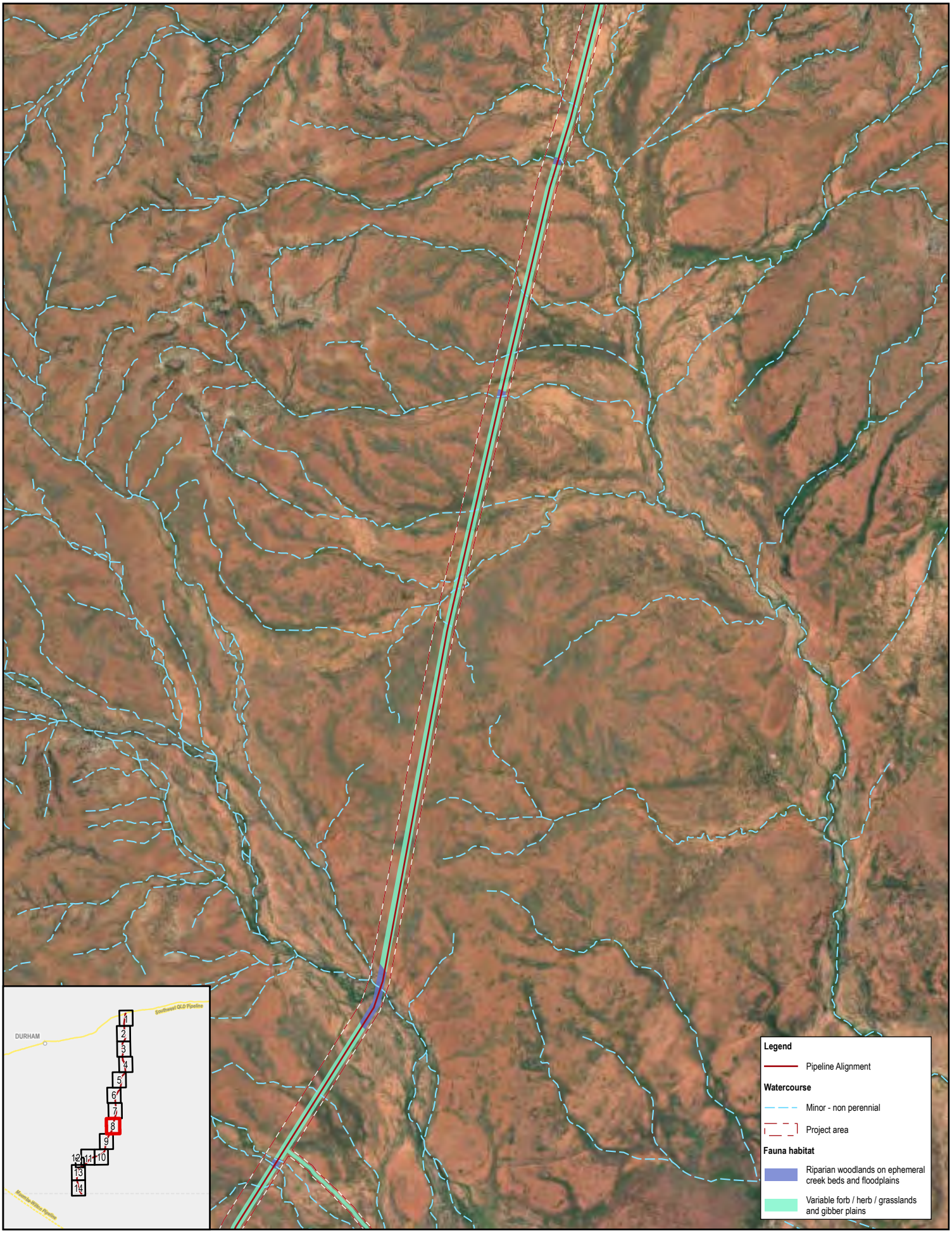
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Figure 4.3

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Bulloo Interlink Pipeline

Field verified fauna habitat types

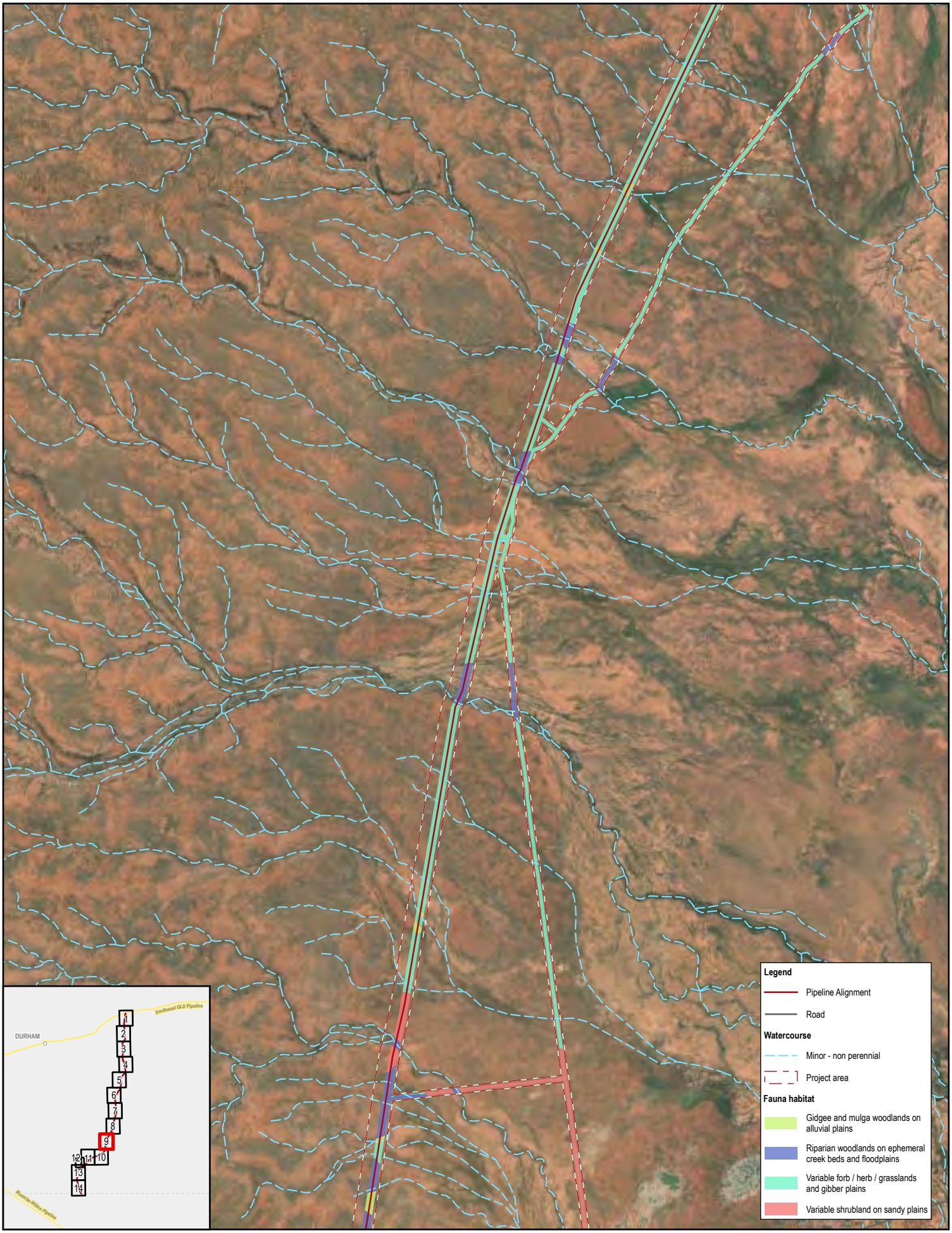
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Figure 4.3

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Grid: GDA2020 MGA Zone 54

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Field verified fauna habitat types

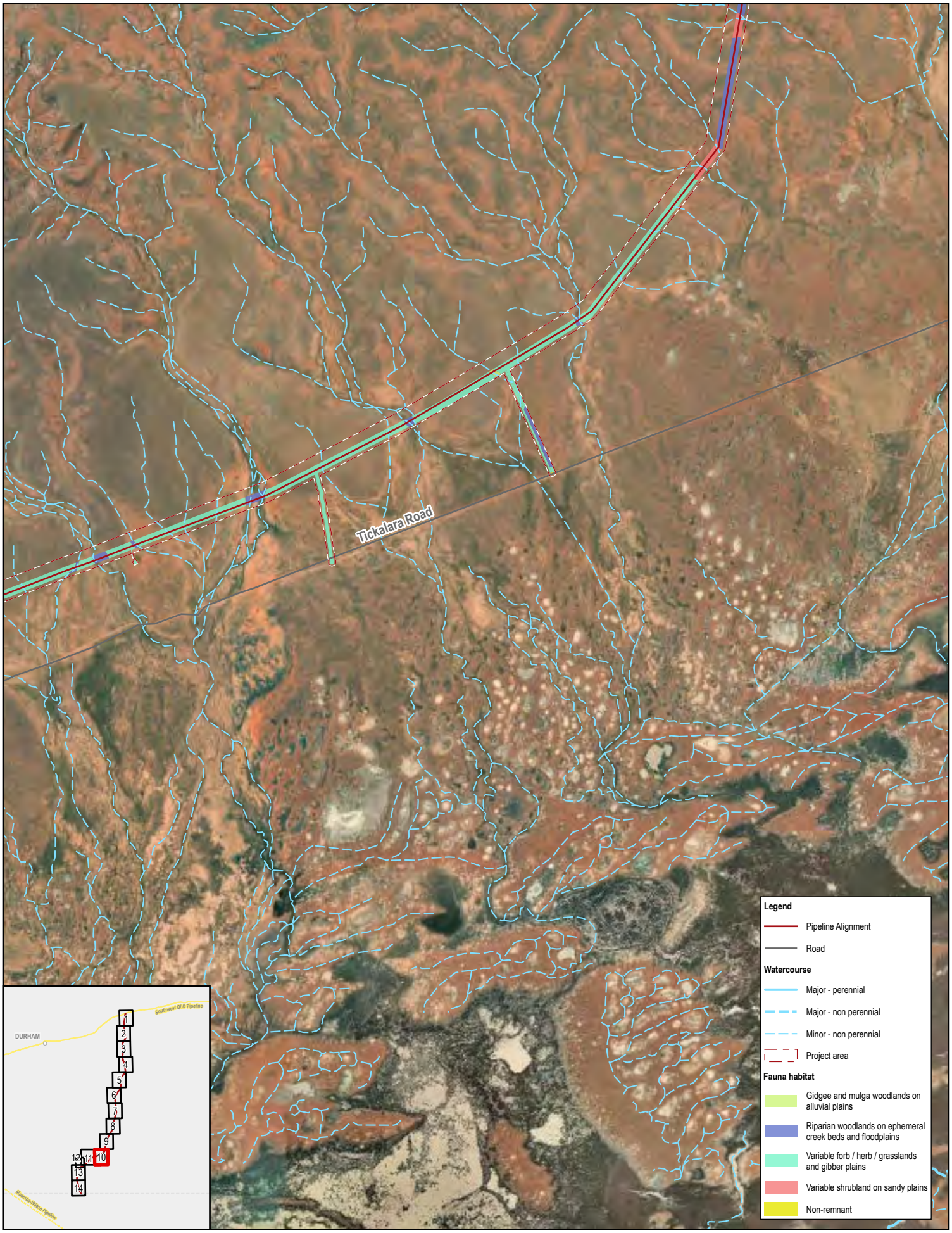
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Figure 4.3

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Data source: Earthstar Geographics, Esri, HERE, GarminDNRMMRRD; Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Fauna habitats (2025). Created by: calburo2



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Kilometres

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Grid: GDA2020 MGA Zone 54

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Field verified fauna habitat types

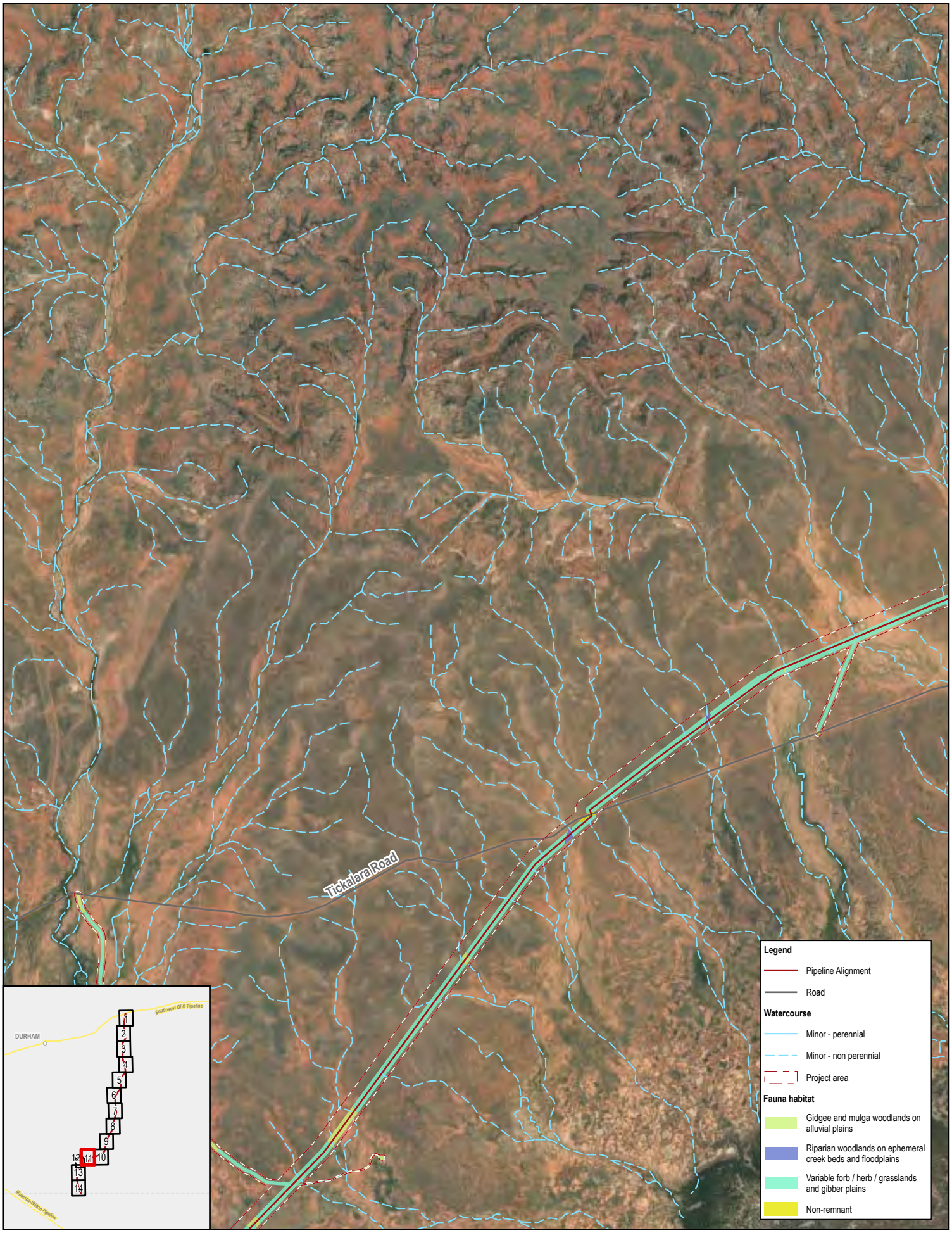
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Figure 4.3

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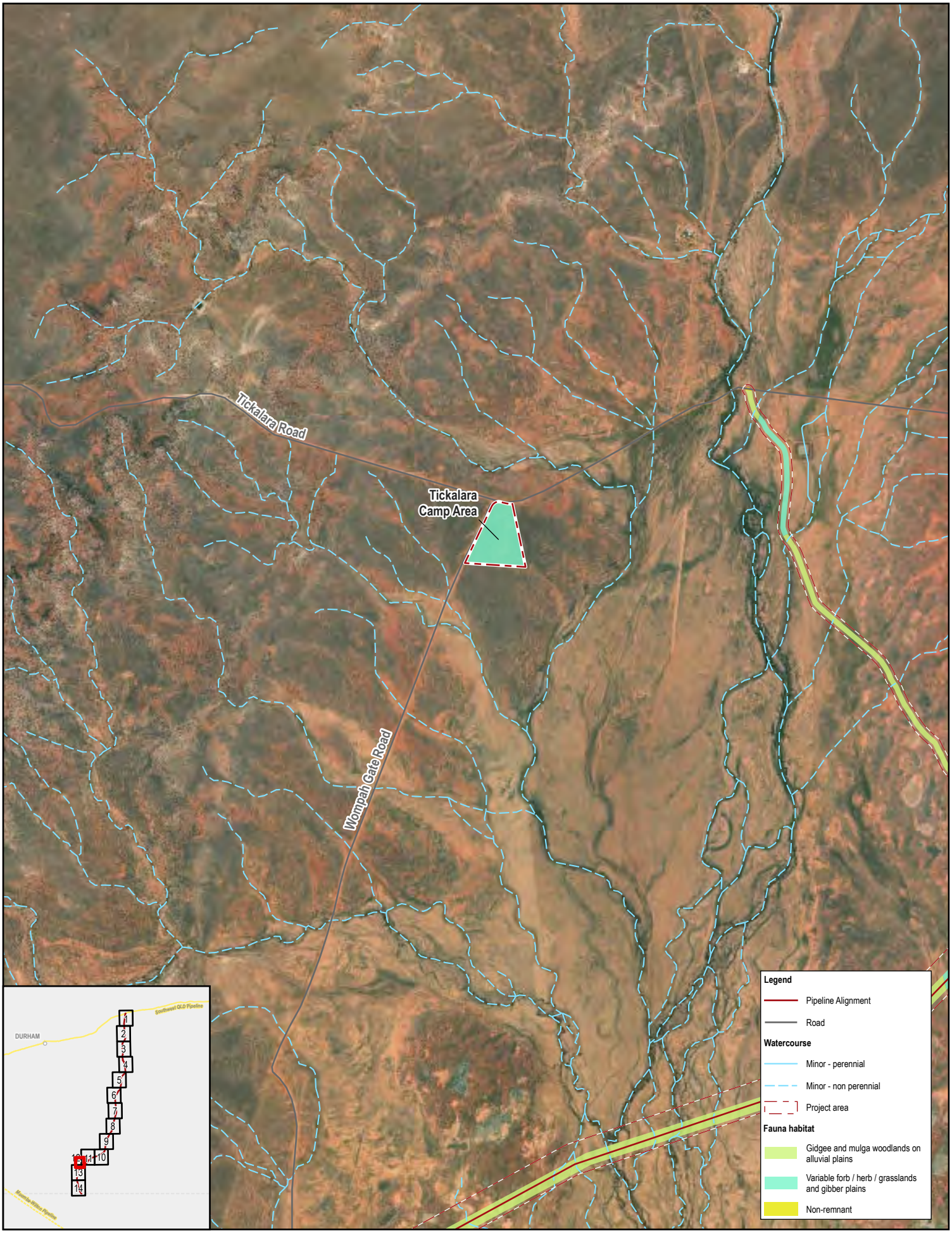
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Figure 4.3

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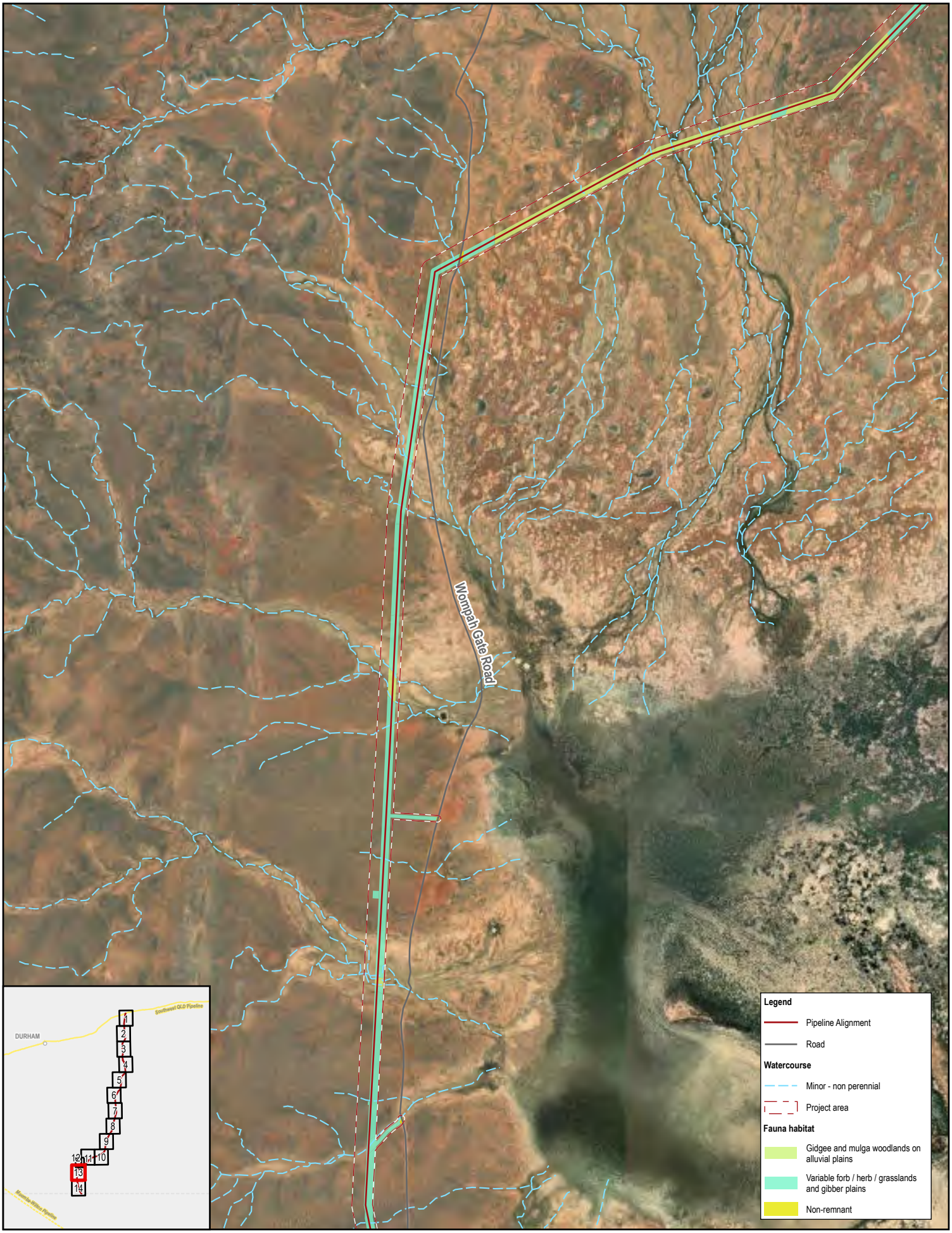
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Figure 4.3

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Data source: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community, Esri, HERE, GarminDNRMMRRD: Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Fauna habitats (2025). Created by: calburo2



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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Field verified fauna habitat types

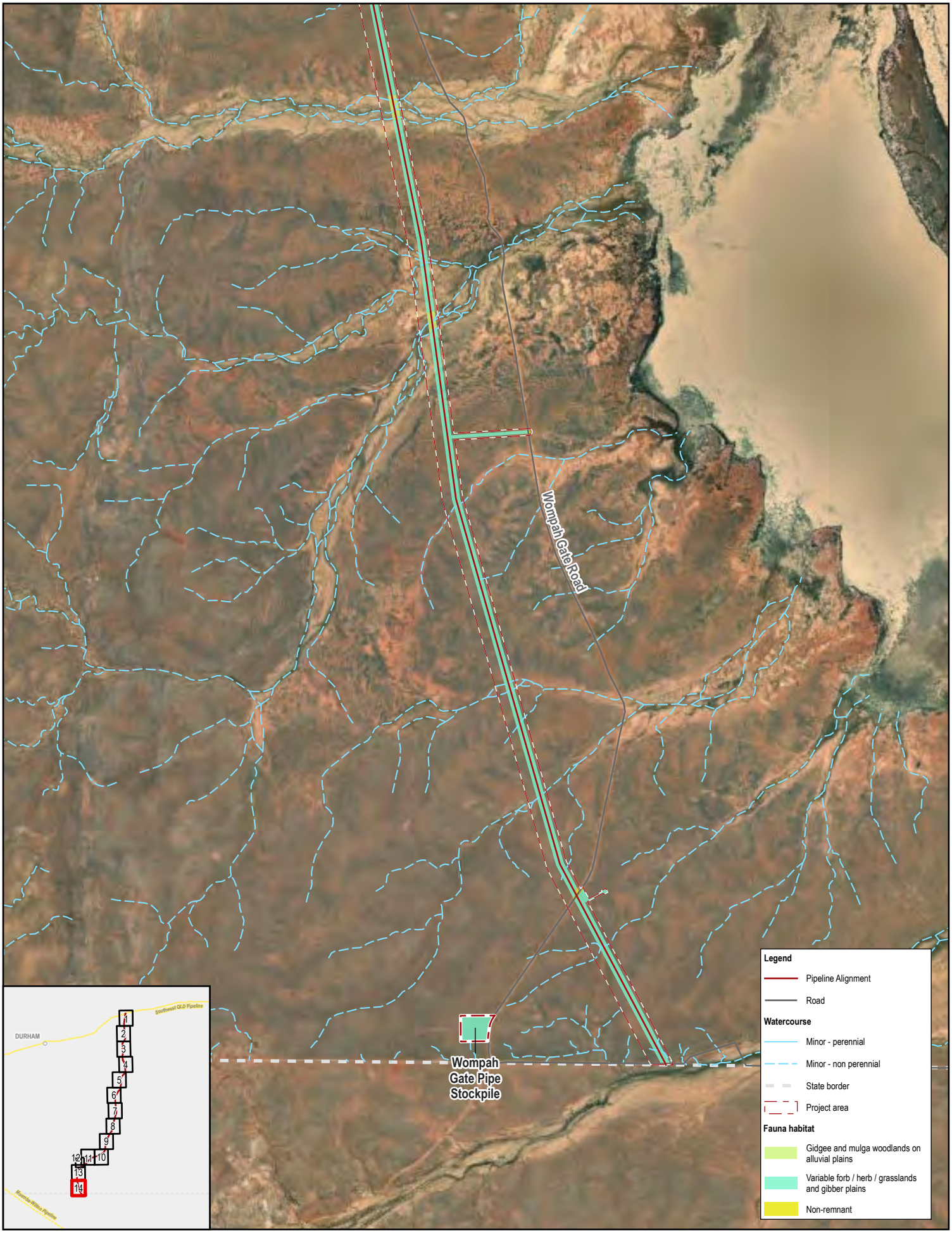
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Figure 4.3

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
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APA Group
Bulloo Interlink Pipeline

Field verified fauna habitat types

Project No. **12661648**
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Figure 4.3

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Data source: Earthstar Geographics, Esri, HERE, GarminDNRMMRRD; Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Fauna habitats (2025). Created by: calburo2

4.2.3 Animal breeding places

Under Schedule 7 of the *Nature Conservation (Animal) Regulation 2020*, a fauna breeding place refers to an area (i.e. bower, burrow, cave, hollow, nest or other thing) that is commonly used by the animal to incubate or rear the animal's offspring.

Within the project site various active potential breeding places were identified during the field surveys. These include pooled water after rain events, tree hollows, fissures, exfoliating bark and arboreal termitaria, stick and mud nests, leaf litter, woody debris, hollow logs and burrows, providing suitable breeding habitat for a range of least concern species. The likelihood of occurrence assessment undertaken has also identified listed species that have the potential to occur within the project, some, with breeding habitat that has the potential to occur. These include the pink cockatoo (eastern) and southern whiteface, which may utilise suitably sized and shaped tree hollows for breeding, the plains-wanderer, who use surface scrapes in suitably structure grasslands for breeding, the plains rat, that is known to burrow into cracking clay habitats as well as burrows and hollow logs for the short-beaked echidna. Additionally, anabat recorders were deployed throughout the project site, with the results yielding a list of microbat species foraging in the alignment. These include several known colonial breeding species that are known to utilise tree hollows as maternal breeding habitat. Under the NC Act and in accordance with *Information sheet Species Management Program Requirements for tampering with a protected animal breeding place in Queensland* (DES 2020), for any proposed activity that will impact on breeding places of protected animals that are classified as extinct in the wild, critically endangered, endangered, vulnerable, near threatened (EVNT), special least concern, colonial breeder or least concern, an SMP for that species will be required to interfere with their breeding place. Based on the findings of the desktop and field surveys, targeted surveys and presence of breeding place in the alignment, it is recommended that the development and approval of a high-risk SMP be undertaken for the project to cover any potential colonial breeding microbat species, and listed species breeding places that may be encountered during construction. This should also include mitigation measures for any potential least concern species breeding places that may be encountered during construction capturing low-risk SMP obligations.

4.2.4 Conservation significant fauna species

As summarised in Table 4.4 and described in detail in sections below, 16 conservation significant fauna species listed under the NC Act were confirmed present or are considered as being likely to occur or having the potential to occur within the project site. All but one conservation significant species (echidna) is also listed under the EPBC Act as summarised in section 4.6. A detailed likelihood of occurrence assessment is included in Appendix A.

Table 4.4 Conservation significant fauna - likelihood of occurrence summary

Scientific name	Common name	NC Act status	Likelihood of occurrence
Birds			
Aphelocephala leucopsis	Southern whiteface	V	Confirmed present
Apus pacificus	Fork-tailed swift	SL	Potential to occur
Calidris acuminata	Sharp-tailed sandpiper	V	Likely to occur
Calidris ferruginea	Curlew sandpiper	CE	Likely to occur
Erythrotriorchis radiatus	Red goshawk	E	Potential to occur
Falco hypoleucos	Grey falcon	V	Likely to occur
Gallinago hardwickii	Latham's snipe	V	Likely to occur
Grantiella picta	Painted honeyeater	V	Likely to occur
Hydroprogne caspia	Caspian tern	SL	Likely to occur
Lophochroa leadbeateri leadbeateri	Pink cockatoo (eastern)	E	Likely to occur
Neophema chrysostoma	Blue-winged parrot	V	Confirmed present
Pedionomus torquatus	Plains-wanderer	CR	Confirmed present
Plegadis falcinellus	Glossy ibis	SL	Likely to occur

Scientific name	Common name	NC Act status	Likelihood of occurrence
*Tringa nebularia**	Common greenshank	E	Likely to occur
Mammals			
Pseudomys australis	Plains rat	V	Potential to occur
Tachyglossus aculeatus	Short-beaked echidna	SL	Likely to occur

Notes: CE = critically endangered, E = endangered, V = vulnerable, SL = special least concern.

Plains-wanderer

The plains-wanderer is listed as **critically endangered** under the NC Act and EPBC Act. The plains-wanderer occurs at scattered sites in Queensland, NSW, Victoria and South Australia, with core strongholds in the Riverina (NSW) and the Northern Plains (Victoria) (Commonwealth of Australia, 2016). In Queensland's Channel Country, important occurrences are documented from Astrebla Downs National Park and Diamantina Lakes National Park, representing the limited recently confirmed records and only record of nesting for the species in Queensland, with potential habitat linking these areas southward toward the Riverina (Commonwealth of Australia, 2016). Historically the species was more widespread across inland eastern Australia, but it has undergone severe declines and contractions in area of occupancy (Garnett et al., 2011; Wilson et al., 2014).

The national recovery plan for the plains-wanderer (DoE, 2016) defines the species' habitat as sparse, treeless lowland native grasslands. This aligns with plains-wanderer habitat in the species' core range; however, recent research demonstrates that plains-wanderers in arid and semi-arid peripheral (i.e. non-core) range occupy a broader range of vegetation types than those observed in the core range, and that the habitat definitions derived from core range studies cannot be applied to Queensland populations.

Accordingly, plains-wanderer habitat within Queensland's Channel Country is best understood as episodic and condition-dependent rather than representing stable or persistent habitat comparable to core range strongholds. Gerhardy et al. (2025) tracked plains-wanderer in Boolcoomatta, South Australia, and found that birds used low *Sclerolaena* and *Atriplex* dominated chenopod shrublands; vegetation communities with low to no native grass component. Terrington et al. (2025) documented five plains-wanderers at Astrebla Downs National Park, including the first confirmed nest record for Queensland, noting that breeding in arid and semi-arid regions is episodic and strongly contingent on favourable seasonal conditions. Birds at Astrebla Downs were found in herbland dominated by forbs and subshrubs (*Sclerolaena calcarata*, *Trianthema triquetrum*, *Salsola australis*, *Dactyloctenium radulans*, *Sporobolus australasicus*) with markedly low grass cover (~4.5 per cent +/- 2.6 per cent), approximately 60.6 per cent bare ground (+/- 2.9 per cent), and vegetation height of ~10.1 cm (+/- 1.7 cm). Observations of plains-wanderers in comparable forb- and *Sclerolaena*-dominated arid zone habitats have also been reported in far north-western NSW (Smith et al., 2022, Commonwealth of Australia, 2016).

Across all three arid zone studies, plains-wanderers consistently occupied open, low-statured vegetation with high bare ground cover, irrespective of floristic composition. Bare ground ranged from approximately 40–71 per cent across these sites, vegetation height averaged 10–11 cm, and grass cover was consistently low (2–5 per cent), with forbs, subshrubs and chenopod species, particularly *Sclerolaena* spp., comprising the dominant vegetative component. Litter cover was generally low (5–9 per cent), and cryptogamic crust cover negligible (~0.2 per cent +/- 0.3 per cent). These structural attributes were broadly consistent across the arid zone populations in South Australia, Queensland and northern NSW, despite marked differences in floristic composition between sites.

The convergence of these structural parameters across disparate vegetation communities supports previous assertions that the structure of the habitat is more important than the species composition in determining its suitability for the plains-wanderer (Baker-Gabb, 1987; Baker-Gabb, 1990; Baker-Gabb, 2002; Harrington et al., 1988; Llewellyn, 1975), with the species known to actively avoid areas of dense grass or other vegetation (Baker-Gabb, 1987). The species forages in dense patches of vegetation during the day, while more open areas are selected for roosting at night (Nugent et al., 2022).

Notably, across all three arid zone studies, grass cover at plains-wanderer detection and nesting sites was consistently low; averaging just 3 per cent at Boolcoomatta (Gerhardy et al., 2025), 4.5 per cent at Astrebla Downs (Terrington et al., 2025), and approximately 2 per cent at Fowlers Gap, where dead grass dominated and live grass was sparse (Smith et al., 2022). This collectively suggests that grasses are not a necessary component of plains-wanderer habitat in arid and semi-arid contexts, provided that suitable open vegetation structure and bare-ground proportions are present, and that open herbland or shrubland should be considered potential habitat for the species.

The plains-wanderer is an omnivorous generalist, consuming a wide variety of invertebrates and plant material (Baker-Gabb, 1988; Nugent et al., 2025). Diet comprises seeds and invertebrates taken while walking through open swards; nesting is on the ground within open tussock grasslands, with pairs or small family groups most often recorded (Marchant & Higgins, 1993; Baker-Gabb, 1987). Marked year-to-year fluctuations in numbers occur with seasonal conditions (Parker & Baker-Gabb, 2013; Wilson et al., 2014; Antos, 2015; Baker-Gabb, 2014).

Within the project site suitable habitat occurs widely in both the northern and southern portions of the pipeline alignment; however, connectivity is higher in the southernmost portion with an approximate 50 km of the alignment retaining breeding and foraging habitat for this species. Habitat occurs in the open, low-profile grasslands, herblands and sparse chenopod shrublands on hard soils create the required structural heterogeneity (i.e. high bare-ground proportion with short sward and scattered taller herbs/tufts).

The plains-wanderer was detected from confirmed calls, recorded via BAR-V2 bioacoustic recorders at five locations in the southern portion of the alignment over an eight-day window in October 2025. Calls were detected from Kilometre Point (KP) 178, KP 196, KP 211, KP 214 and KP 227 (Table 4.5). A subset of calls was validated externally by the Museum Victoria Research Institute. Plains-wanderer calls were typically recorded at dawn (between 4 am and 6 am) or dusk (between 6 pm and 9 pm), which is consistent with dawn and dusk call patterns observed in Victorian and captive studies (Pauligk, 2020). The species was not visually observed during spotlighting surveys.

Table 4.5 Summary of confirmed plains-wanderer calls recorded within the survey area in October 2025

Device	8/10/2025	9/10/2025	10/10/2025	11/10/2025	12/10/2025	13/10/2025	14/10/2025	15/10/2025
BAR 8 (KP~178)				4–6 am			7–9 pm	4–6 am
BAR 10 (KP~196)	6–7 pm		7–9pm	2–3 am, 5–6 am*	4–6 am			
BAR 12 (KP~211)			5–6 am, 7–8 pm	4–6 am	4–6 am			
BAR 13 (KP~214)				5–6 am				
BAR 14 (KP~227)					5–6 am	5–6 am, 7–9 pm		

Note: *Two female calls overlap, differentiating that two individual birds occur in this location.

A study of captive plains-wanderers calls undertaken by Pauligk of Zoos Victoria (2020) indicated that the reason for the female ‘oom’ vocalisation is unclear, as they have been observed to be performed in many different situations; however, proposes the potential purpose of the call could be to mark their territory or presence, or to signal optimal conditions and that they are receptive for breeding. Whilst other female and male vocalisations are described in this study, they are captured using acoustic recorders linked to remote cameras in a captive setting and therefore can ascertain confidence in the range of calls recorded in close proximity to observation. Importantly, the presence of female ‘oom’ calls alone does not demonstrate breeding activity, nesting, or site fidelity, and is insufficient to infer that detected locations represent breeding habitat.

In a practical application of acoustic analysis in the wild, the female ‘oom’ (Plate 4.3) is generally the only call used for monitoring, as it is most reliable to diagnose and frequently heard, with other vocalisations potentially too quiet to hear in the field unless the calls are within close proximity to a recorder, which limits detectability. This limits the interpretation of data to female presence. Plains-wanderer cannot be identified to individuals based on call and therefore repeat calls and calls spanning multiple days at each site cannot be attributed to one or more birds, except in the instance of KP~196 where two female ‘ooms’ overlap indicating the presence of two discrete individuals. Female plains-wanderers’ call is likely to be detected within a range of up to 180 m away from each

device, depending on factors such as wind and topography (Rowe et al., 2023). As such, records on each device are likely to be discrete individuals.

Considering the limited number of confirmed records of the species within Queensland in the past decade, the acoustic detections recorded during this study add valuable contemporary information for a region that has historically been subject to very limited targeted survey effort for the plains-wanderer. The recent detections reflect the application of targeted survey methods, particularly passive acoustic monitoring in an area that has not historically received intensive survey effort. While advances in acoustic survey technologies have increased the detectability of the plains wander in recent years, given the species' low and variable calling rates, episodic habitat use, and the inability to identify individuals from acoustic data, the current detections do not allow any estimate of population size or density within the project site.

Confirmation of the species from five locations, together with historical records further confirm the species' long-term occurrence in the region, including a record from 1985 located 1.5 km east of KP 213 and multiple records from 1976 to 2023 within northern NSW in habitat continuous with the project site. Suitable habitat distribution and records within the project site are shown in Figure 4.4. The location of records to date reflect the location of targeted survey effort. Suitable habitat is considered extensively distributed in the surrounding landscape in areas that have not been subject to targeted survey. The absence of records therefore does not indicate absence from other suitable habitat.

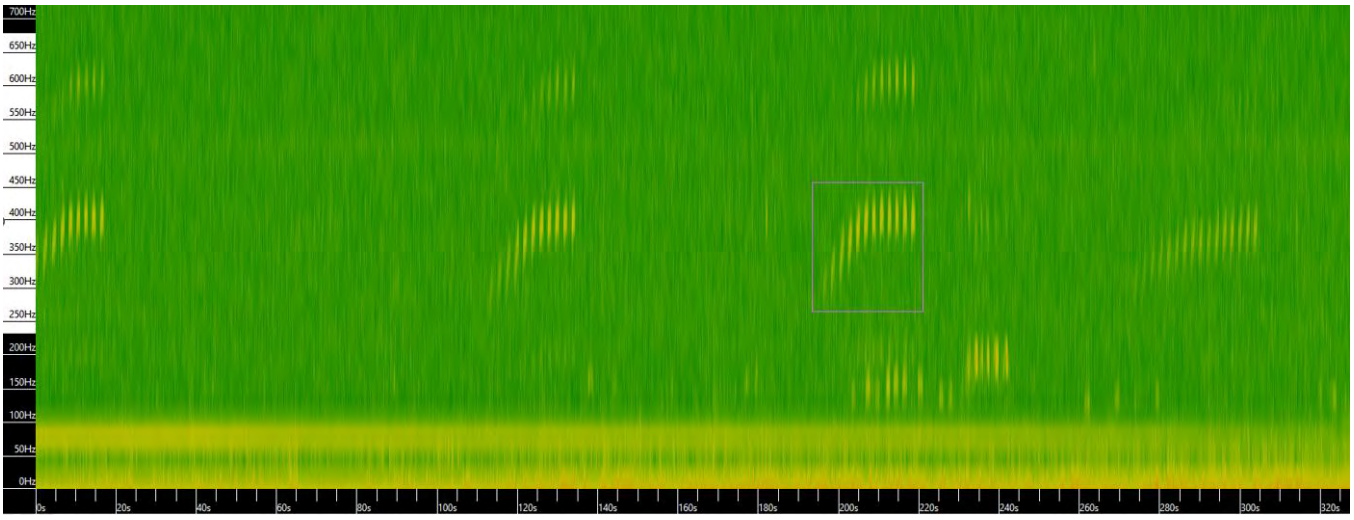


Plate 4.3 ***Spectrogram produced in Kaleidoscope lite (2025) visualising the low frequency 'oom' call of a female plains-wanderer recorded on BAR 10 between 5–6 am***

Due to the extensive spatial footprint of the project site, potential habitat for the plains-wanderer was mapped using a two-step process:

– Mapping of field-verified REs consistent with grassland, chenopod shrubland and herbland vegetation used by the species as detailed in the *National Recovery Plan for the Plains-wanderer* (DoE, 2016) and more recent research (Smith et al., 2022; Gerhardy et al., 2025; Terrington et al., 2025).

– The mapping was then refined based on observed on-ground habitat features, extrapolated via examination of aerial imagery.

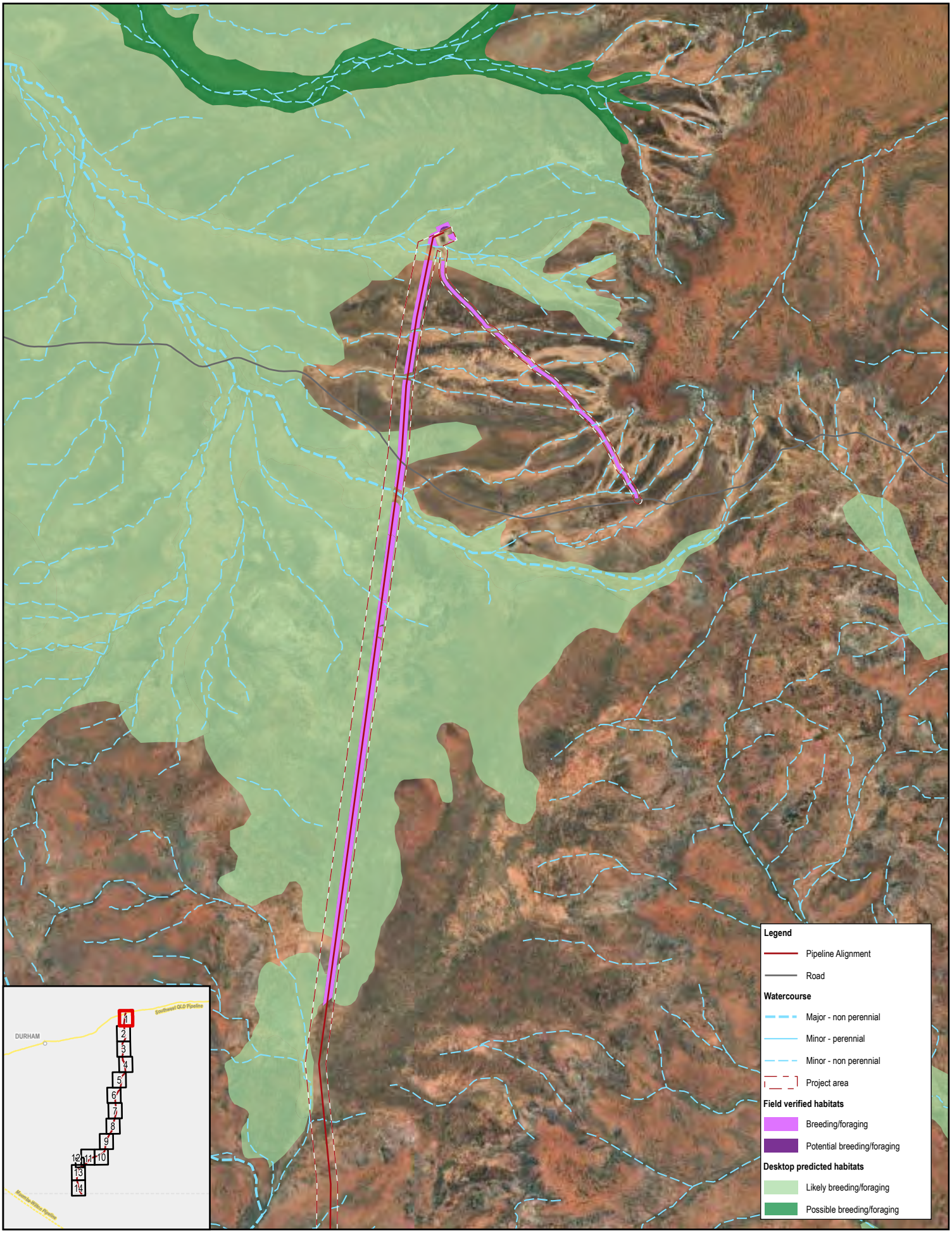
The following REs were assigned as habitat for the plains-wanderer within the project site:

– 5.9.3 – *Astrebla spp*. +/- short grasses +/- forbs open tussock grassland to herbland;

– 5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica*, *A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur; and

– 5.3.21 – Variable sparse to open herbland, *Senna spp.* open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks.

These were selected due to the on ground observed habitat traits associated with the species as well as related features in the habitat descriptions. Outside the field-verified extent, habitat was predicted using DNRMMRRD state vegetation mapping. Plains-wanderer potential habitat distribution within the project site is shown in Figure 4.4.



Paper Size ISO A4

0 0.35 0.7 1.05 1.4

Kilometres

N

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA

GHD

APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

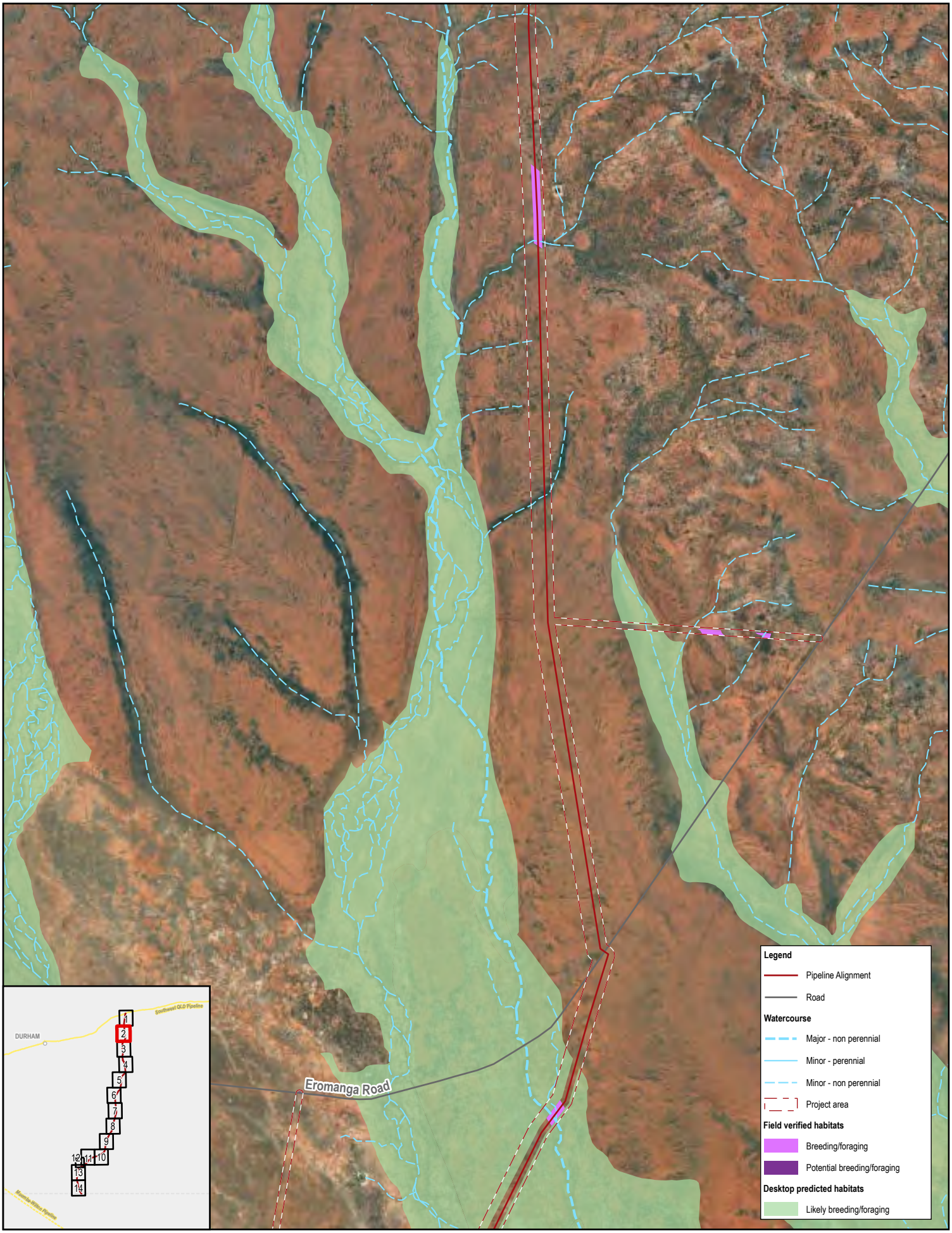
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Figure 4.4

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

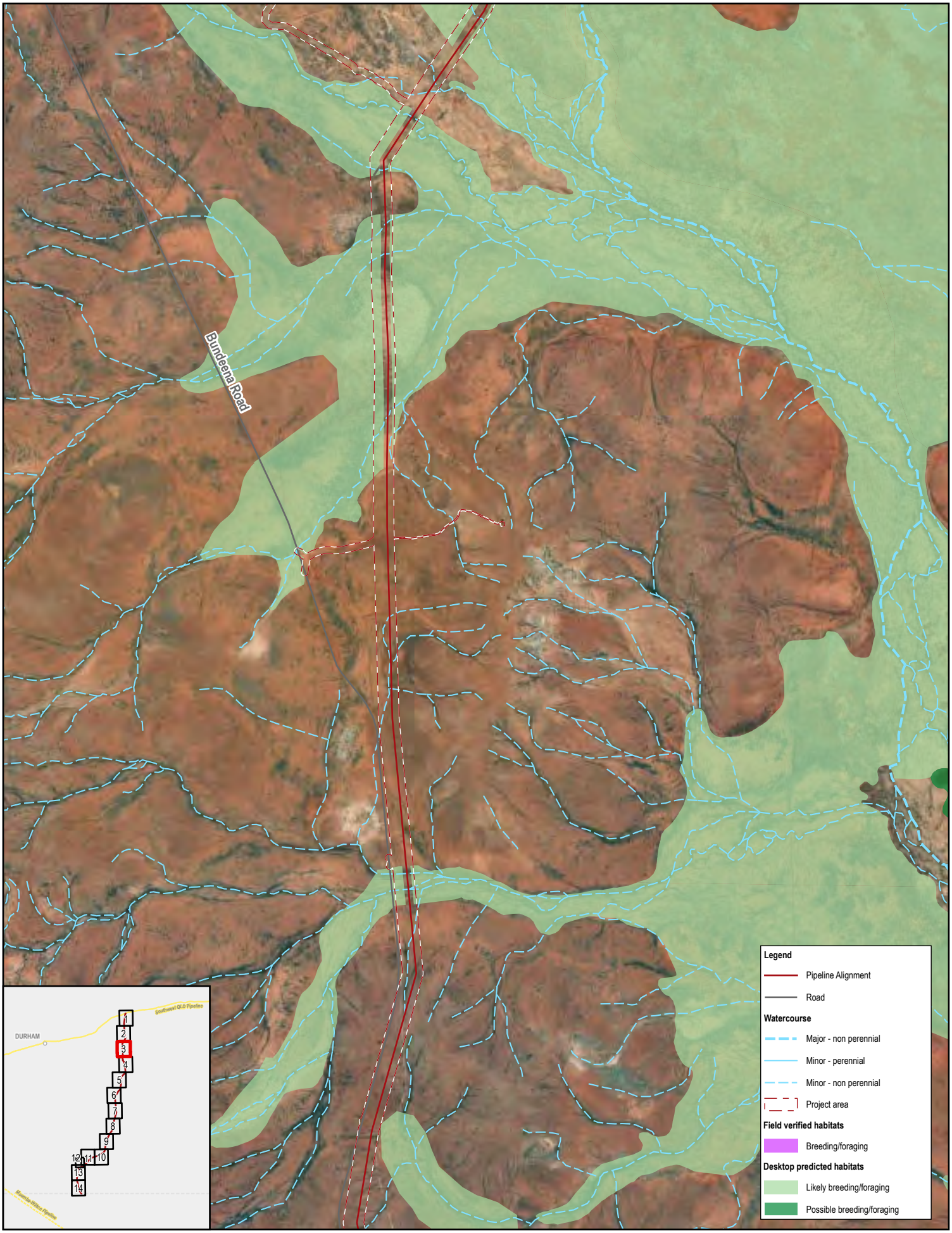
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Revision No. 0
Date 09/07/2026

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Figure 4.4

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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

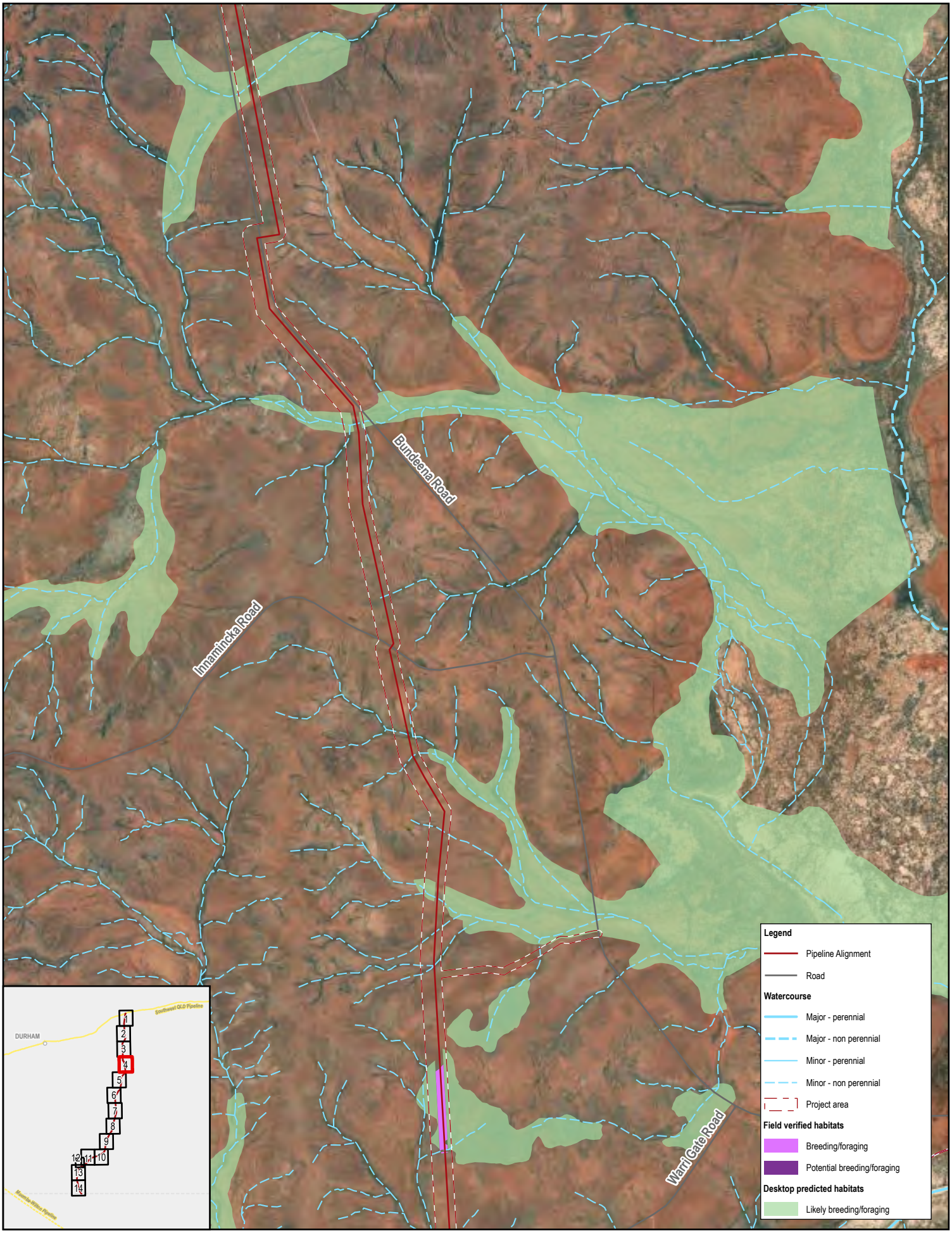
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Figure 4.4

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Paper Size ISO A4

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

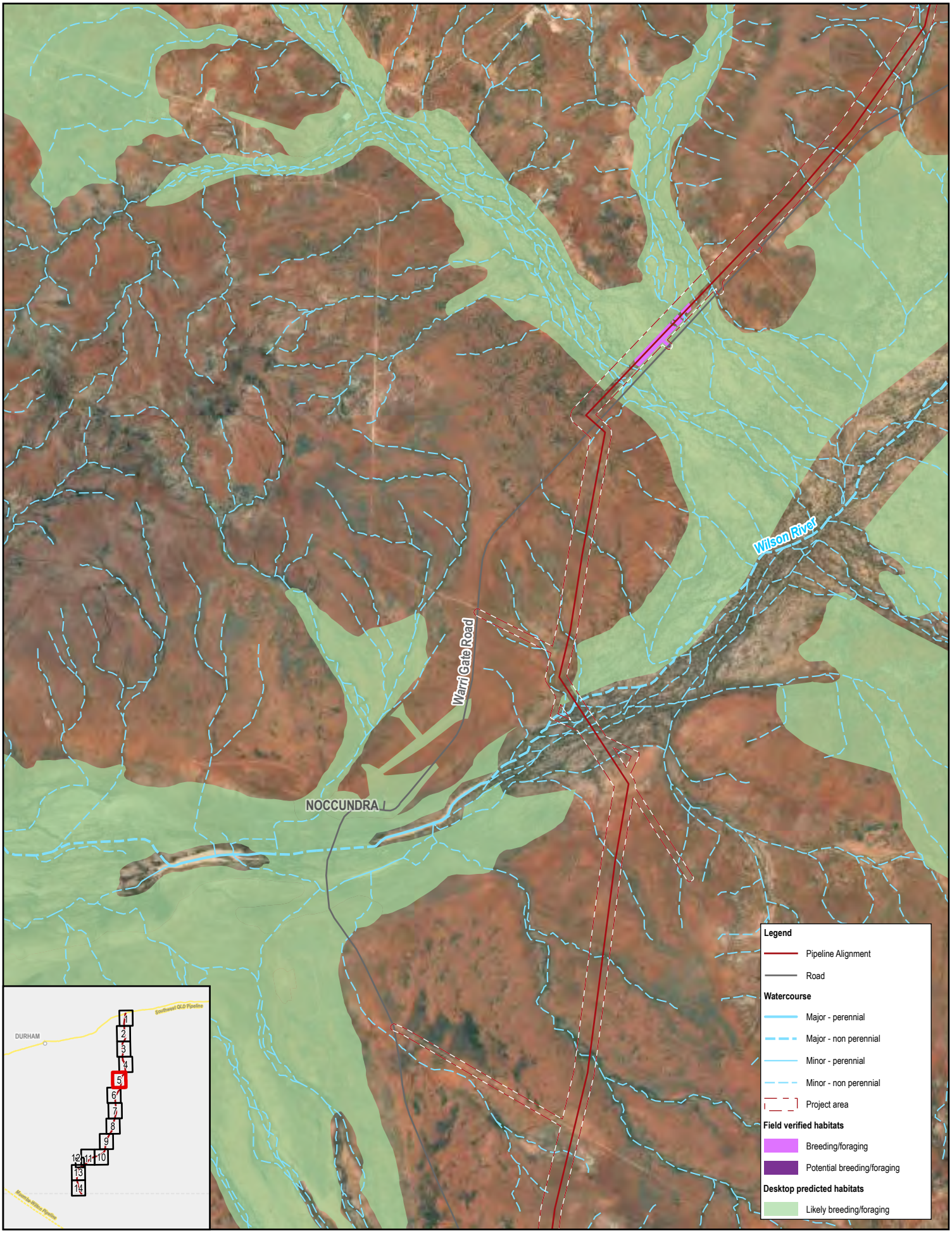
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Figure 4.4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

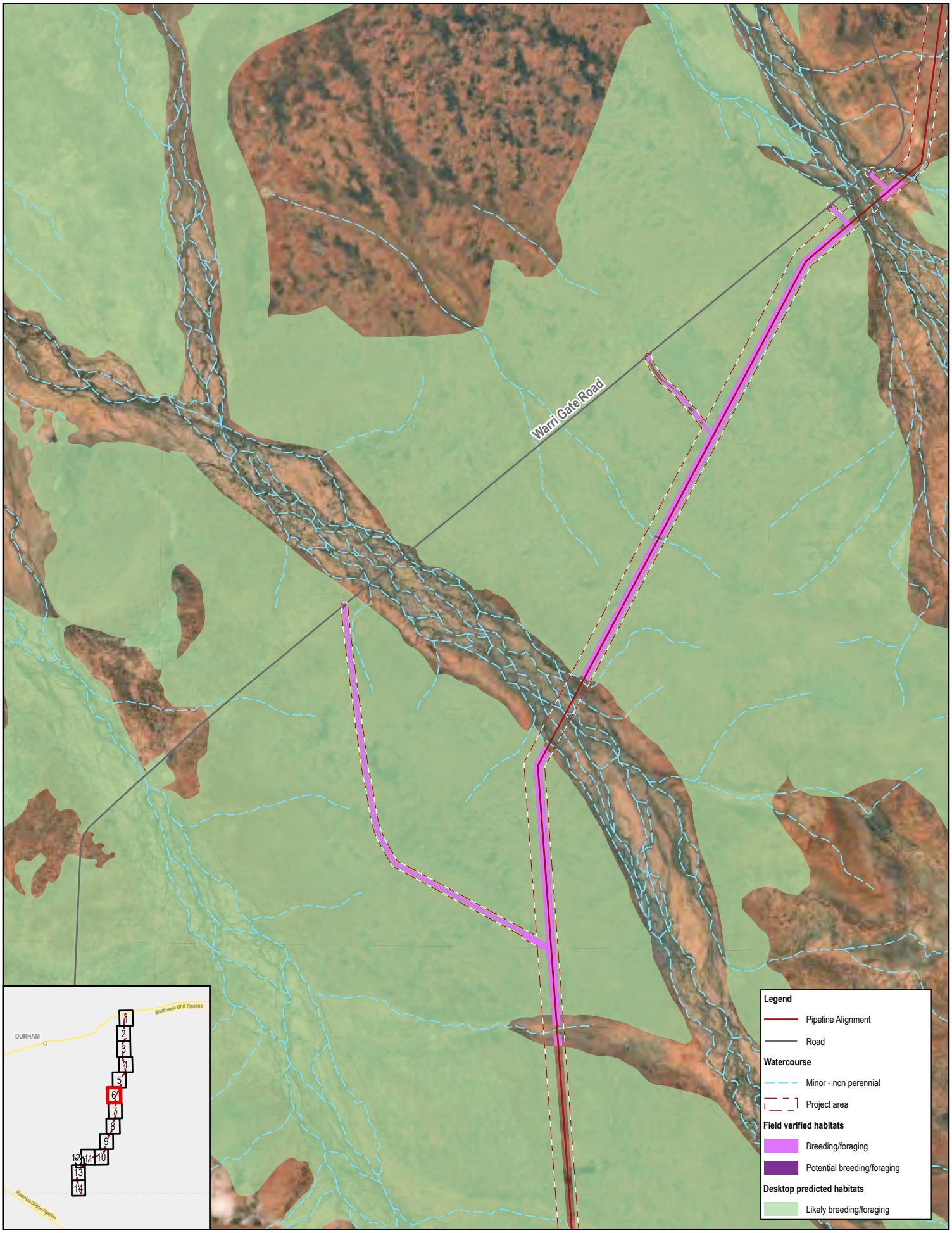
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Figure 4.4

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Paper Size ISO A4

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

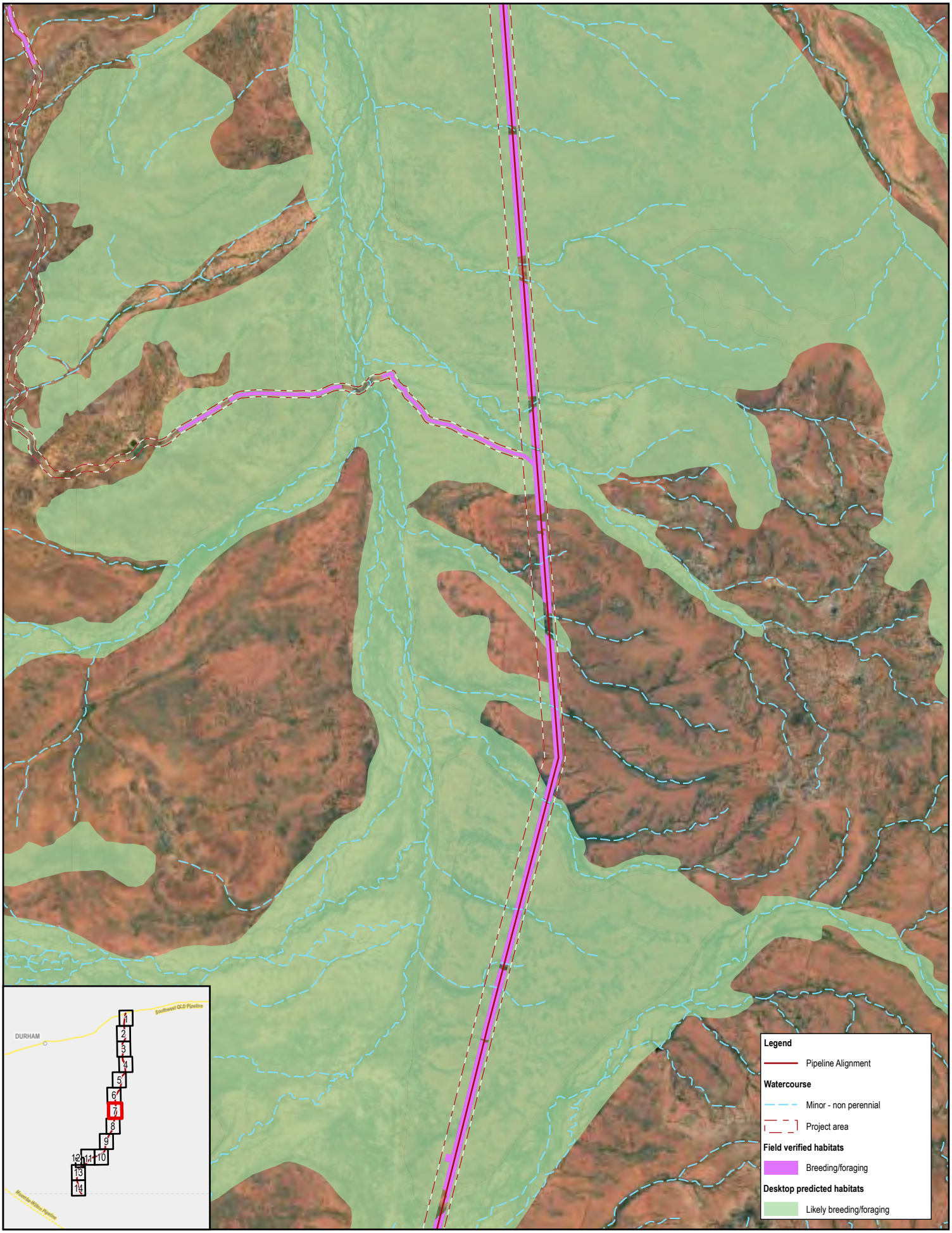
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Figure 4.4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

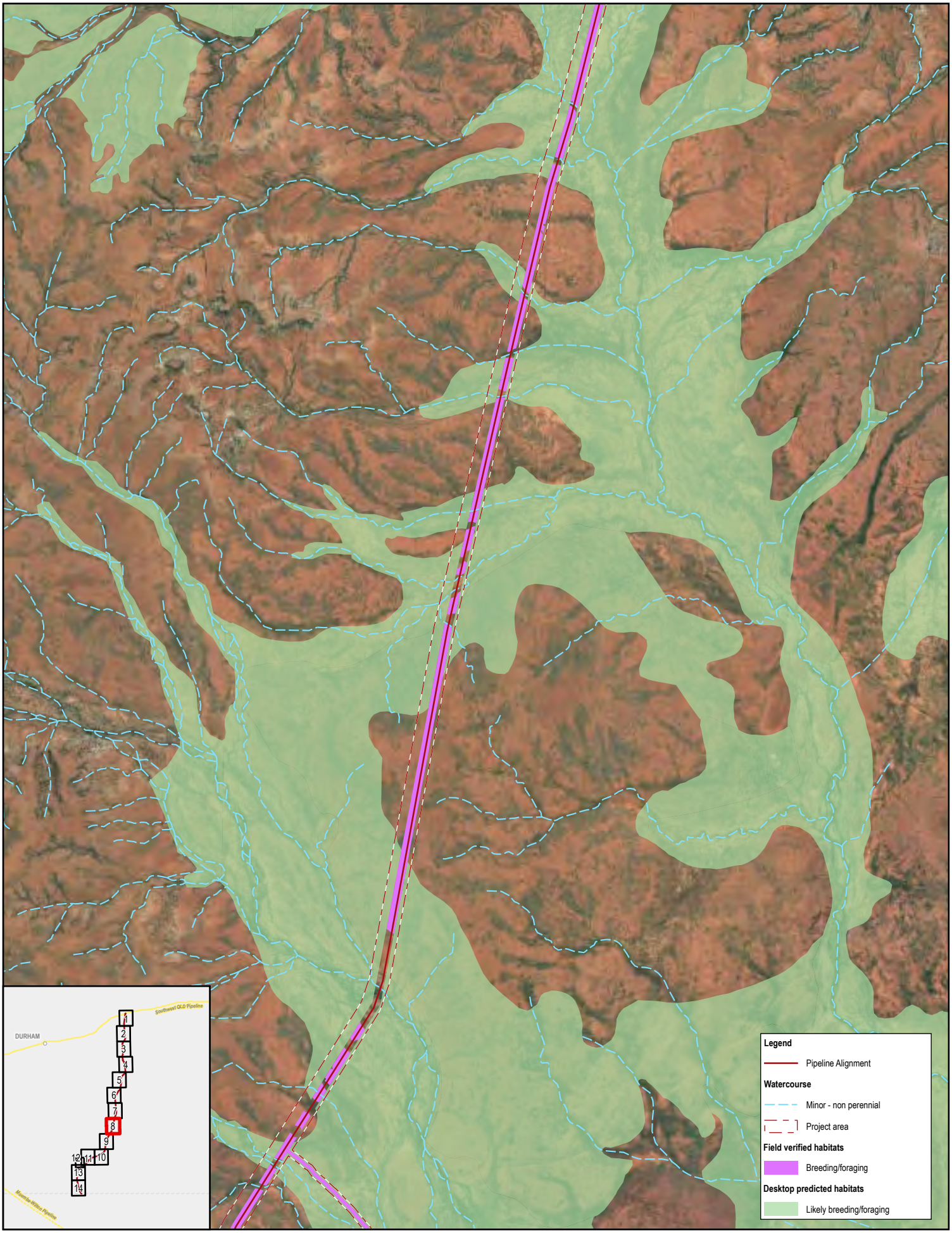
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Figure 4.4

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

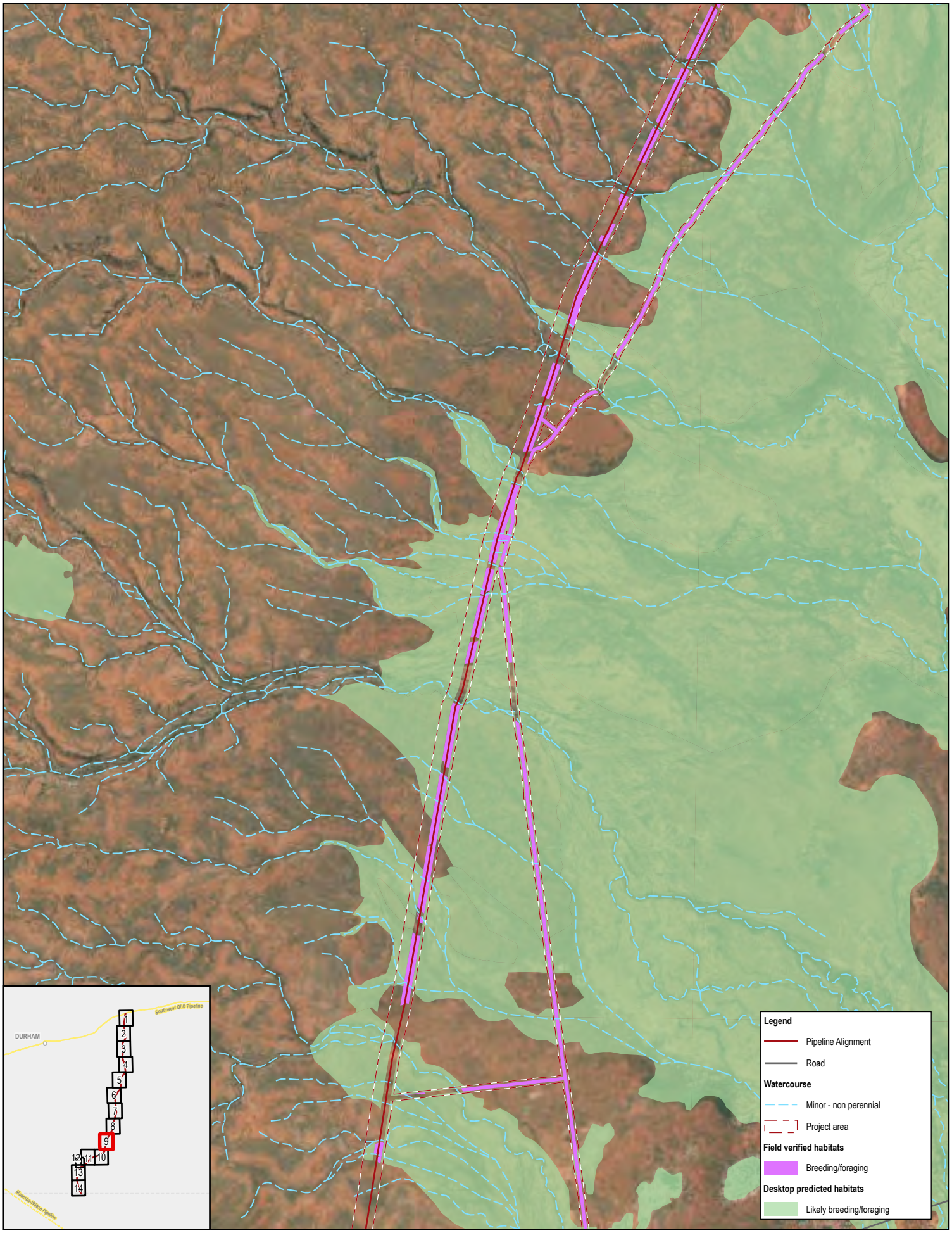
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Figure 4.4

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

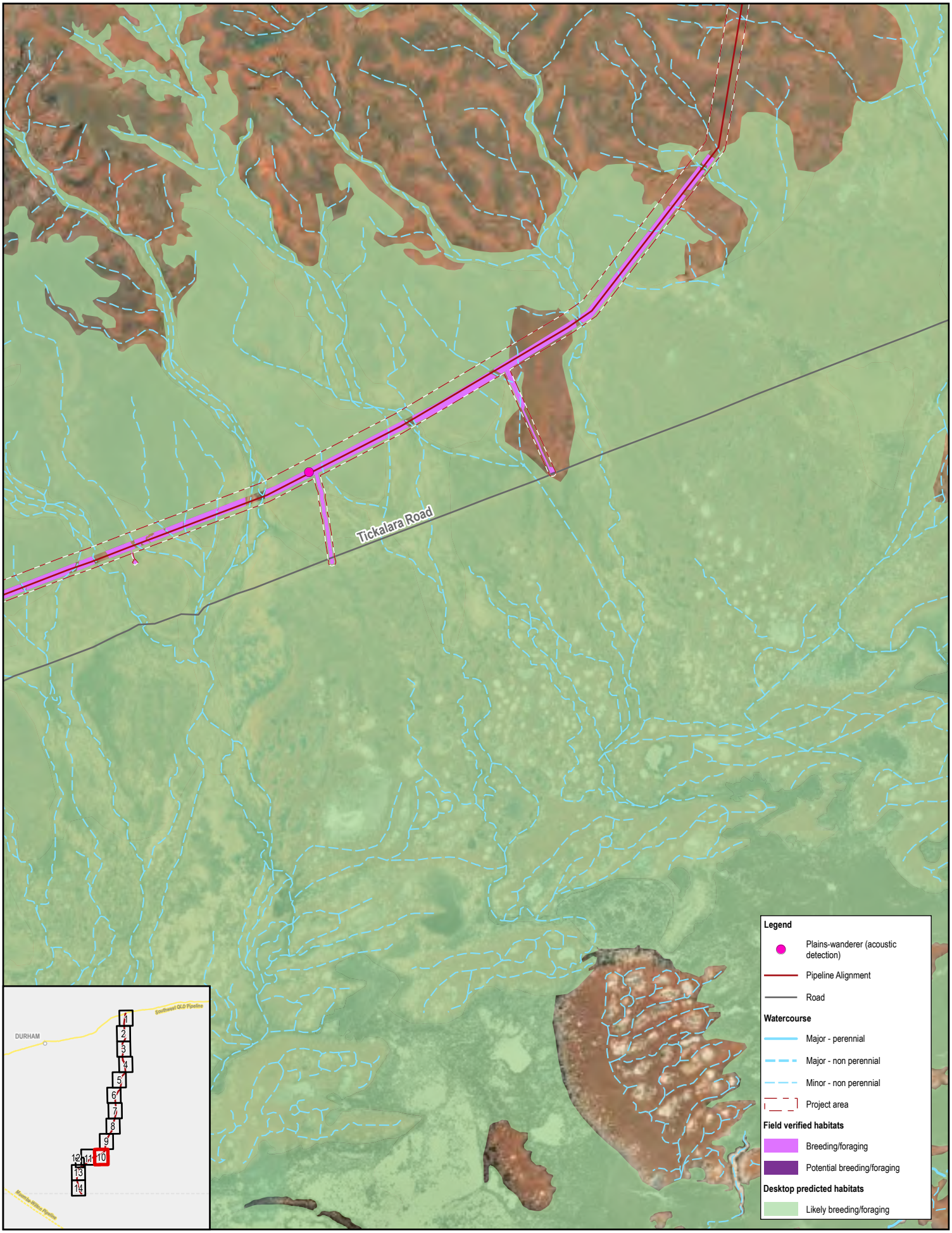
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Figure 4.4

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

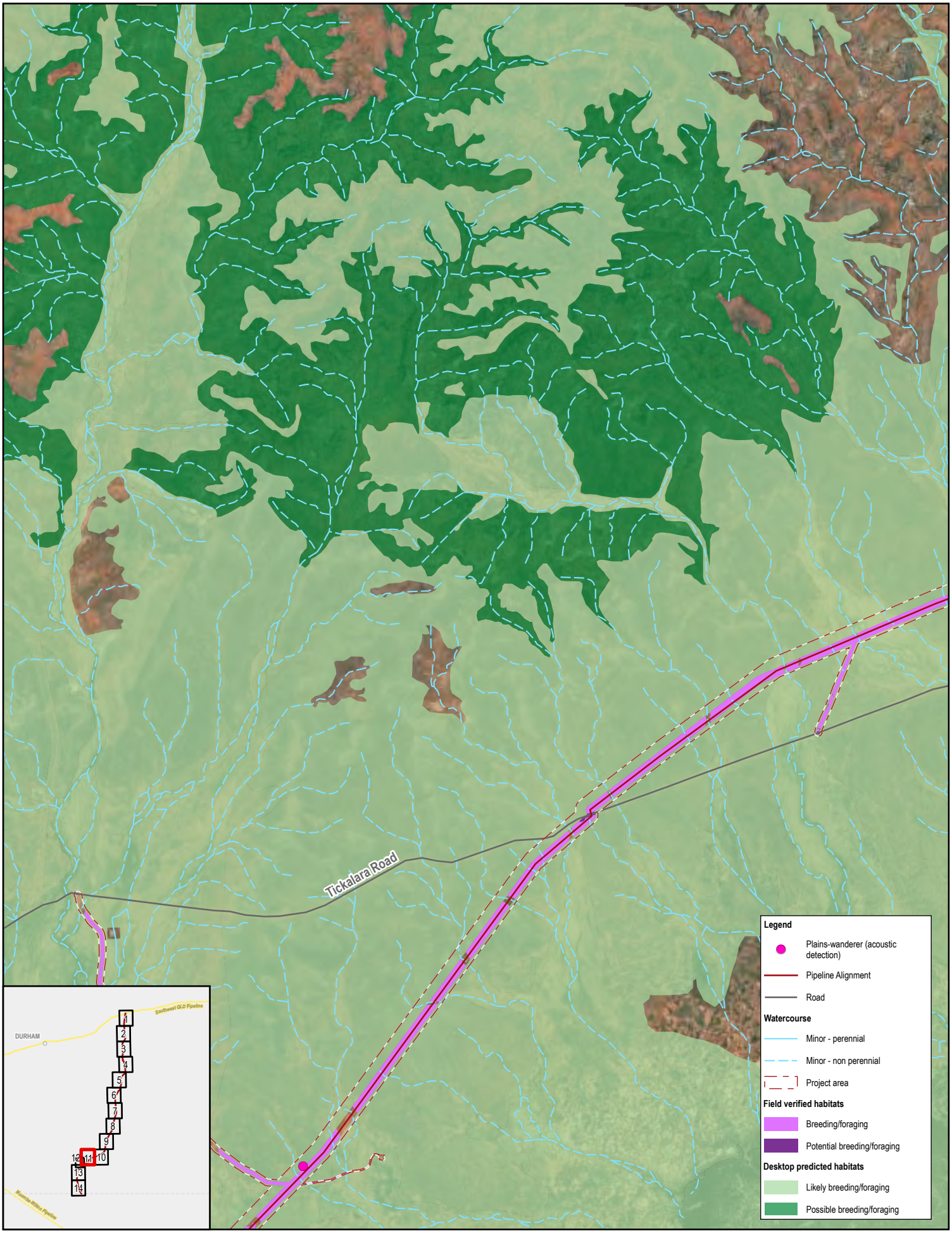
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Figure 4.4

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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

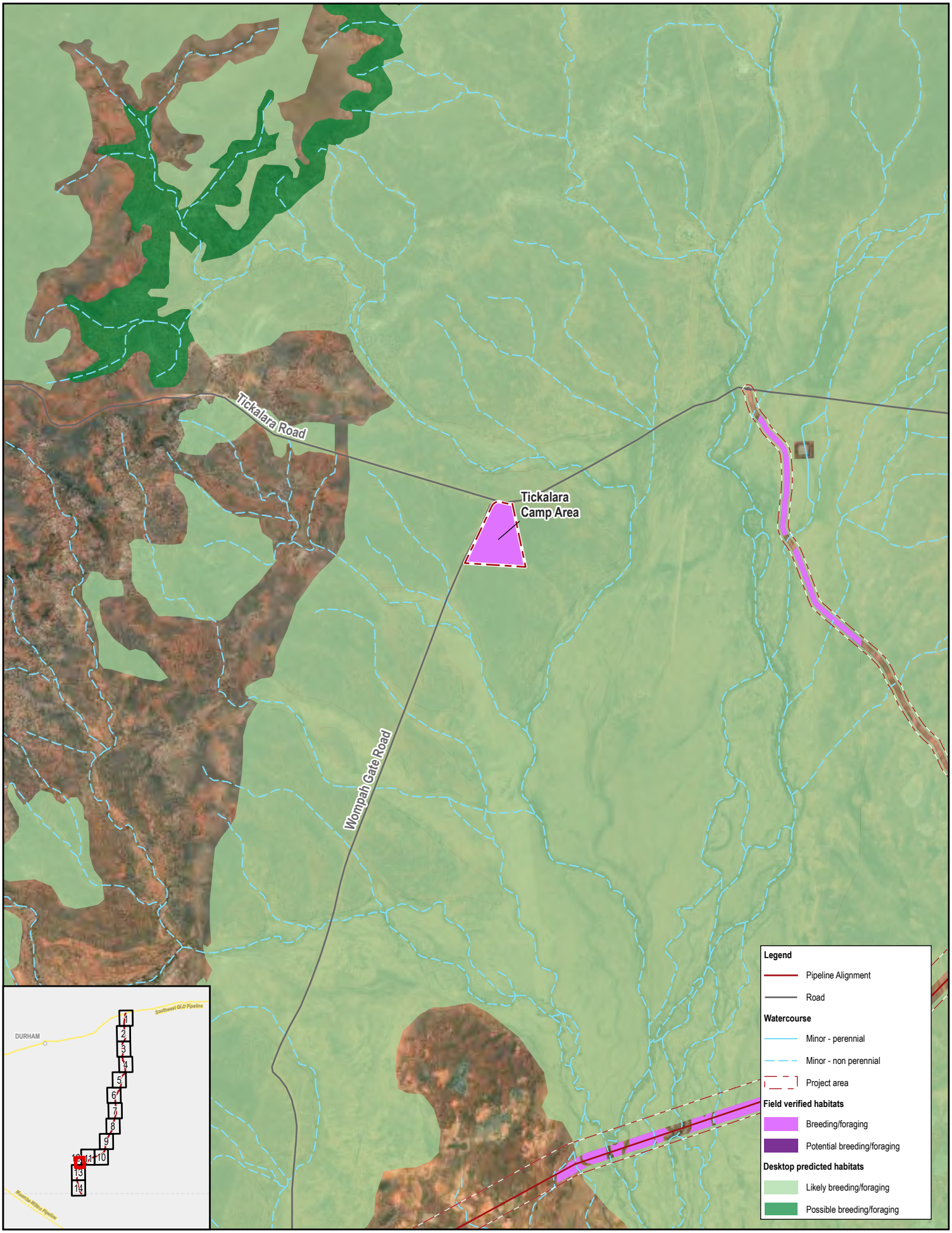
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Figure 4.4

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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

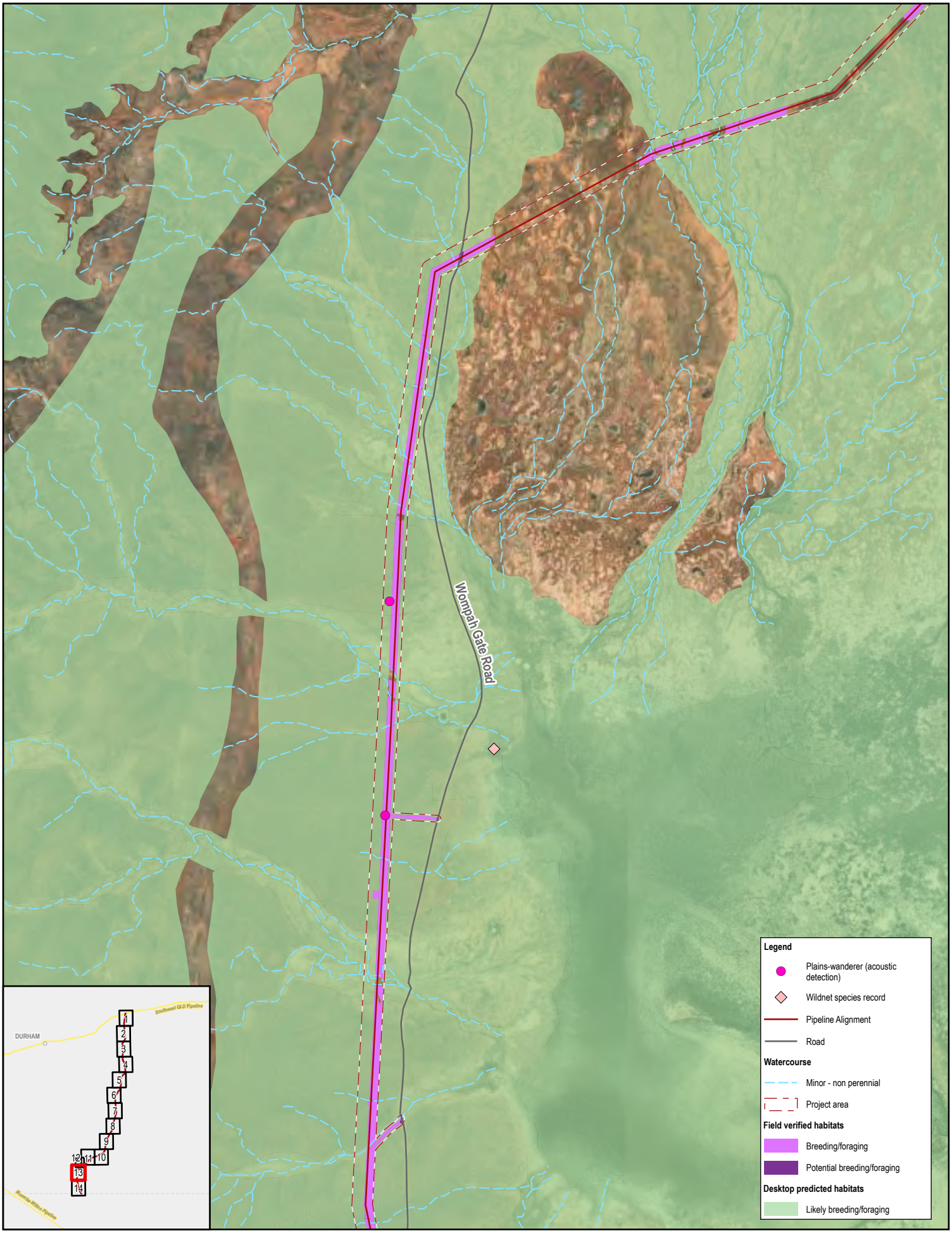
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Figure 4.4

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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

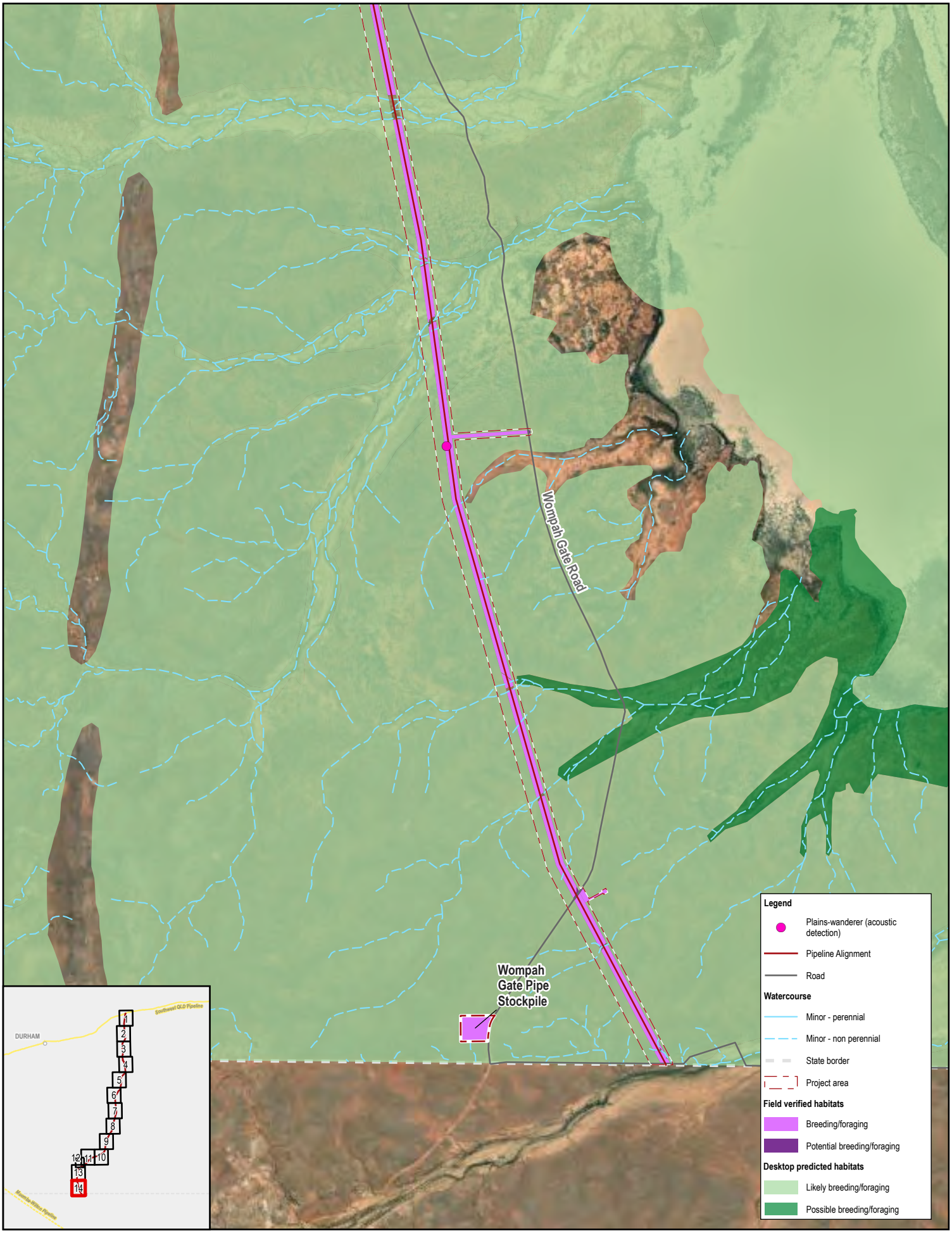
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Figure 4.4

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains-wanderer habitat distribution

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Figure 4.4

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Southern whiteface

The southern whiteface is listed as **vulnerable** under the NC Act and EPBC Act. It occurs widely across inland and southern Australia, inhabiting relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs, often dominated by acacias or eucalypts (Higgins & Peter, 2002). The species is generally sedentary, though individuals may move outside their normal range during drought years (Higgins & Peter, 2002).

Southern whitefaces forage almost exclusively on the ground, favouring habitats with low tree densities and an herbaceous understory with litter cover. They mainly feed on insects, spiders, and seeds, gleaned from bare ground or leaf litter, typically in small groups, though larger flocks may form in the non-breeding season (Higgins & Peter, 2002).

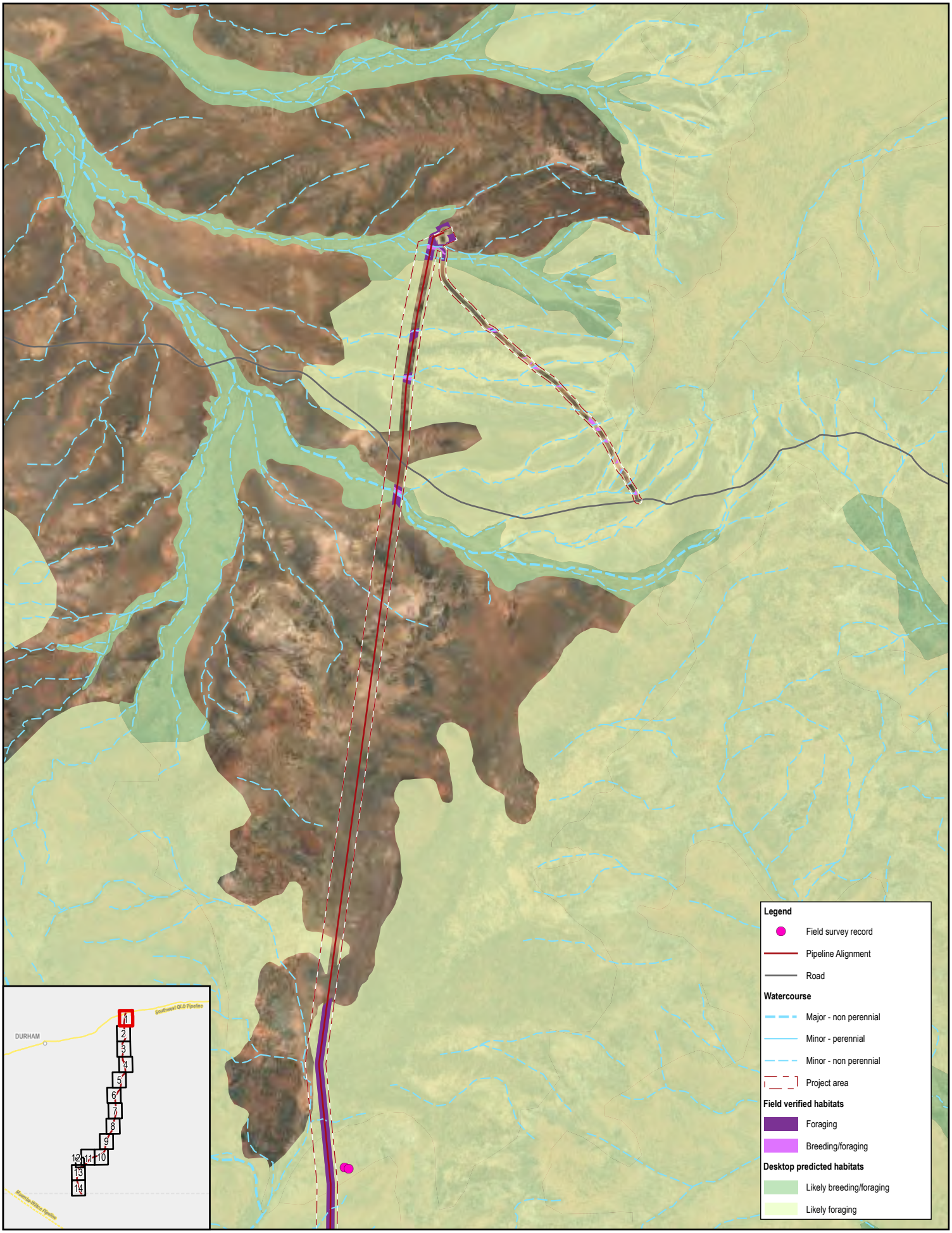
Breeding occurs from July to October, with timing influenced by rainfall in arid regions. Nests are large domed structures built of grass, bark, and roots, usually placed in tree hollows or stumps but occasionally nest in crevices, or low shrubs. Pairs commonly breed, though cooperative breeding with multiple adults contributing to chick rearing has also been observed (Higgins & Peter, 2002).

Within the project site, suitable habitat occurs in open woodlands and shrublands with a grassy and herbaceous understorey and scattered HBTs which provide nesting resources. The species was recorded on site at four discreet locations across both field mobilisations. These sites included KP 13–14, KP 42, KP 73 and KP 119 (Plate 4.4). Numerous records of the southern whiteface have been recorded across the project area (ALA, 2025). These records are consistent with the species' widespread distribution and regular use of suitable habitat across the broader landscape.

Suitable habitat distribution and records are shown in Figure 4.5. For all species, habitat mapping has been informed by field-verified RE extent in areas that support suitable resources and microhabitat features. For southern whiteface, additional survey effort in January 2026 captured fine scale availability of HBTs, to inform micro-siting of the alignment. While the alignment still traverses broadly suitable habitat areas (as depicted on Figure 4.5), important breeding features were largely avoided through local route realignments.



Plate 4.4 A southern whiteface recorded within the project site at KP 73.



Paper Size ISO A4

0 0.35 0.7 1.05 1.4

Kilometres

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

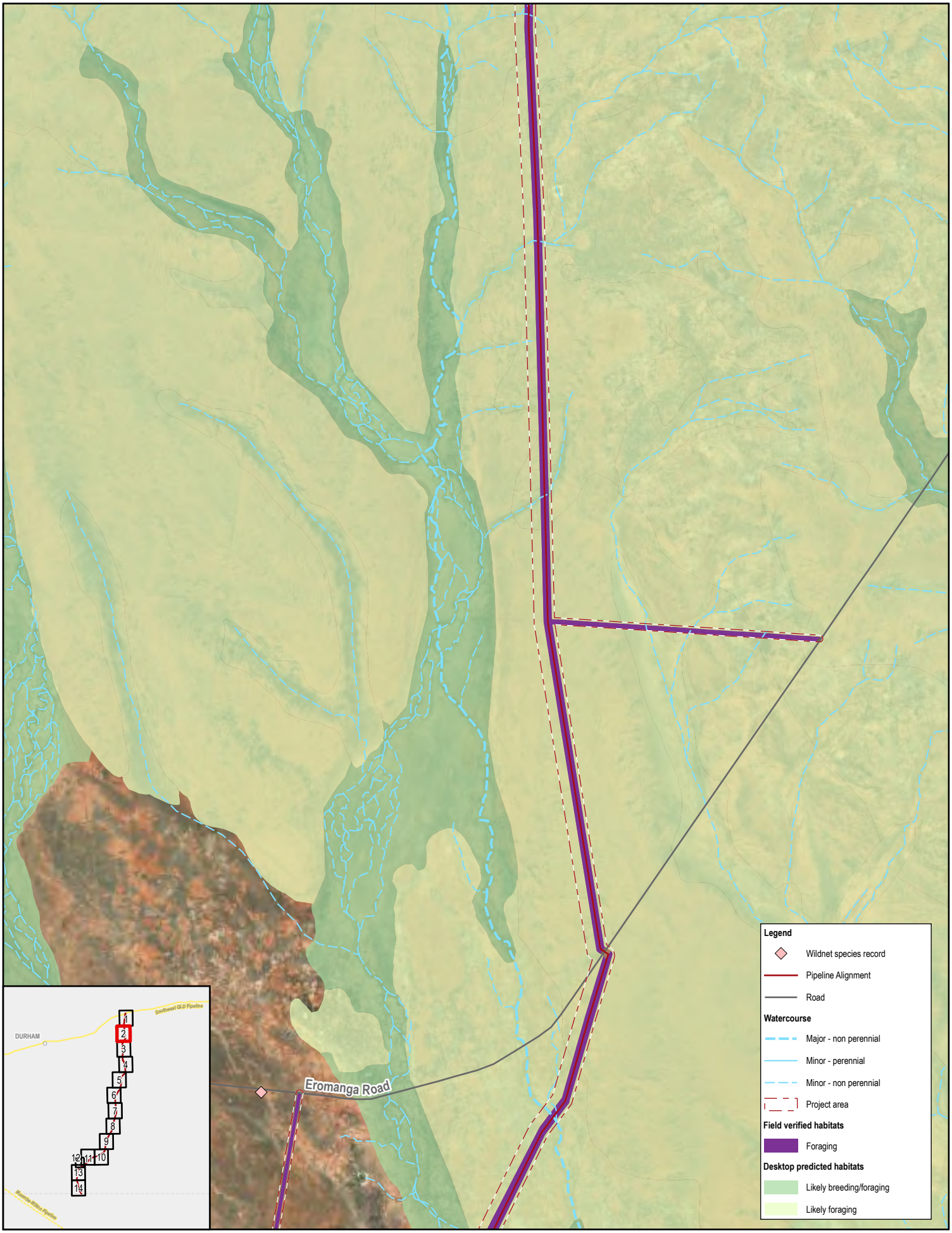
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Figure 4.5

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

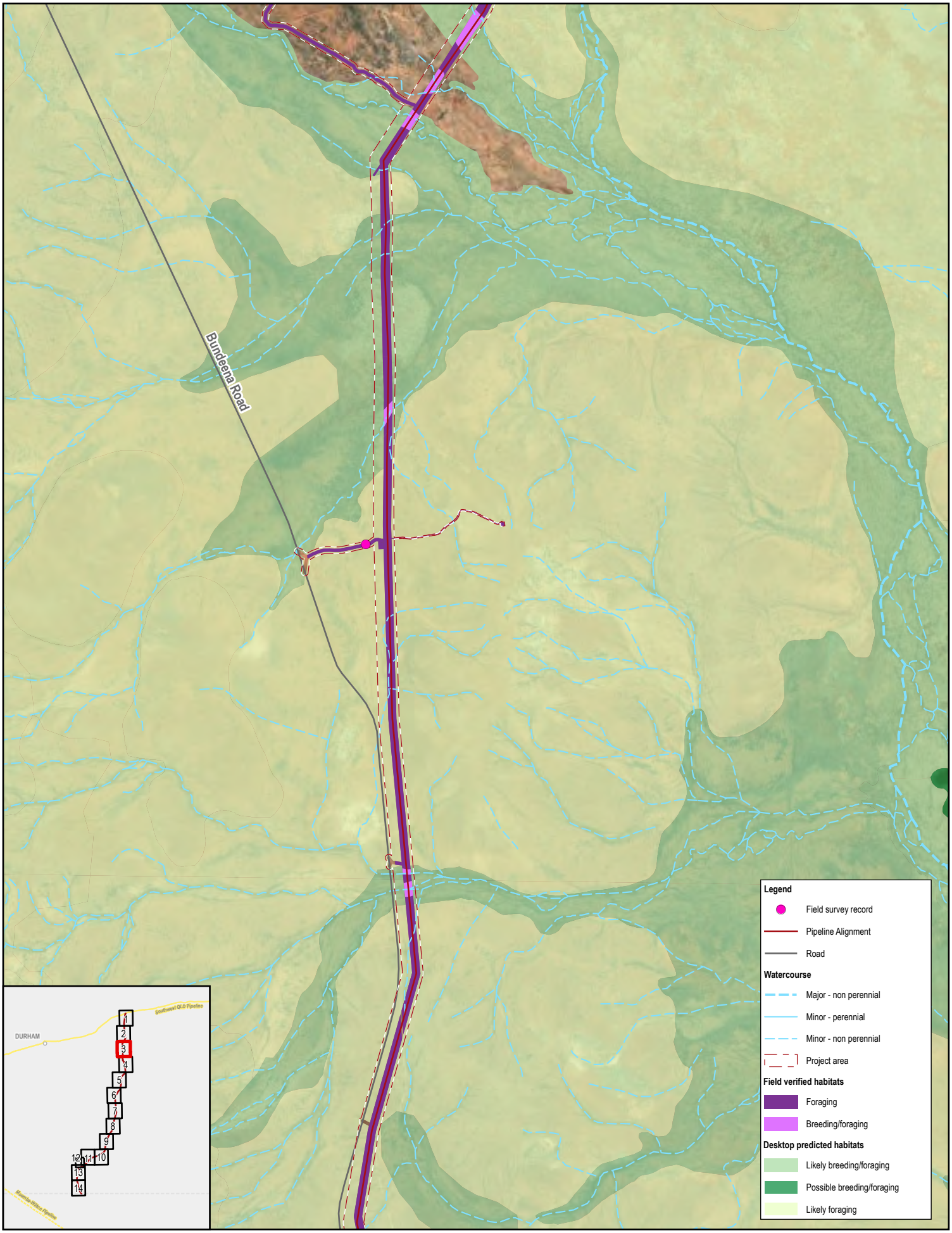
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Figure 4.5

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Kilometres

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

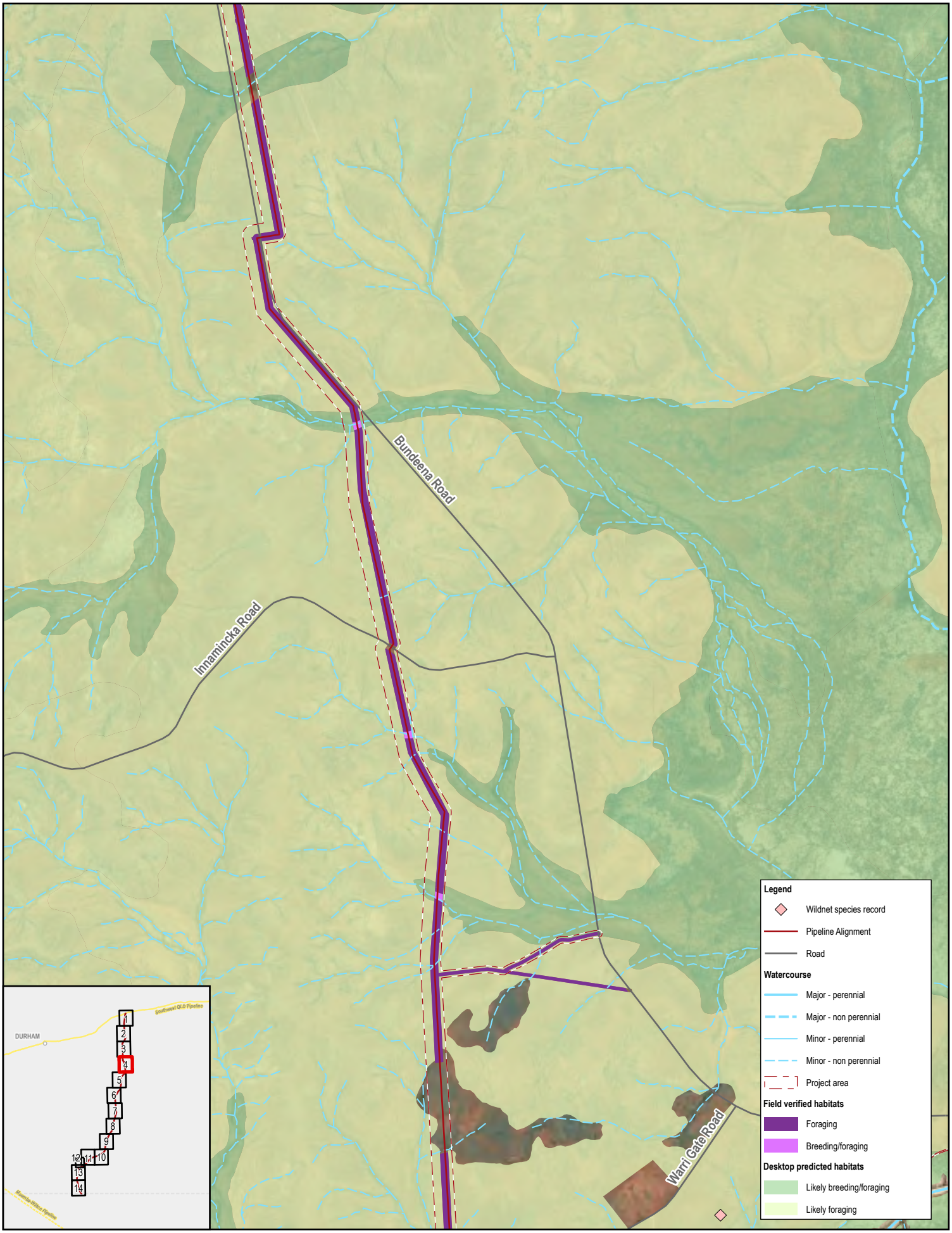
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Figure 4.5

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

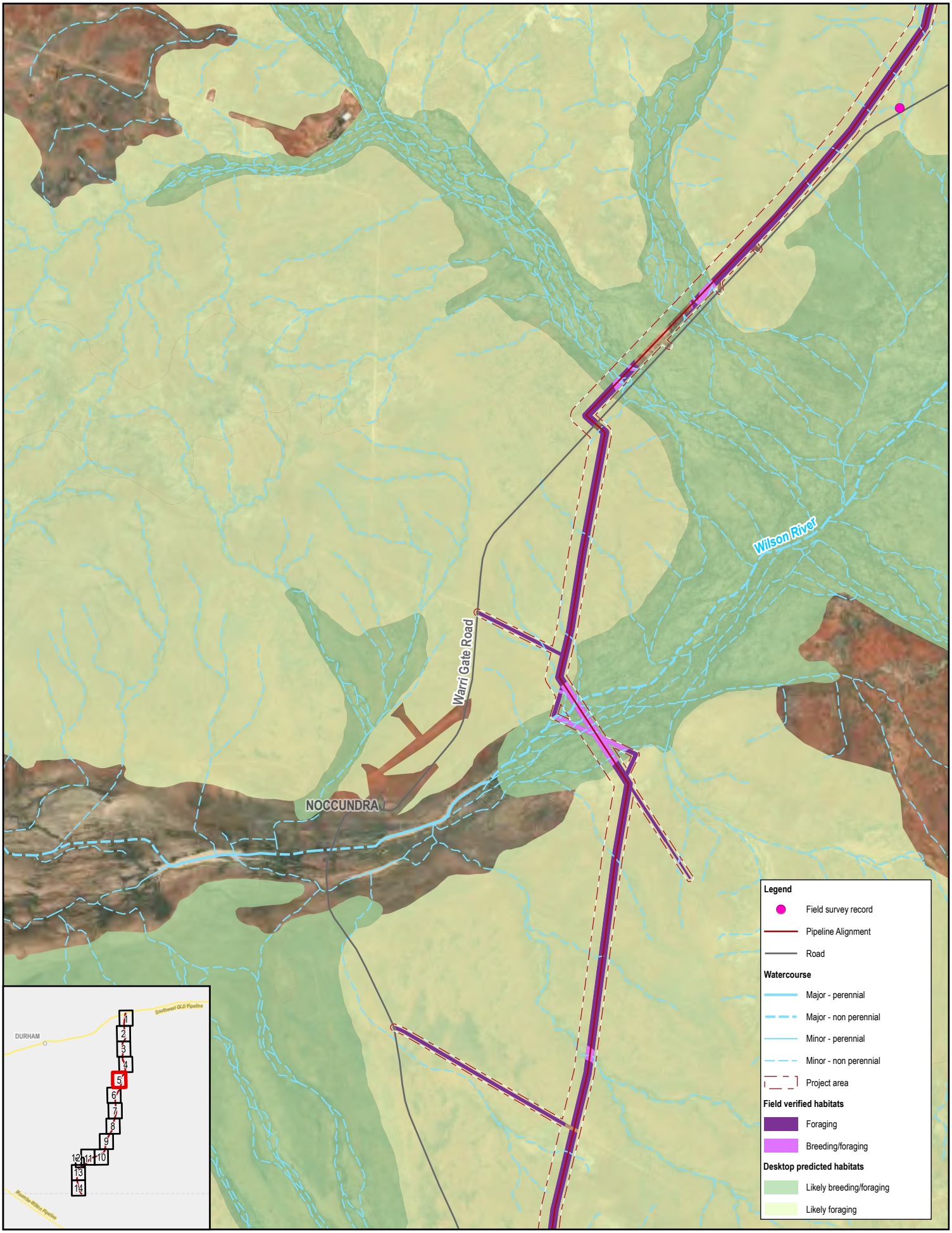
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Figure 4.5

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

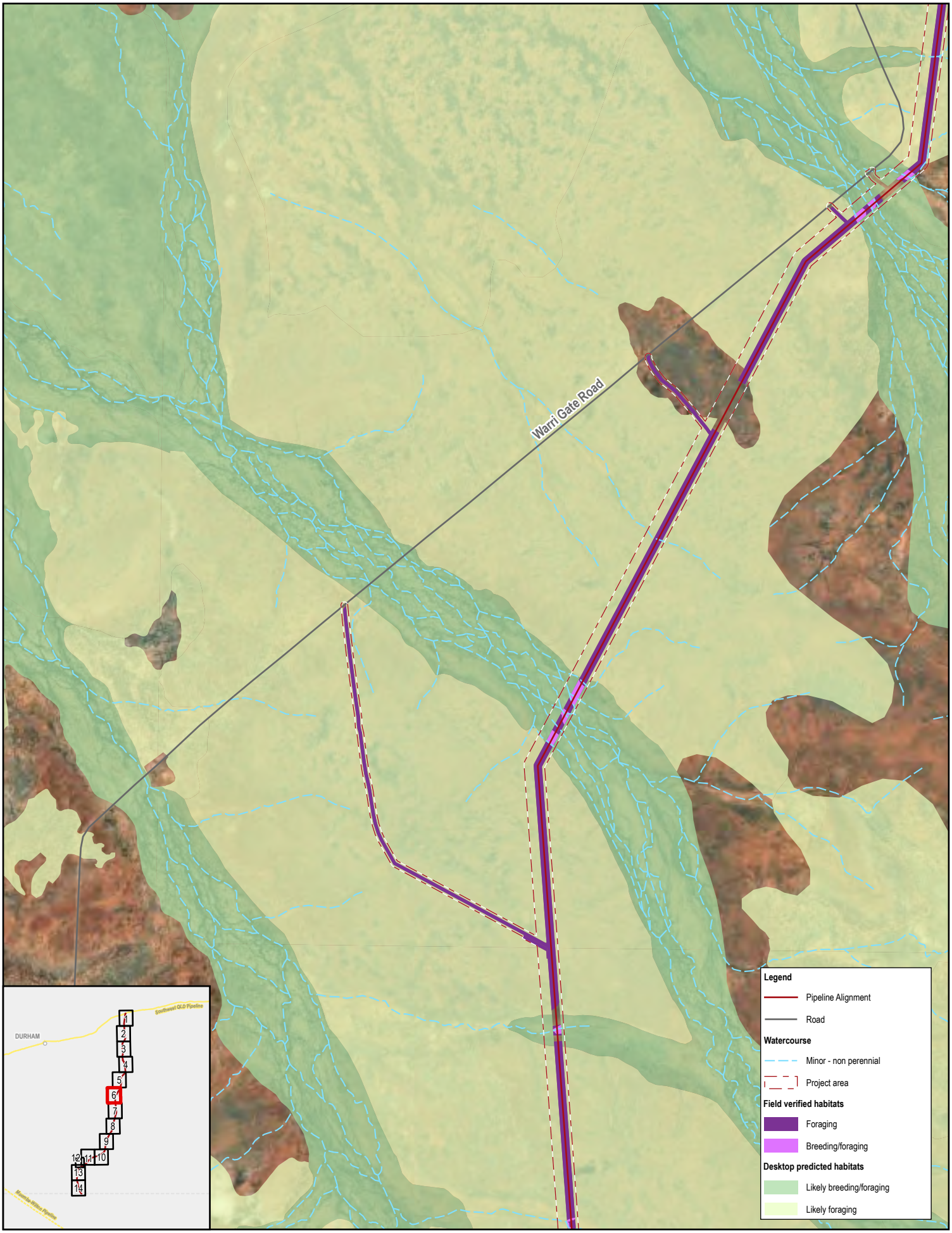
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Figure 4.5

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

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Figure 4.5

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

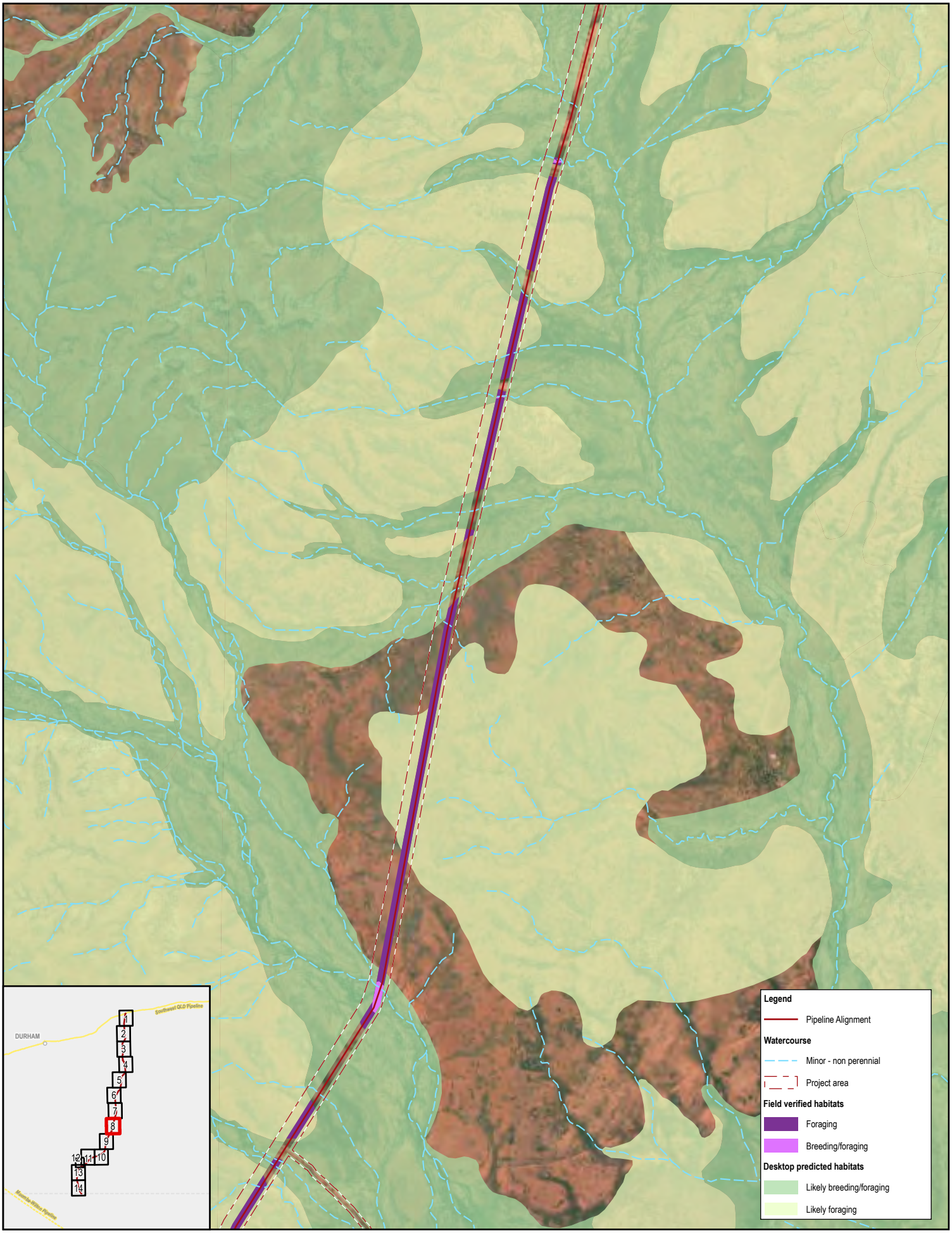
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Figure 4.5

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

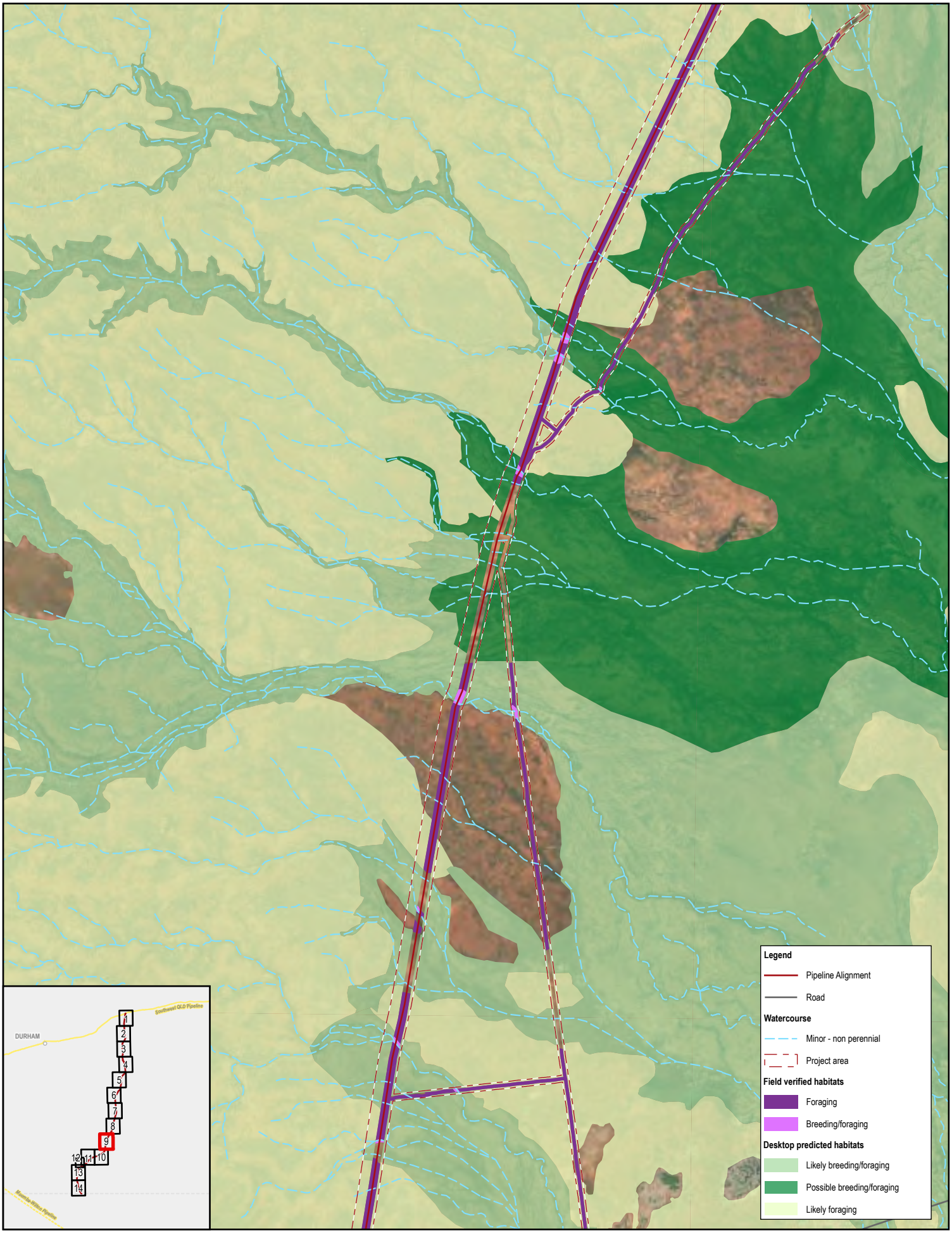
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Figure 4.5

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

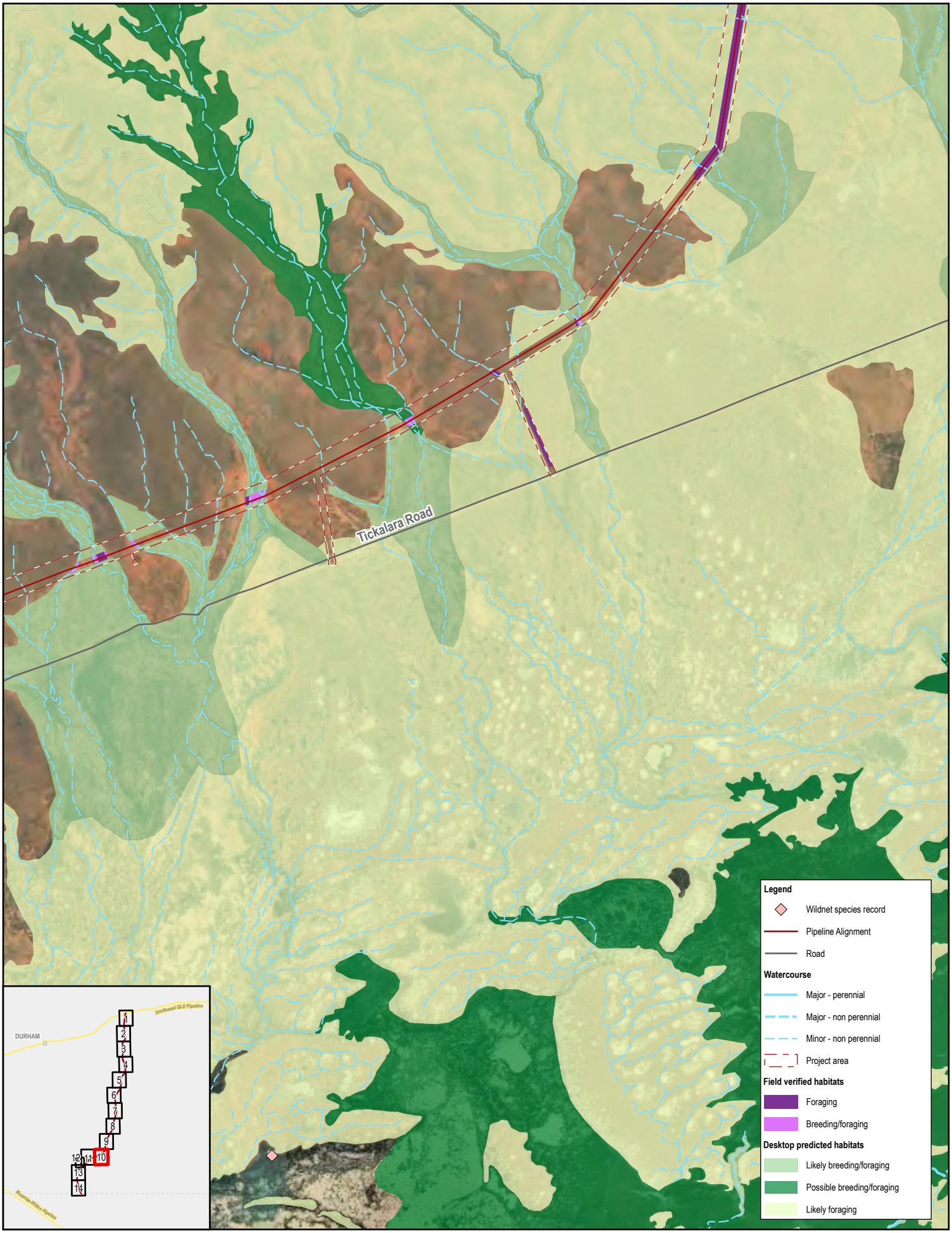
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Figure 4.5

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

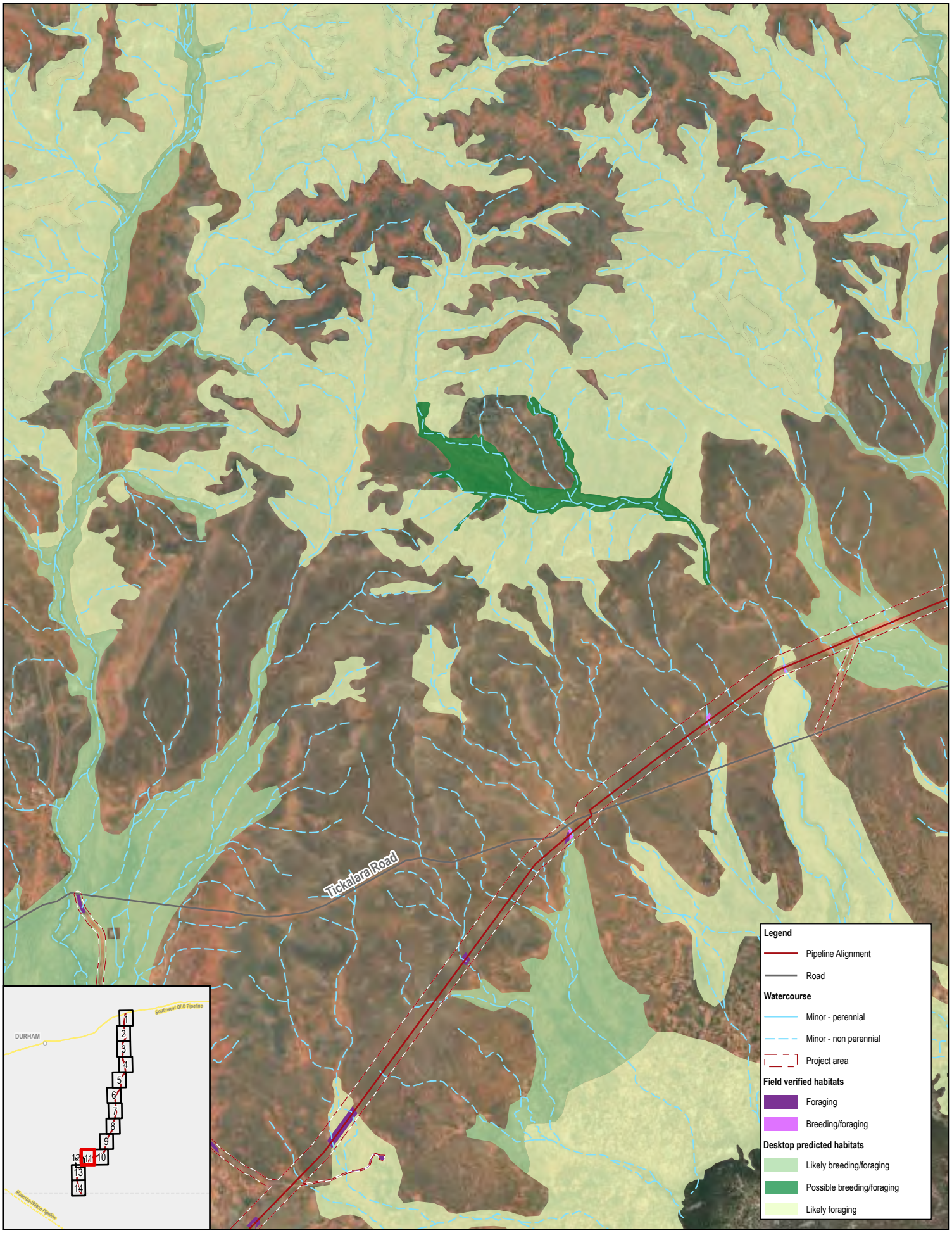
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Figure 4.5

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

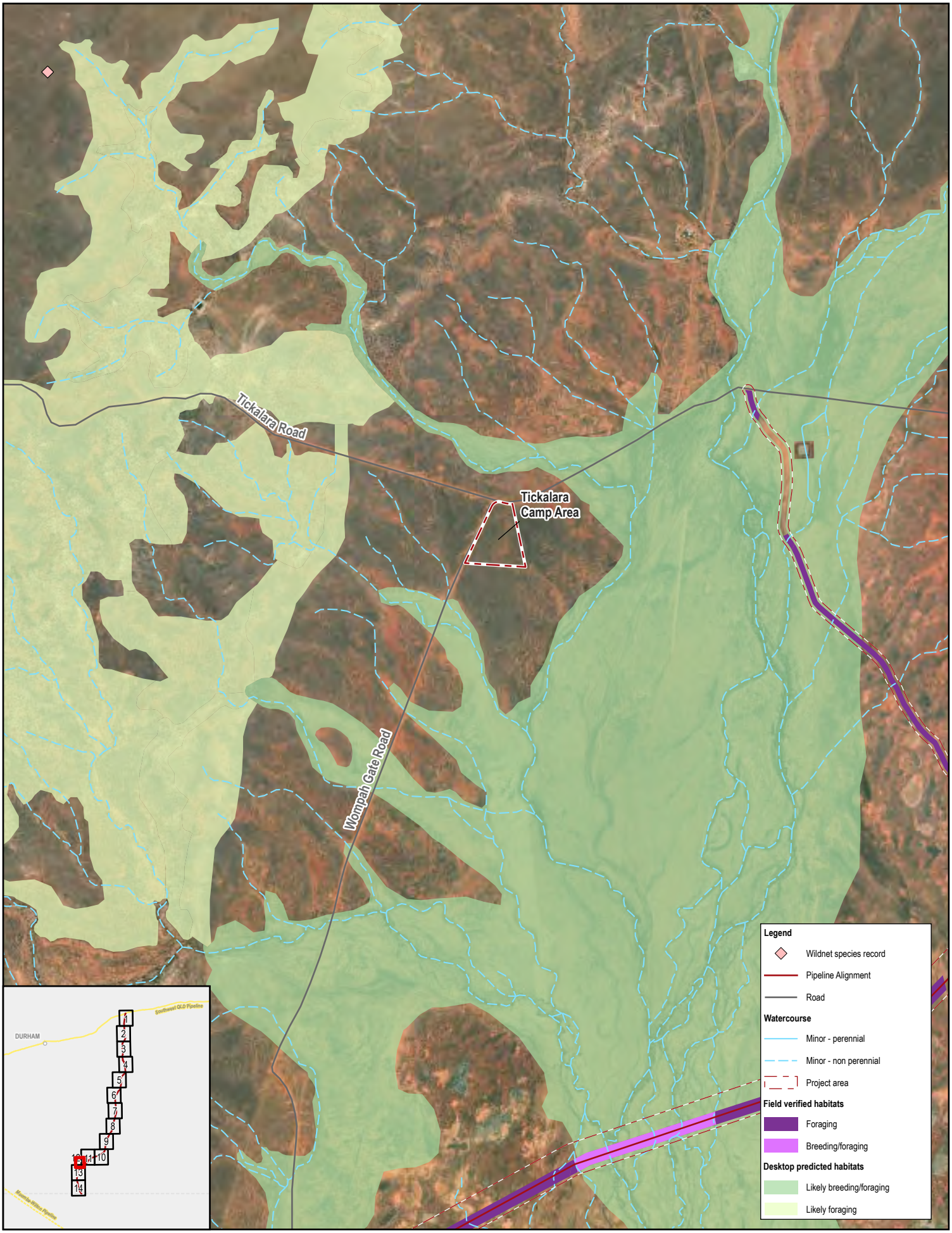
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Figure 4.5

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

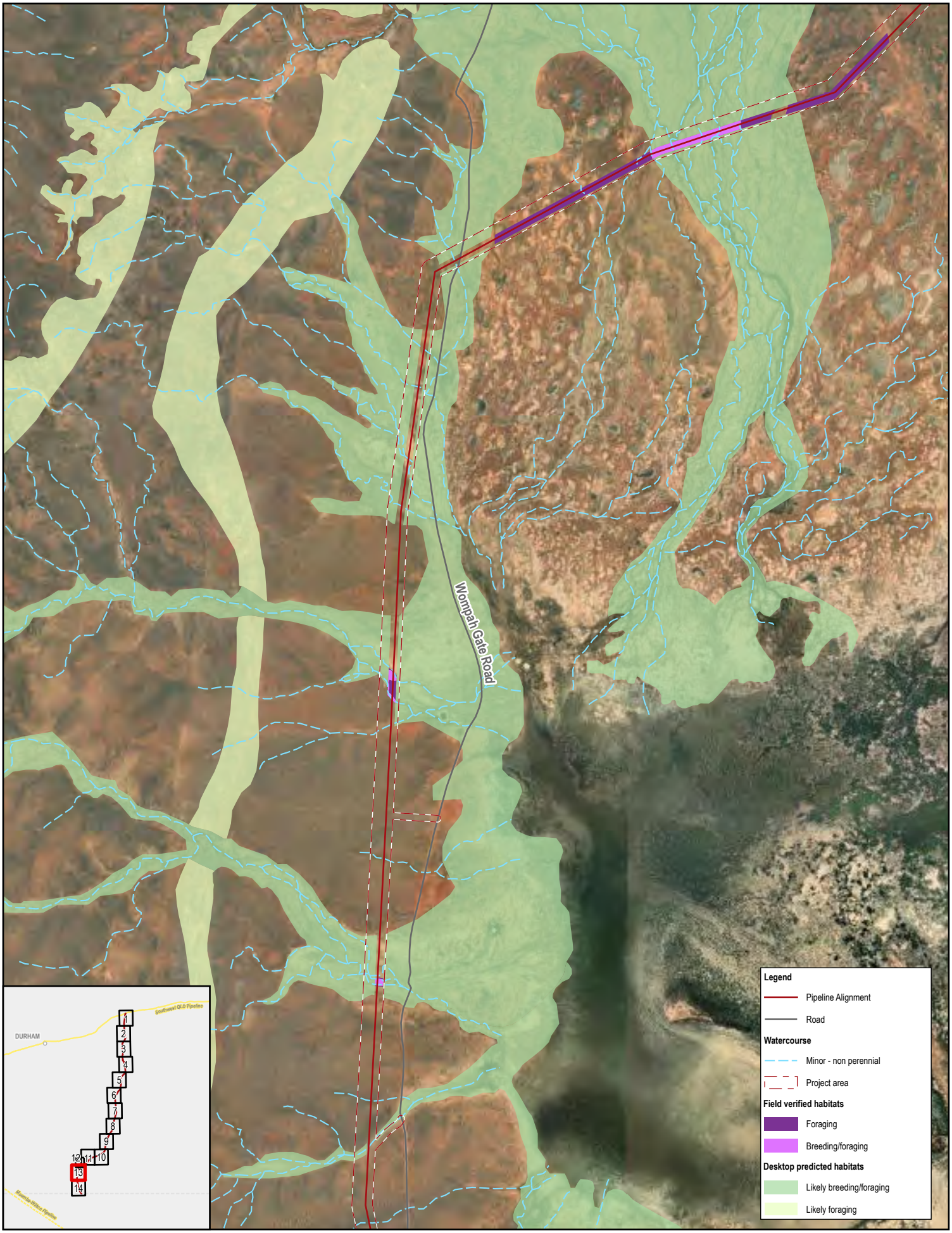
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Figure 4.5

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Paper Size ISO A4

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

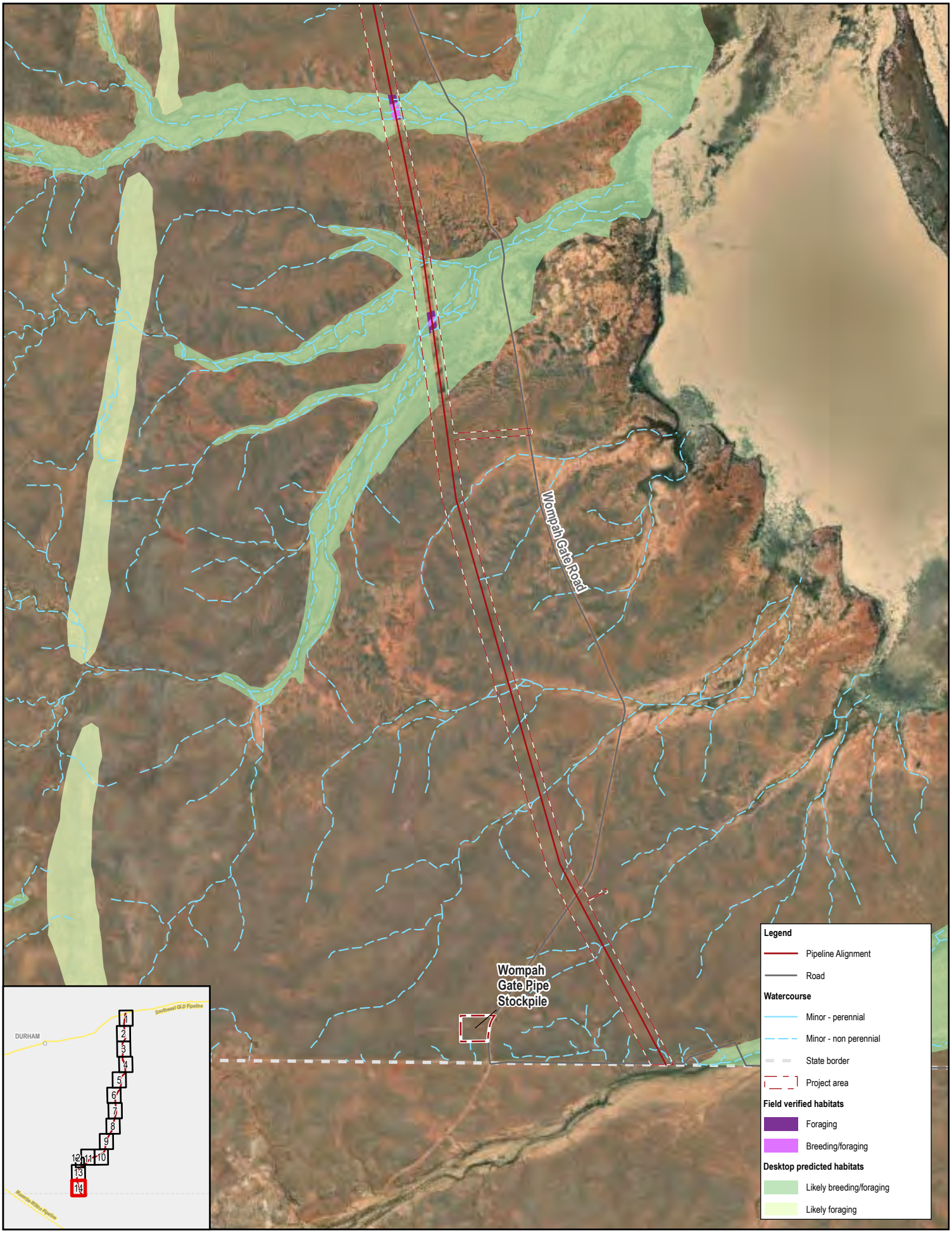
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Figure 4.5

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Southern whiteface habitat distribution

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Figure 4.5

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Pink cockatoo (eastern)

The pink cockatoo (*Lophochroa leadbeateri*) is listed as **endangered** under the NC Act and EPBC Act. Two subspecies are conventionally recognised: *Lophochroa leadbeateri leadbeateri* (eastern) and *Lophochroa leadbeateri mollis* (central–western). However, the subspecies are not reliably distinguishable in the field, and their ranges overlap and intergrade in central Australia (Higgins, 1999; Hurley & Garnett, 2021). As such, records are generally treated at the species level in ecological assessments.

The pink cockatoo (eastern) occurs across inland Australia, with distributions focused on the Murray–Darling, Eyre and Bulloo River basins, from western Queensland through NSW and north-west Victoria into eastern South Australia (Higgins, 1999; Hurley & Garnett, 2021).Pink cockatoos (eastern) inhabit arid and semi-arid woodlands and shrublands dominated by mulga (*Acacia aneura*), mallee and box eucalypts, slender cypress pine (*Callitris gracilis*), and belah (*Casuarina cristata*).

Primary REs assigned as habitat for the pink cockatoo (eastern) within the project site were determined to be:

– **Breeding and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland +/- *Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems.
– **Foraging habitat:**
  - 5.5.1 – *Acacia aneura* low woodland on Quaternary deposits
  - 5.6.4 – *Atalaya hemiglauca +/- Acacia aneura +/- Acacia* spp*. +/- Corymbia terminalis* low open woodland on reticulate sand dunes.

These were selected due to the on ground observed habitat traits associated with the species as well as related features in the habitat descriptions.

The species requires access to fresh surface water and large HBTs for nesting, which may take over a century to form (Higgins, 1999; Gibson & Florentine, 2008; OEH, 2017). Birds feed primarily on seeds of native shrubs and trees, occasionally on roots, bulbs and insect larvae, and will also use agricultural seed resources. They occur singly, in pairs, or in small groups, with larger flocks forming in areas of abundant food (Moonlit Sanctuary, 2020).

Breeding pairs are territorial and generally nest at wide intervals from one another. Home ranges are approximately 30 km², and movement between feeding and water sites often occurs along vegetated corridors and roadside remnants (Saunders et al., 1985). Targeted large-tree and HBT transects conducted across high-value habitat areas within the project site indicated that only a few localised patches contained trees with suitable cavity dimensions for nesting (Gibson & Florentine, 2008), suggesting that potential breeding habitat for the pink cockatoo (eastern) is limited to older growth, Eucalyptus dominated watercourse vegetation. Pink cockatoos generally prefer to nest in hollows with the following dimensions (Hurley & Harris, 2014):

– average hollow entrance diameter of 13.3 cm x 27.7 cm (range of 8–30 cm x 9–80 cm, horizontal x vertical diameter)
– average hollow depth of 53.9 cm (range of 19–180 cm)
– average nest chamber floor diameter of 18 cm (range of 9–34 cm)
– average nest tree diameter at breast height of 72.5 cm (range of 34–149 cm).

High-value habitat for the pink cockatoo (eastern) was identified at one key crossing, the Wilson River due to the large presence of DBH HBTs.

The pink cockatoo (eastern) was not detected during field surveys. However, an individual pink cockatoo (eastern) was recorded within the broader project area during targeted surveys undertaken by a subcontracted team in the NSW portion of the project in December 2025. This record, together with the availability of suitable foraging and nesting habitat, supports an assessment that the species is likely to occur within the project site. numerous records exist within the broader region, and the species is considered likely to occur in suitable woodland and riparian habitats within the project area (ALA, 2025).

For all species, habitat mapping has been informed by field verified RE extent in areas that support suitable resources and microhabitat features. For pink cockatoo (eastern), additional survey effort in January 2026 captured fine scale availability of HBTs, to inform micro-siting of the alignment. While the alignment may still traverse the broadly suitable habitat areas (as depicted on Figure 4.6), important breeding features were able to be avoided.

Blue-winged parrot

The blue-winged parrot is listed as **vulnerable** under the NC Act and EPBC Act. The species breeds mainly in Tasmania, southern Victoria, and coastal south-eastern South Australia, nesting in hollows of live or dead trees and stumps, with clutches of 4–6 eggs (Higgins, 1999). It is a partial migrant, with large numbers moving across the Bass Strait in autumn to winter in mainland south-eastern Australia, including inland NSW and Queensland (Higgins, 1999; Holdsworth et al., 2021). Movements are highly variable and not fully understood, though flocks are known to travel >100 km inland during the non-breeding period (Holdsworth et al., 2021).

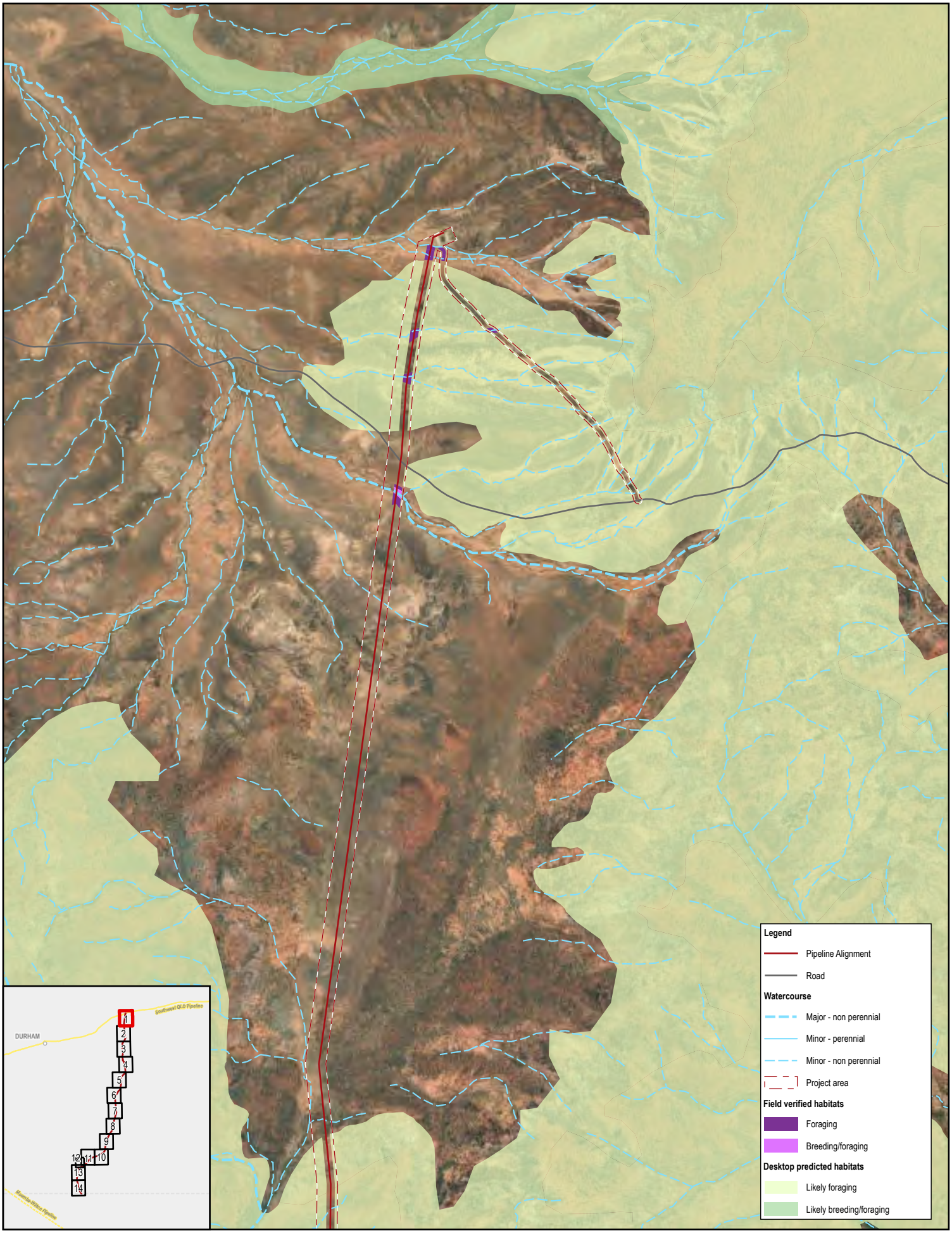
Blue-winged parrots use a broad range of habitats, favouring grasslands, grassy woodlands, semi-arid chenopod shrublands, and areas near wetlands in both coastal and inland zones. They readily use altered habitats such as airfields, golf courses, and paddocks. Foraging occurs mostly near or on the ground, targeting seeds of native and introduced grasses, herbs, and shrubs (Higgins, 1999). Before autumn migration from Tasmania, large flocks congregate in saltmarsh and agricultural land, later dispersing across the mainland.

Within the project site, abundant suitable foraging and staging habitat is present in the form of grasslands, grassy woodlands, and semi-arid chenopod shrublands with native and introduced grasses, herbs, and shrubs (DCCEEW, 2023b). The primary REs assigned as habitat for the blue-winged parrot within the project site were determined to be:

– **Foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland +/- *Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp. open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks
  - 5.5.1 – *Acacia aneura* low woodland on Quaternary deposits
  - 5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments
  - 5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica*, *A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur
  - 5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields
  - 5.6.4 – *Atalaya hemiglauca +/- Acacia aneura +/- Acacia* spp. *+/- Corymbia terminalis* low open woodland on reticulate sand dunes
  - 5.9.3 – *Astrebla* spp. +/- short grasses +/- forbs open tussock grassland to herbland.

These were selected due to the on ground observed habitat traits associated with the species as well as related features in the habitat descriptions.

The species was confirmed present during the initial mobilisation in the southern portion of the alignment between KP 217 and KP 218 during the survey, with numerous additional records in and adjacent to the project area (ALA, 2025). Suitable habitat distribution within the project site is shown in Figure 4.7.



Paper Size ISO A4

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

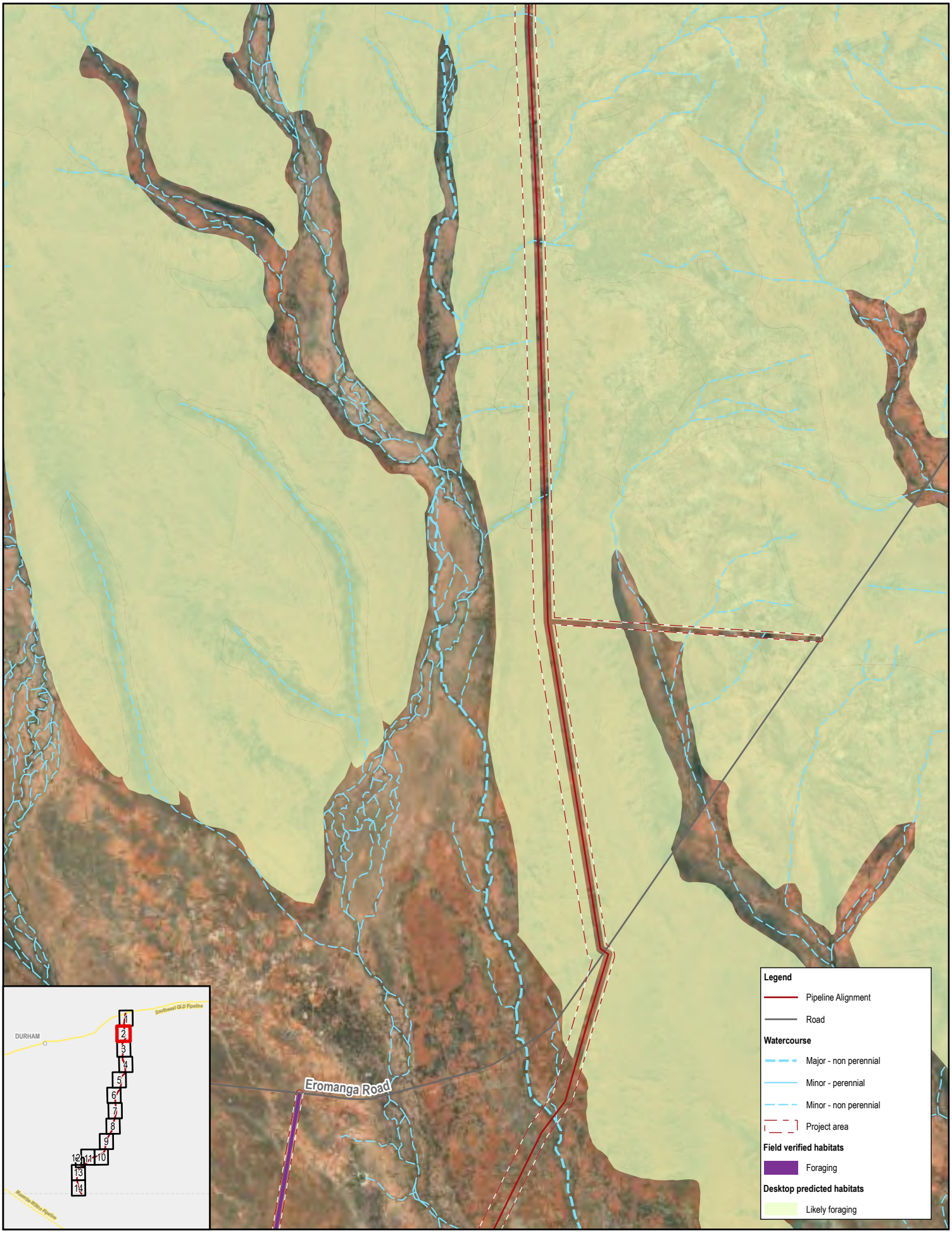
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Figure 4.6

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Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

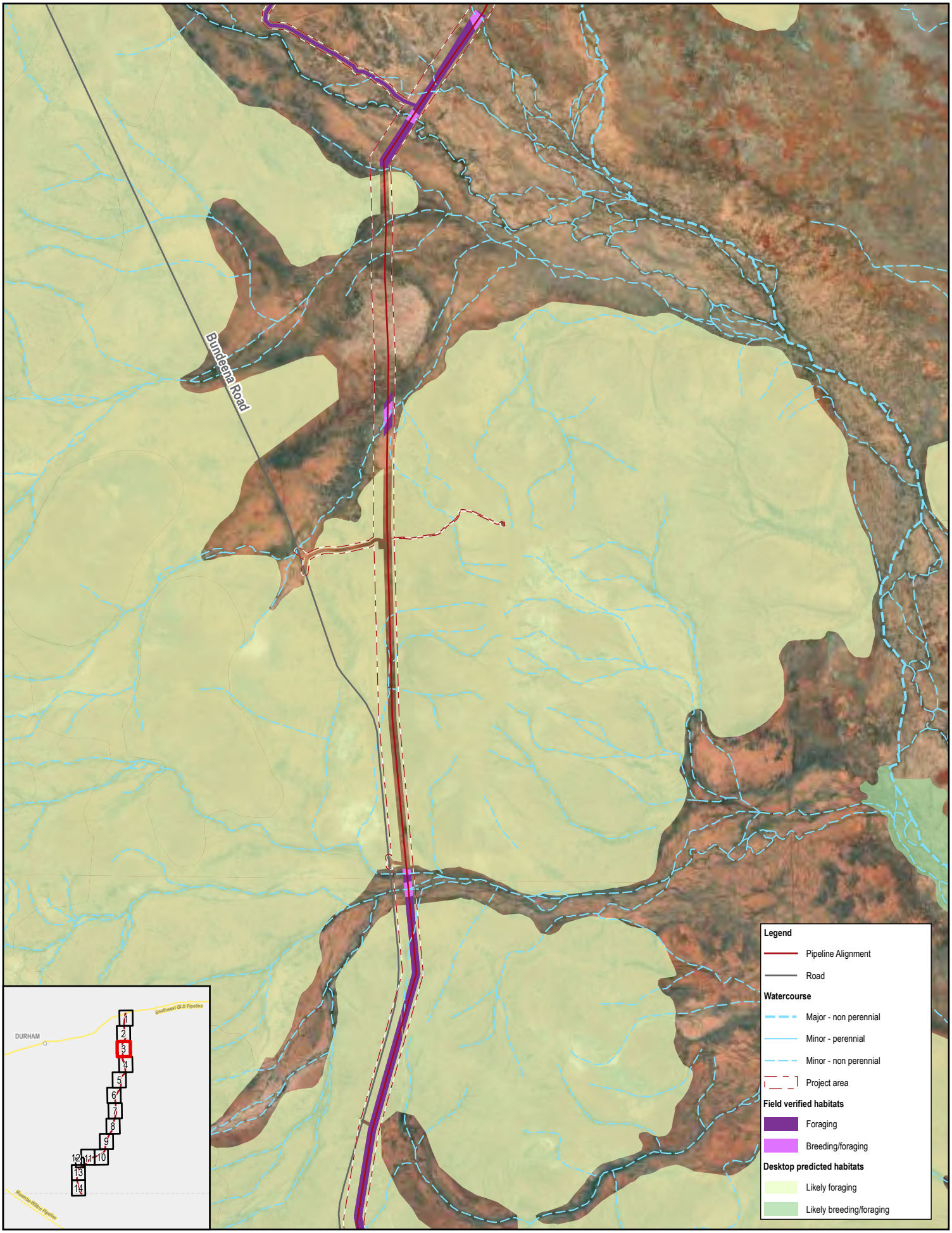
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Figure 4.6

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Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

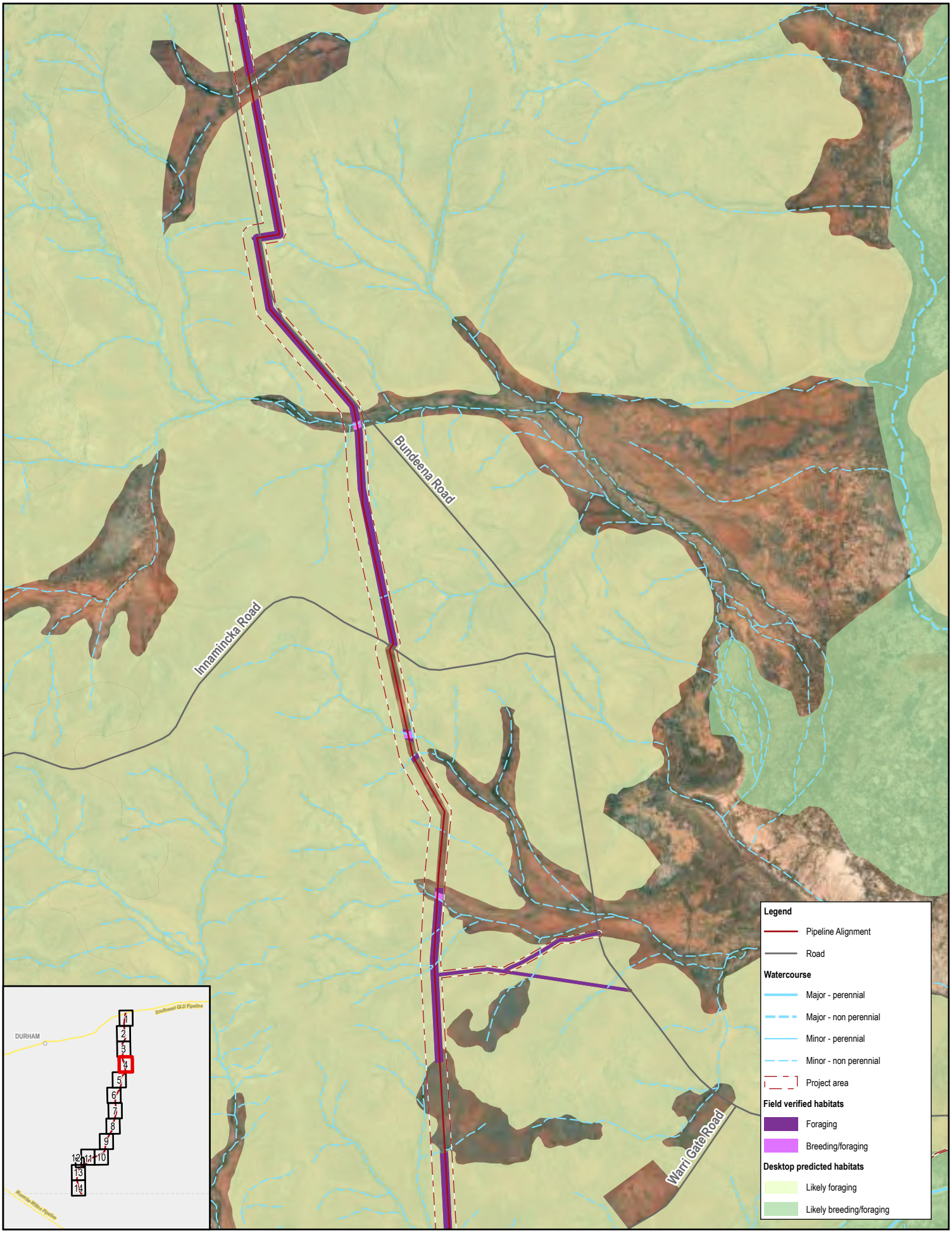
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Figure 4.6

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Paper Size ISO A4

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

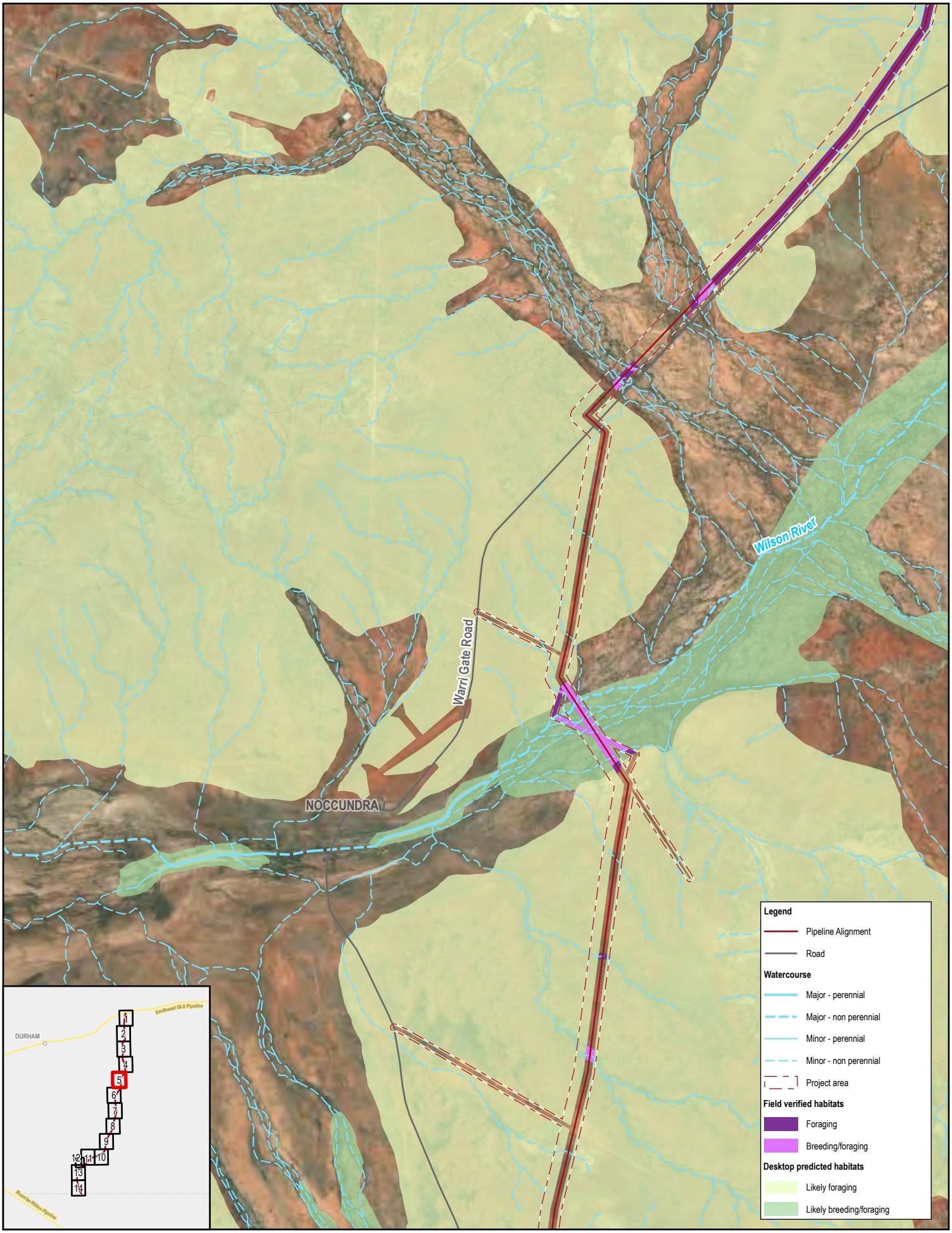
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Figure 4.6

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Kilometres

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APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

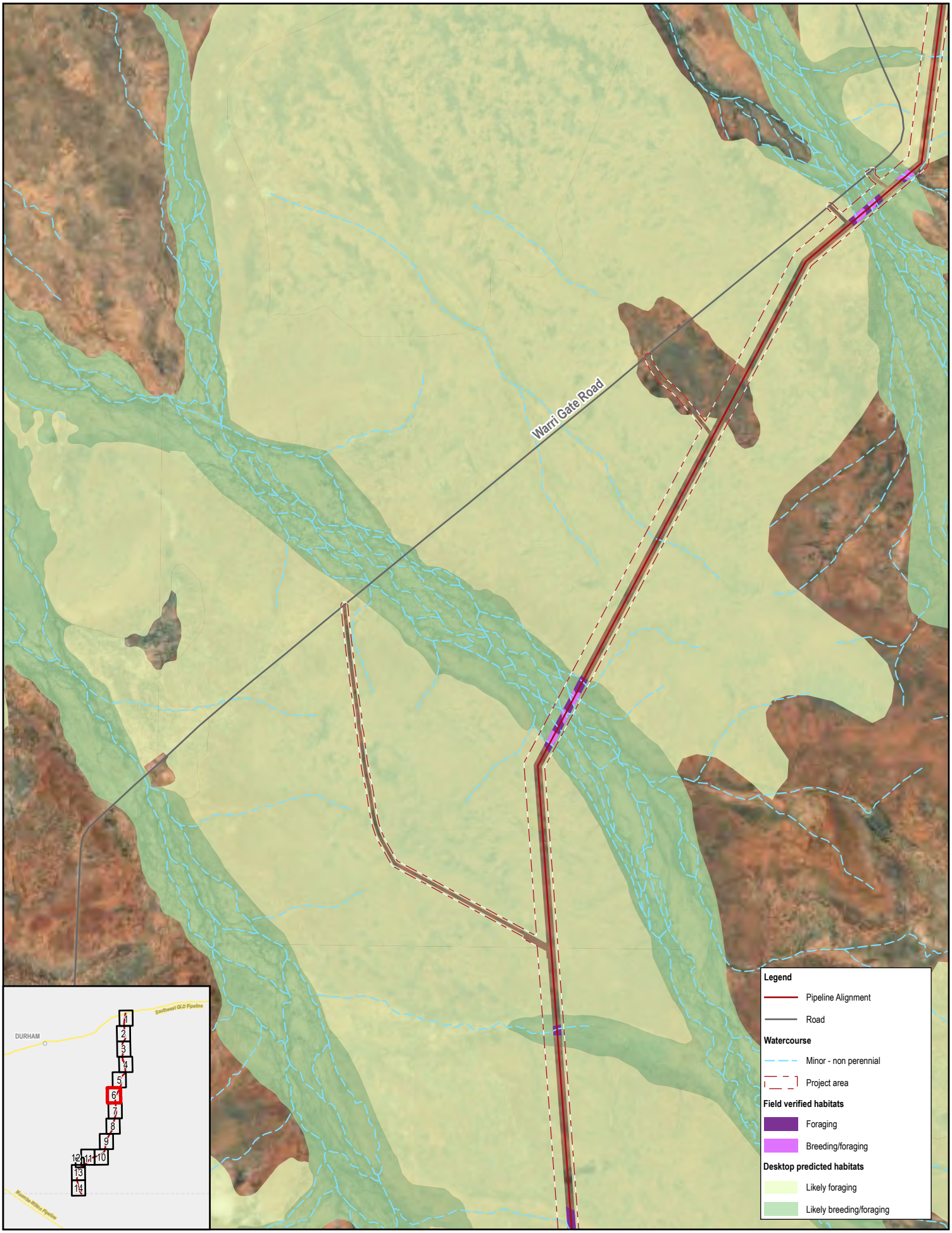
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Figure 4.6

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

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Figure 4.6

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Kilometres

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APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

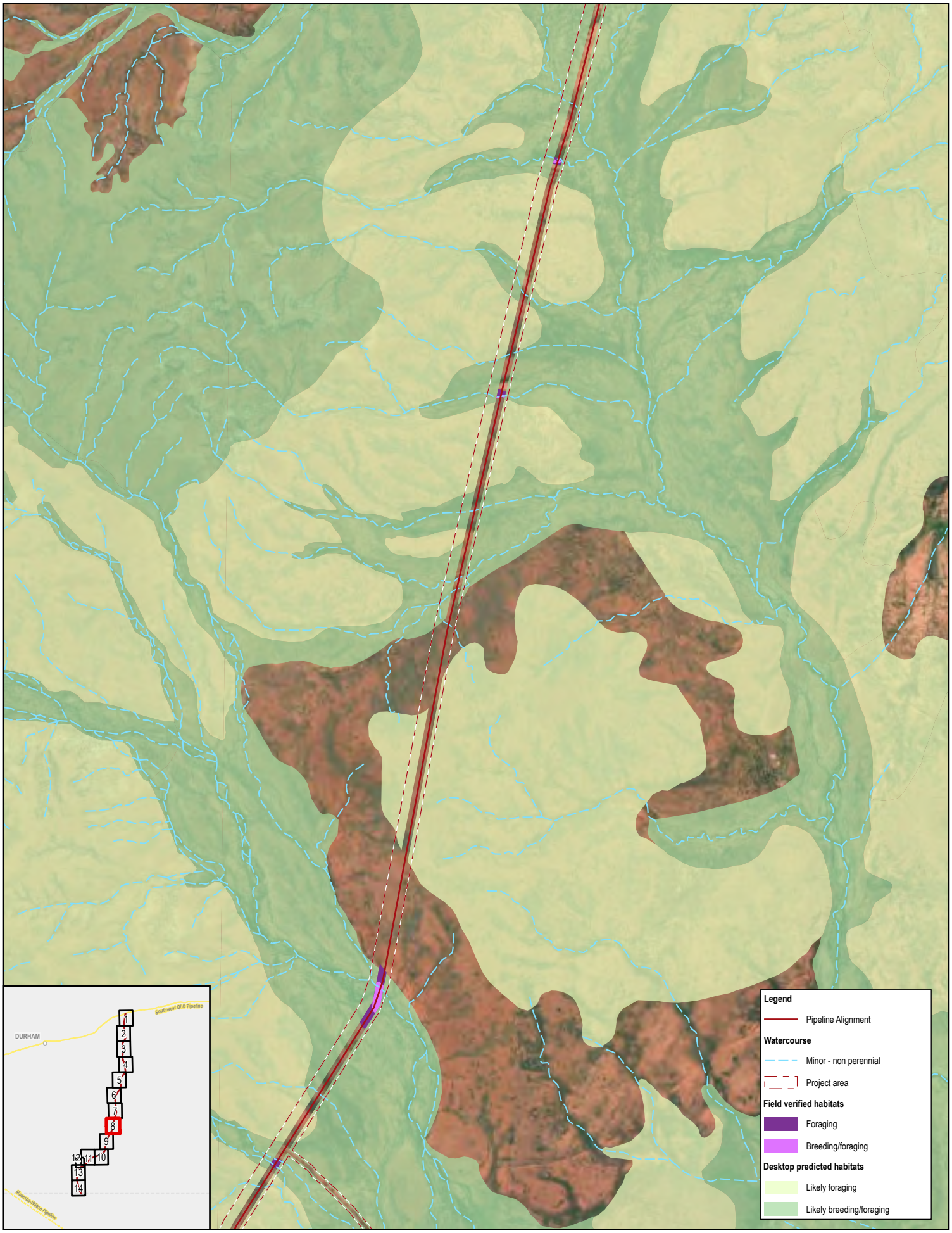
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Figure 4.6

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

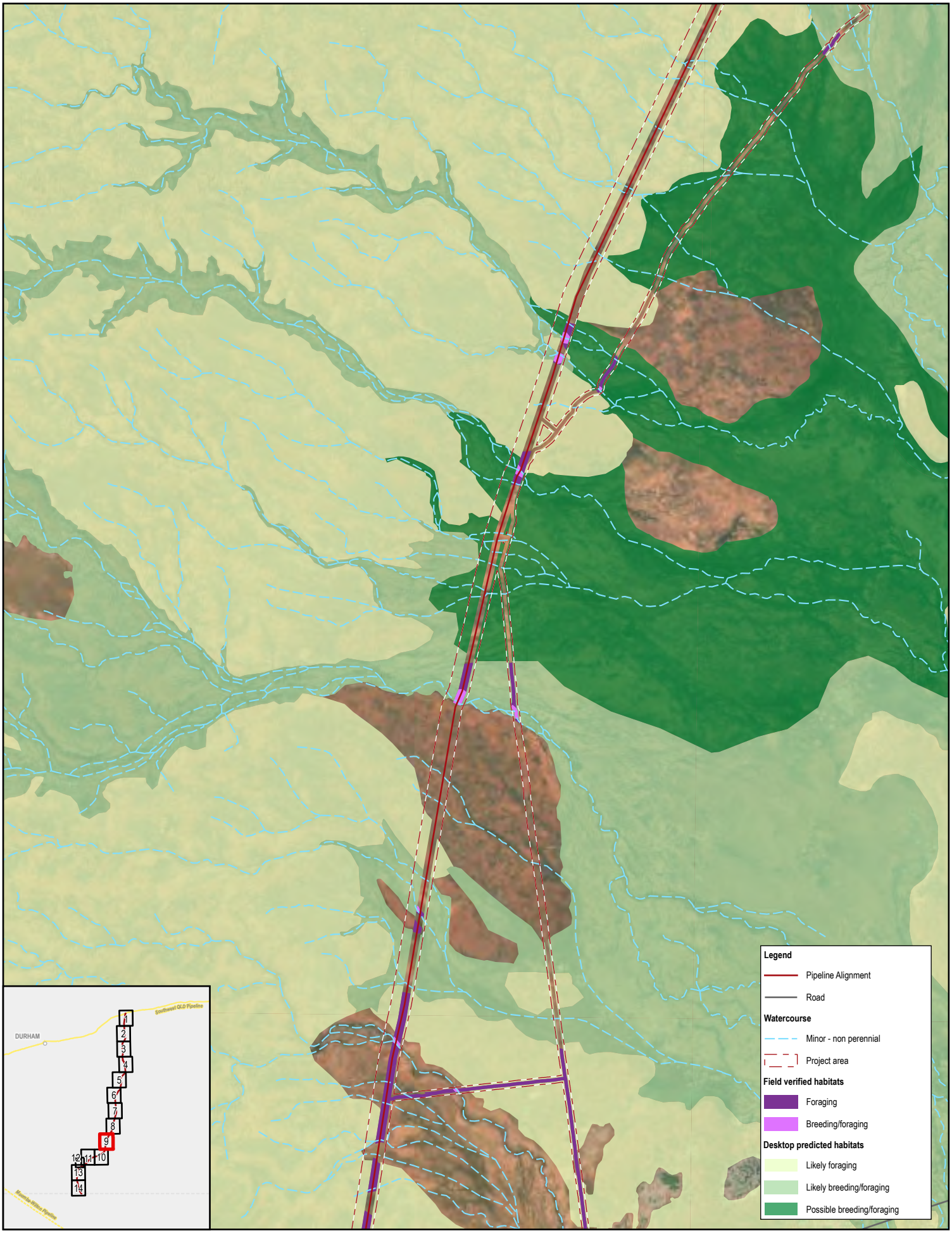
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Figure 4.6

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Kilometres

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

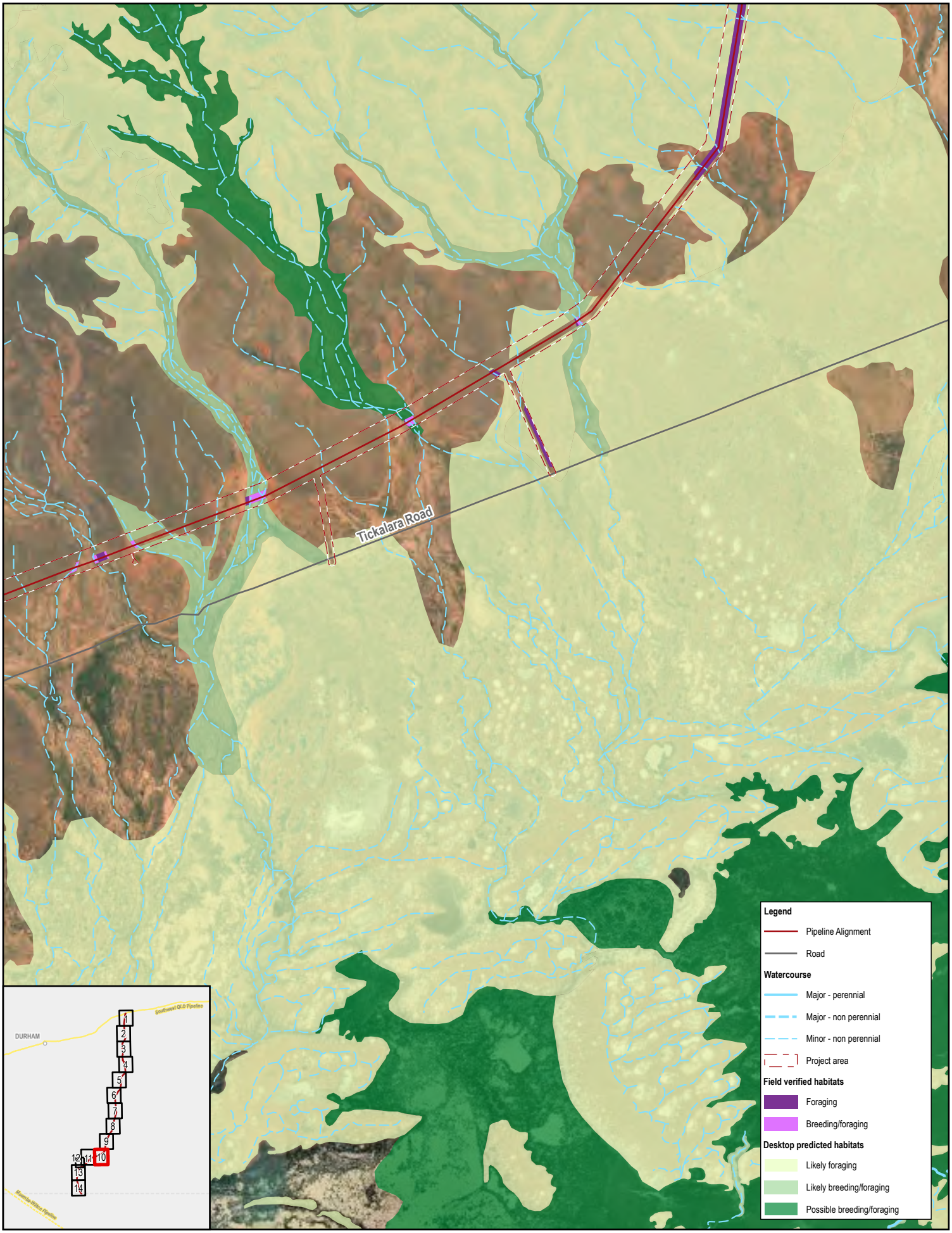
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Figure 4.6

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

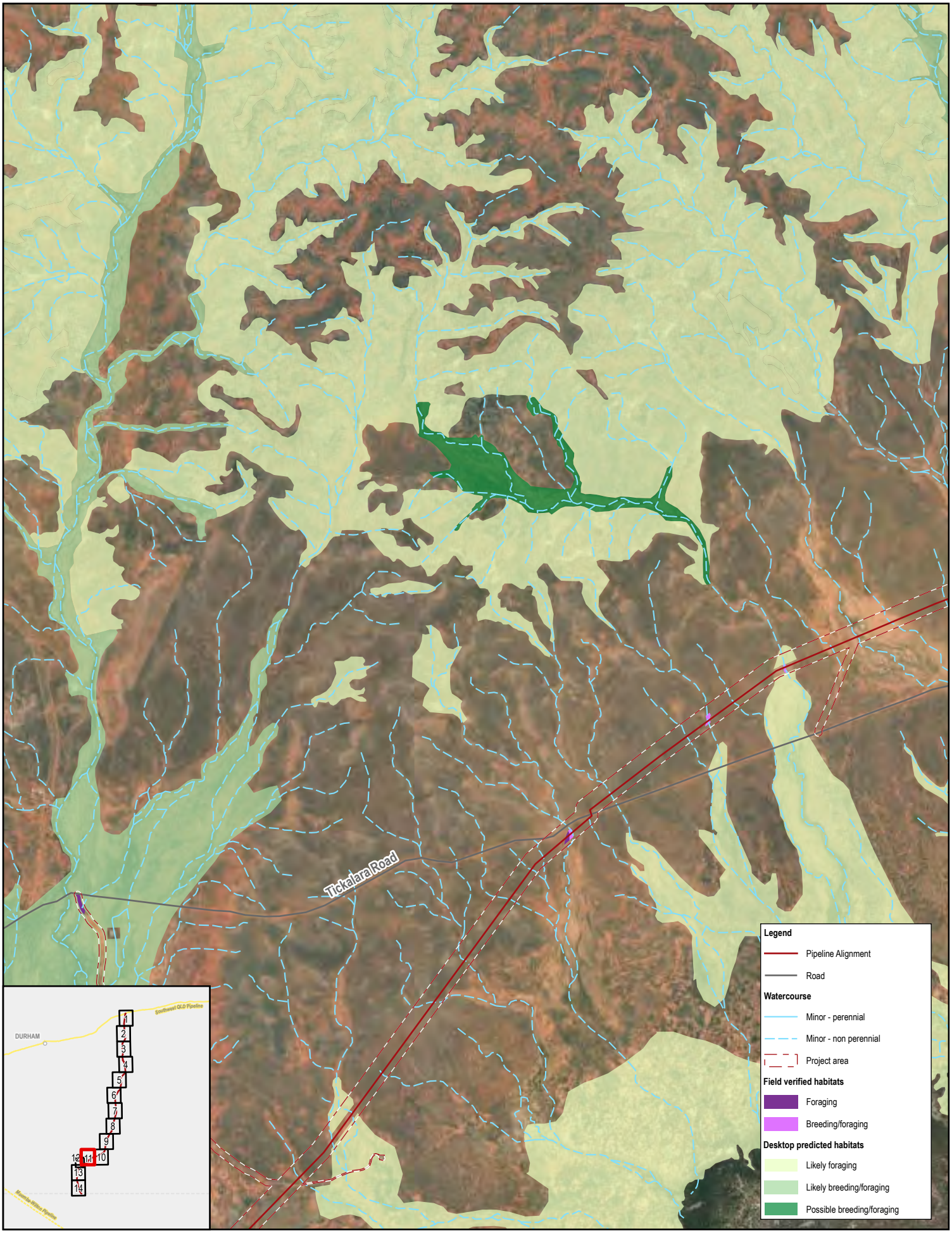
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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

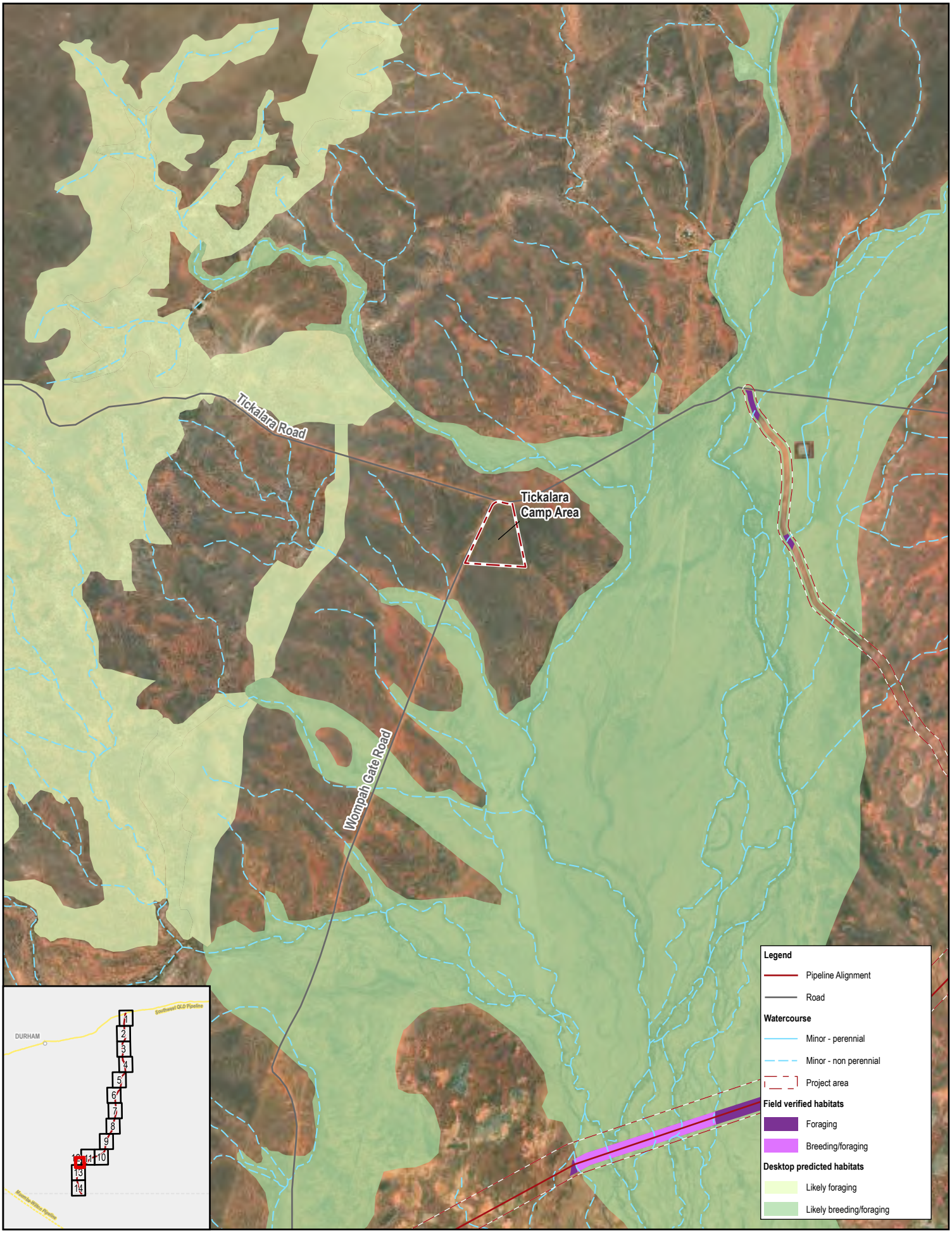
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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

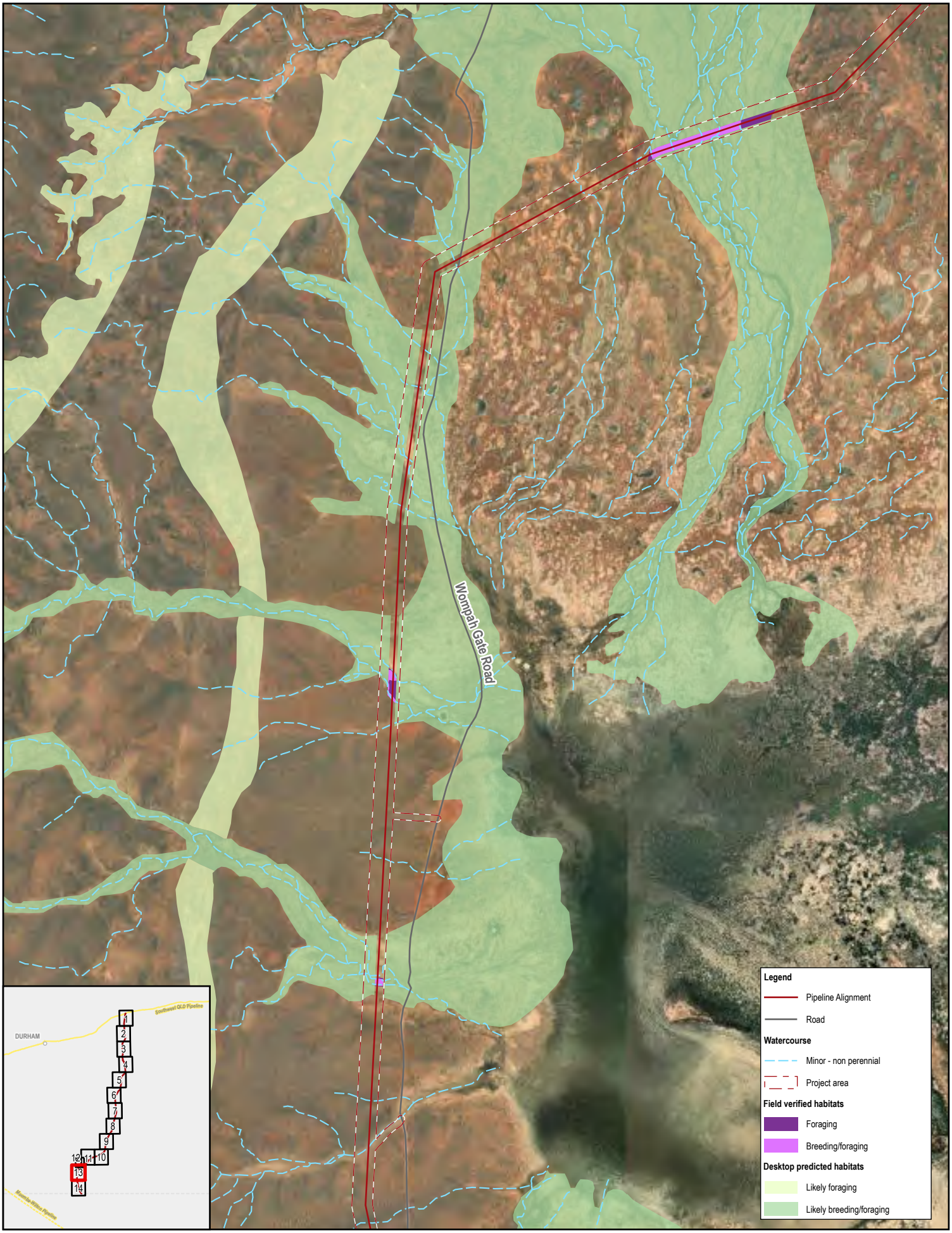
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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

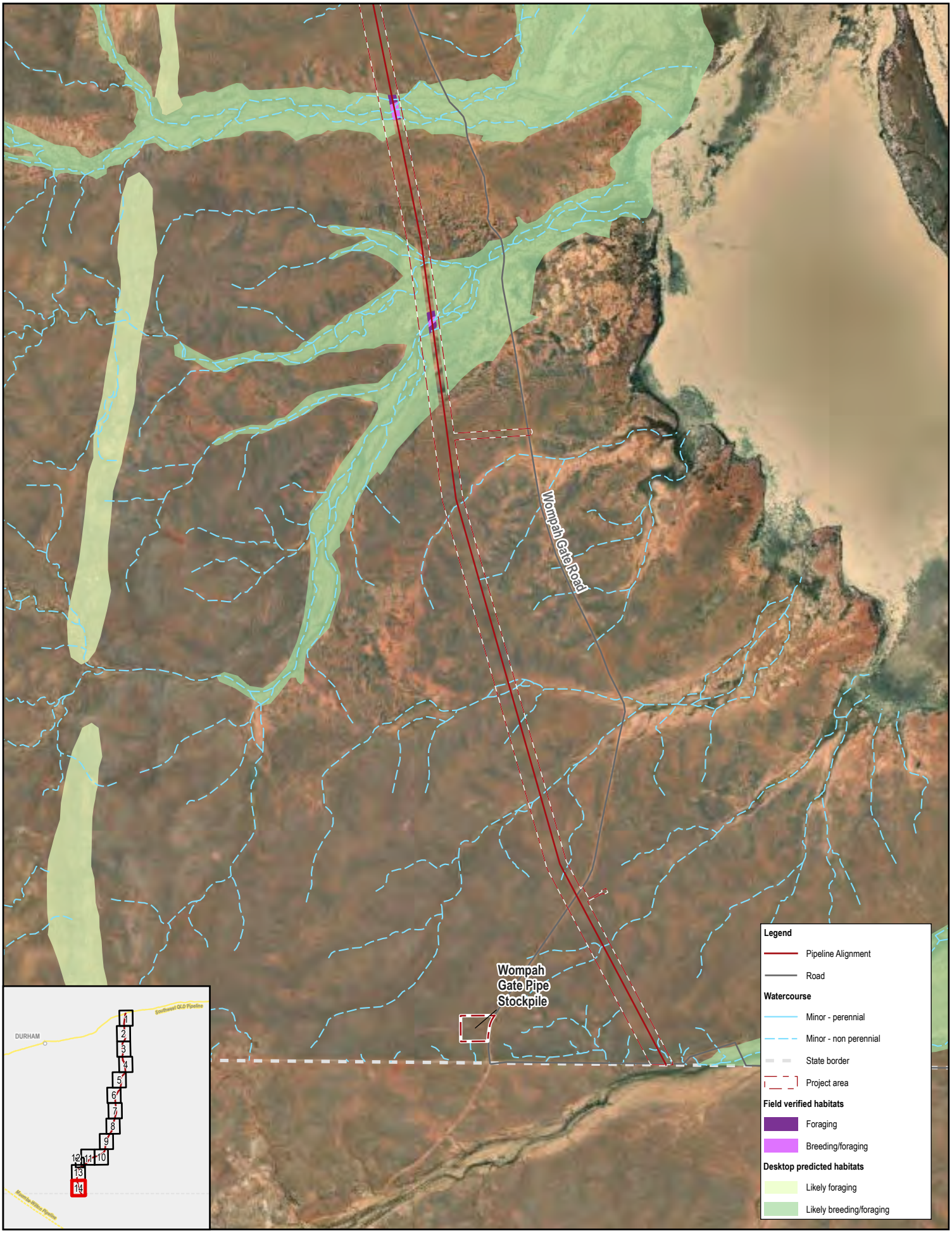
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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Pink cockatoo (eastern) habitat distribution

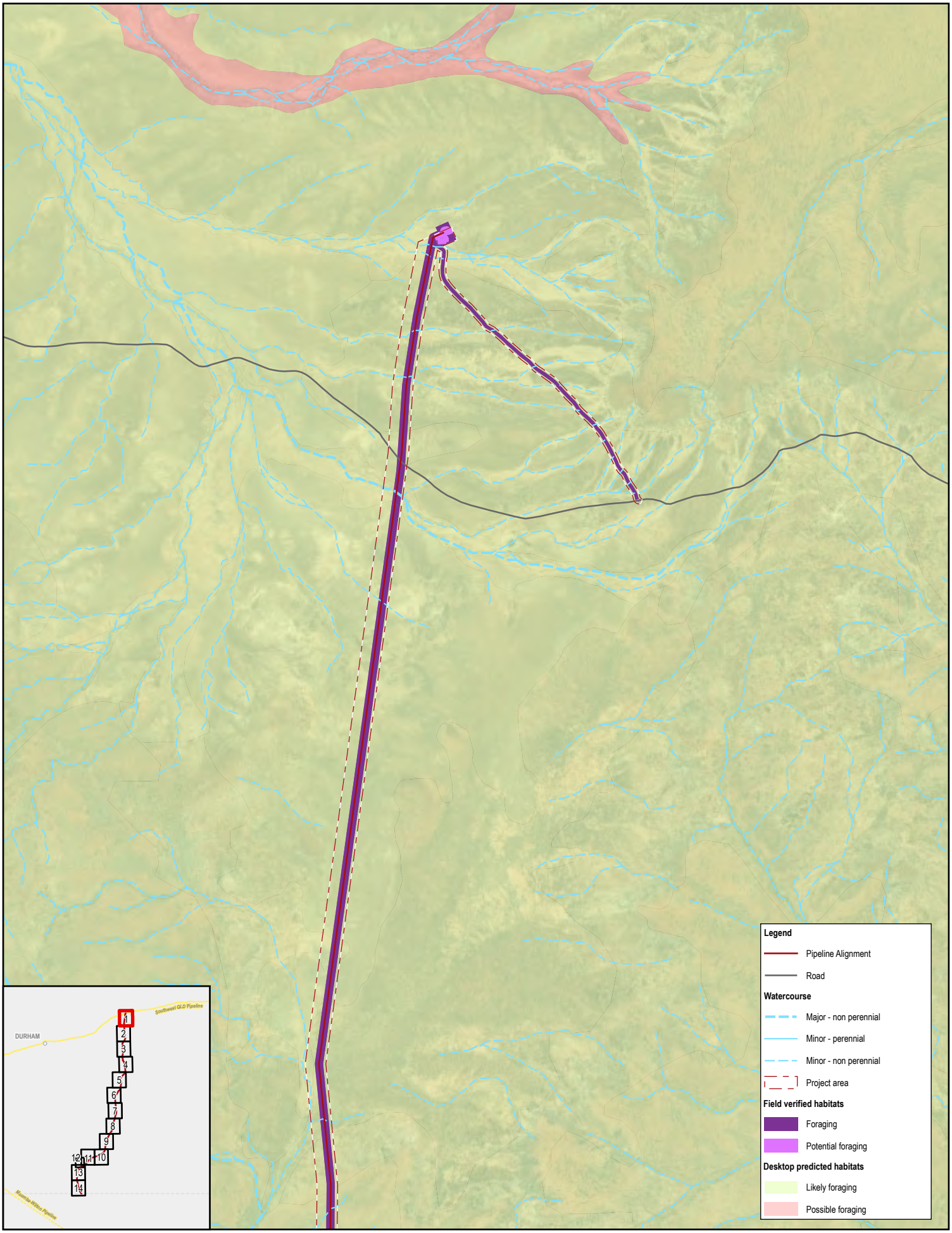
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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

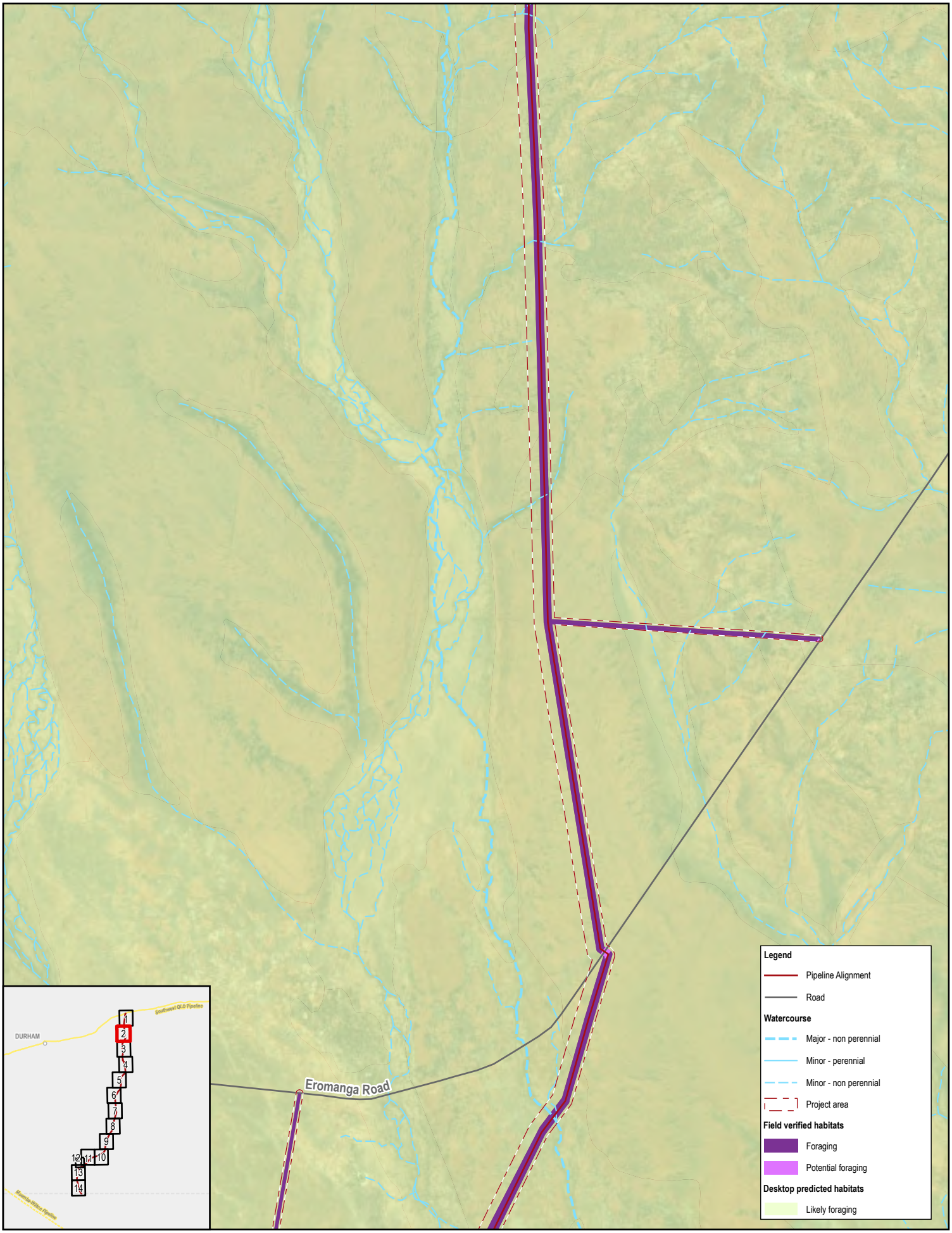
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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

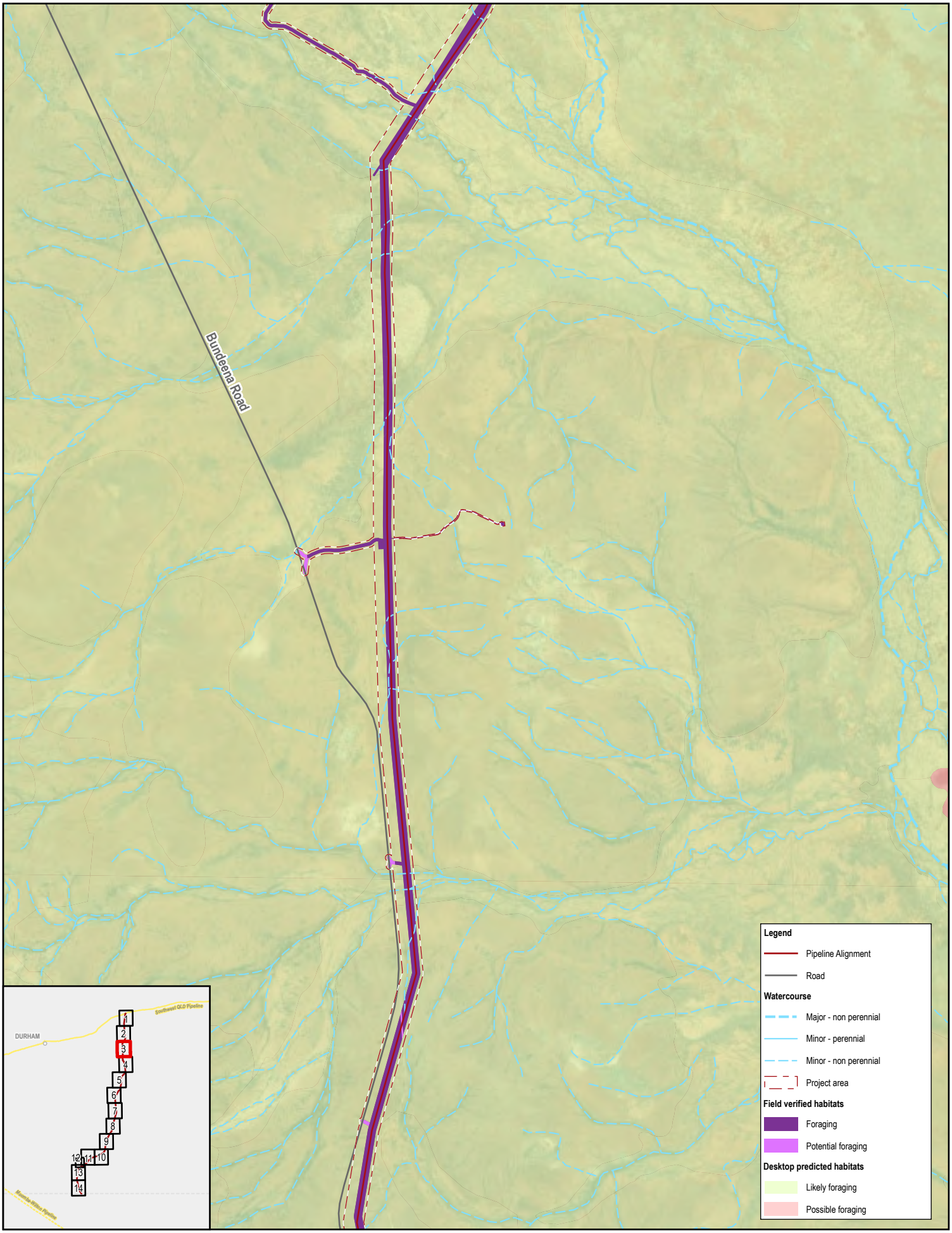
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Figure 4.7

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

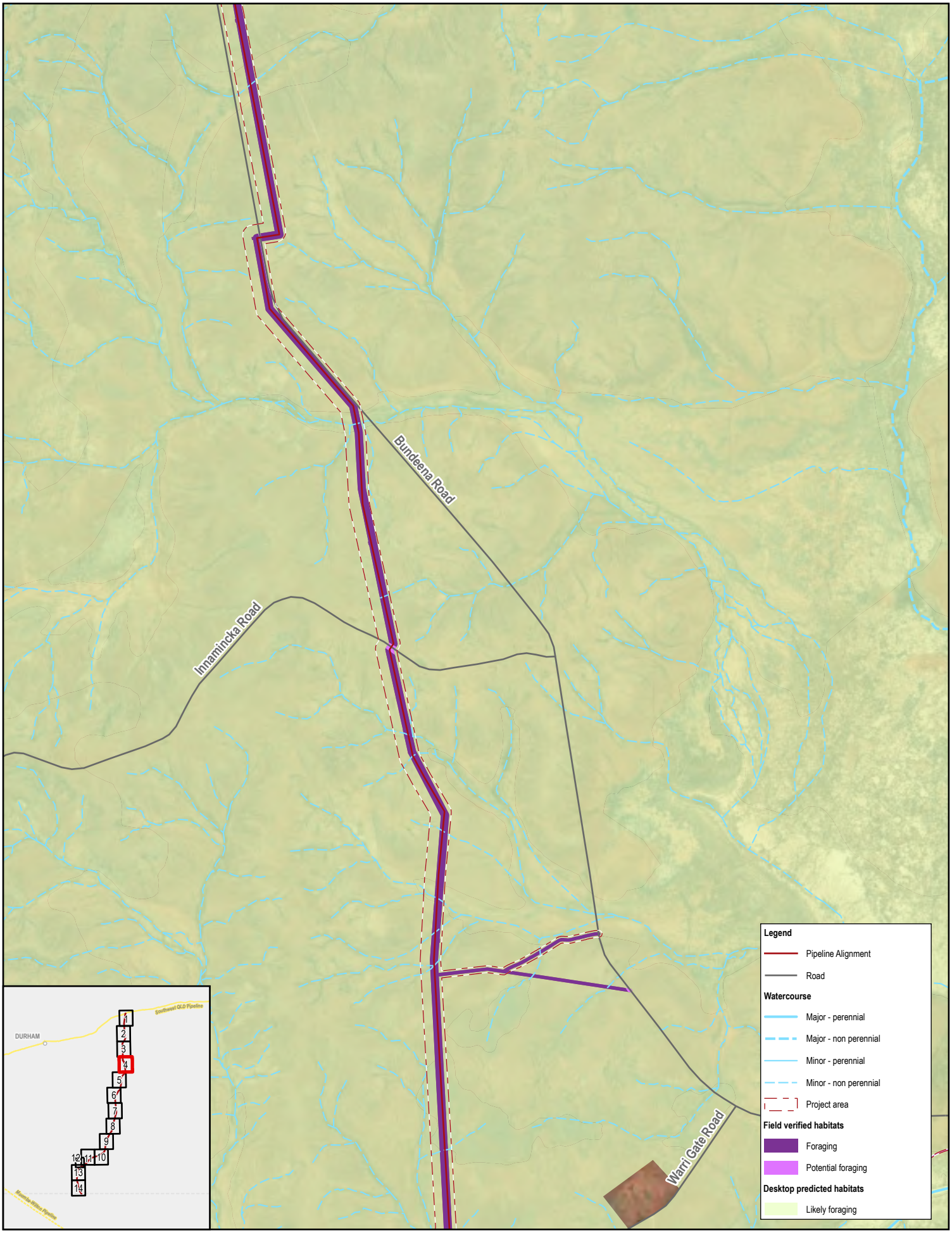
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Kilometres

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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

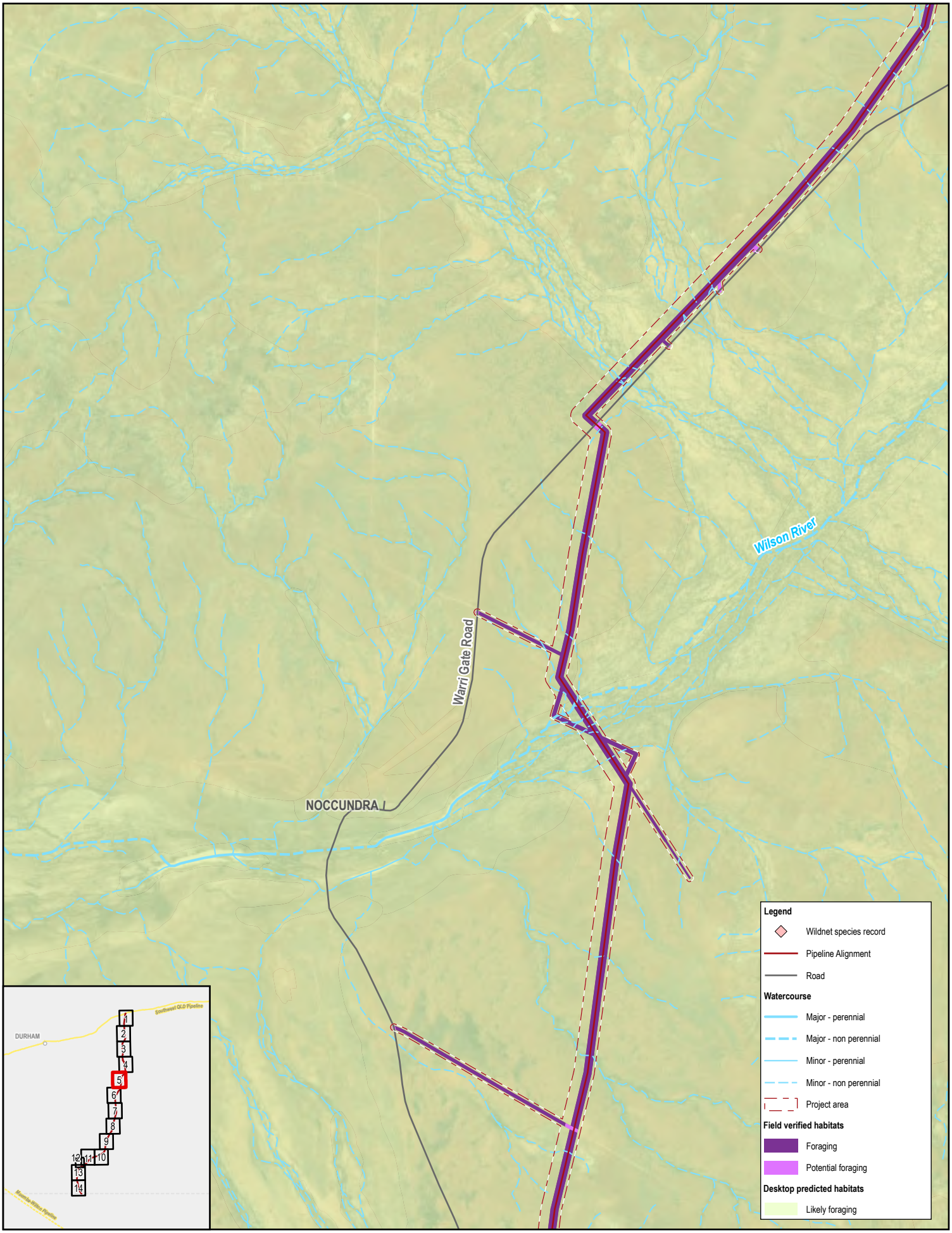
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Figure 4.7

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

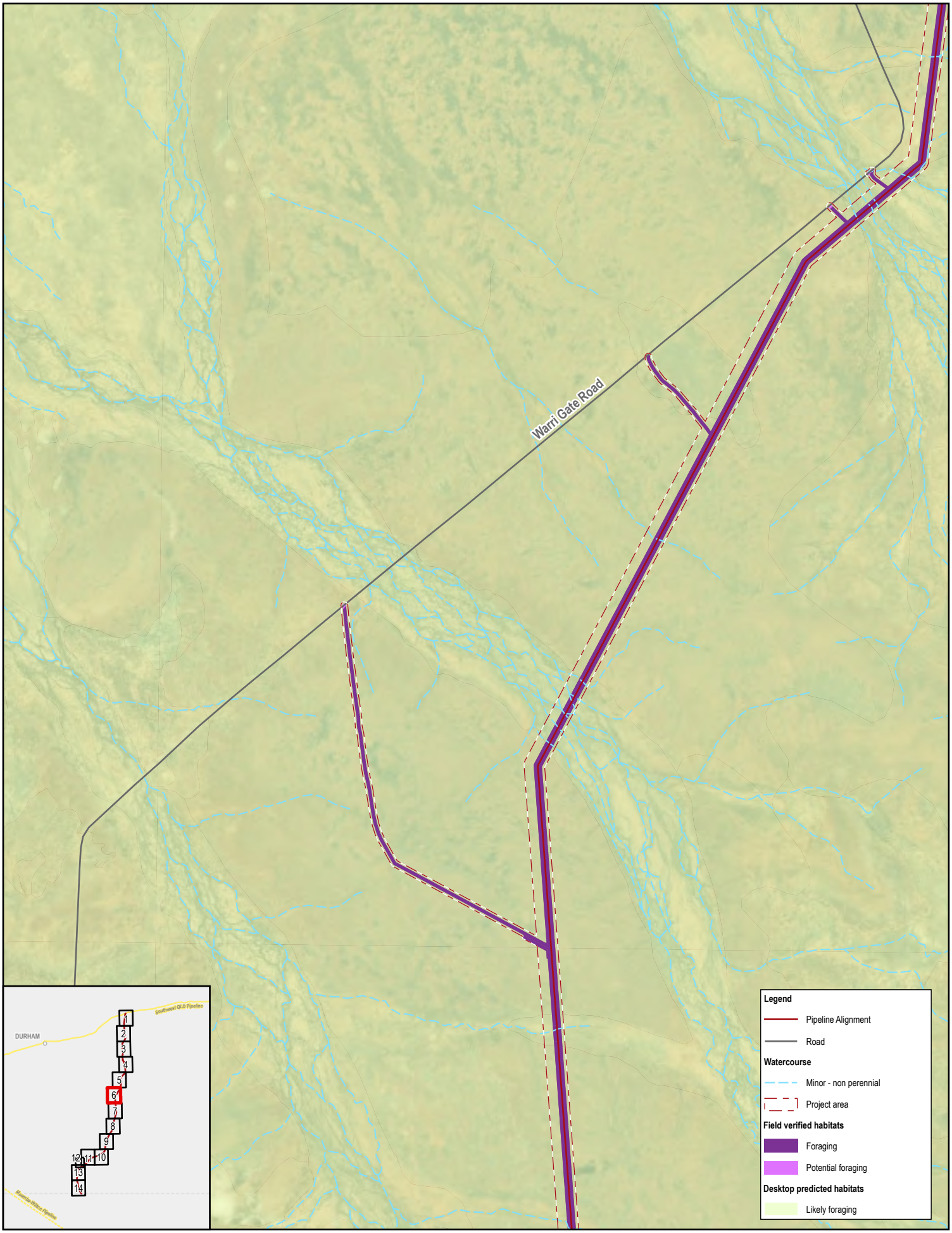
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Figure 4.7

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

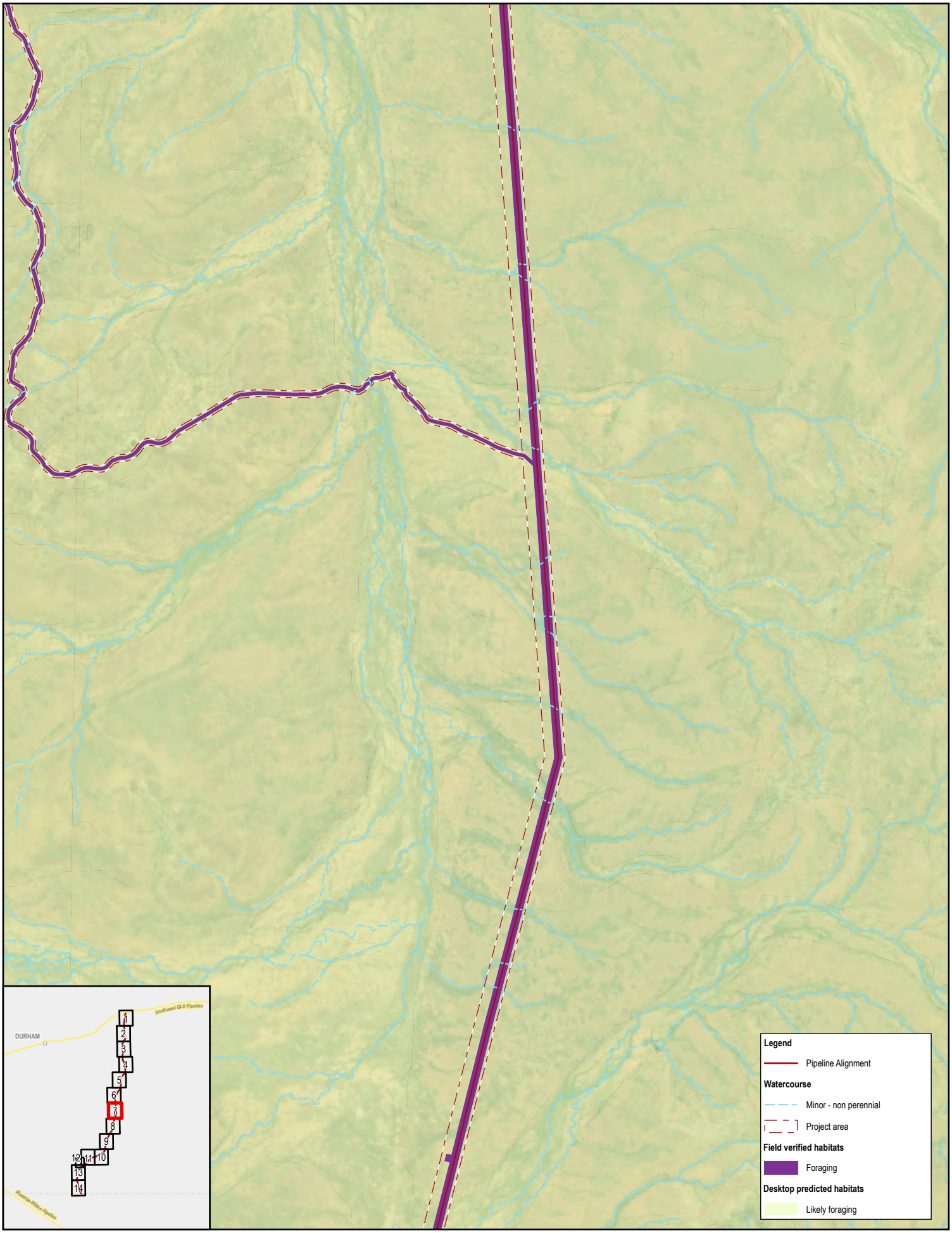
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Kilometres

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

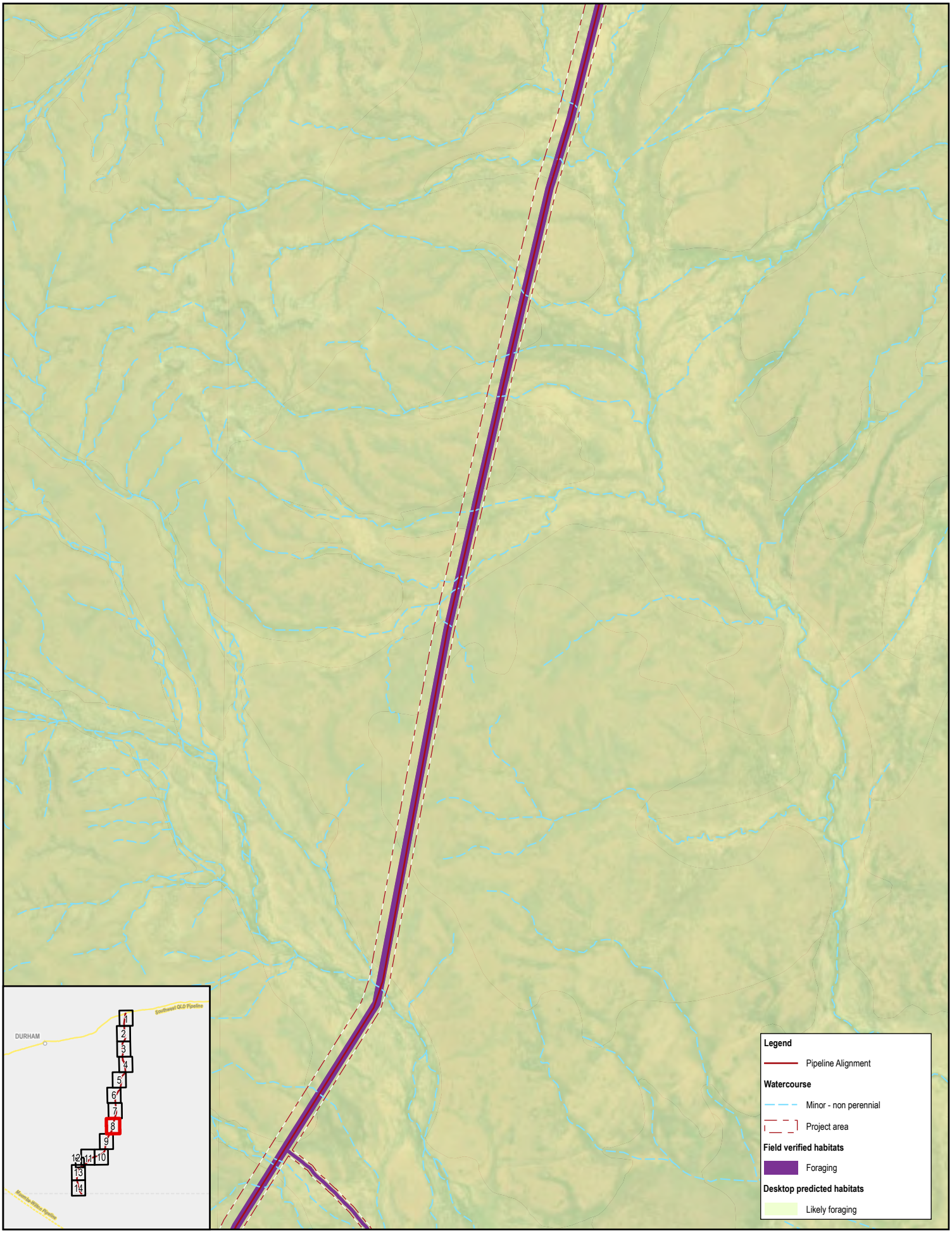
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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

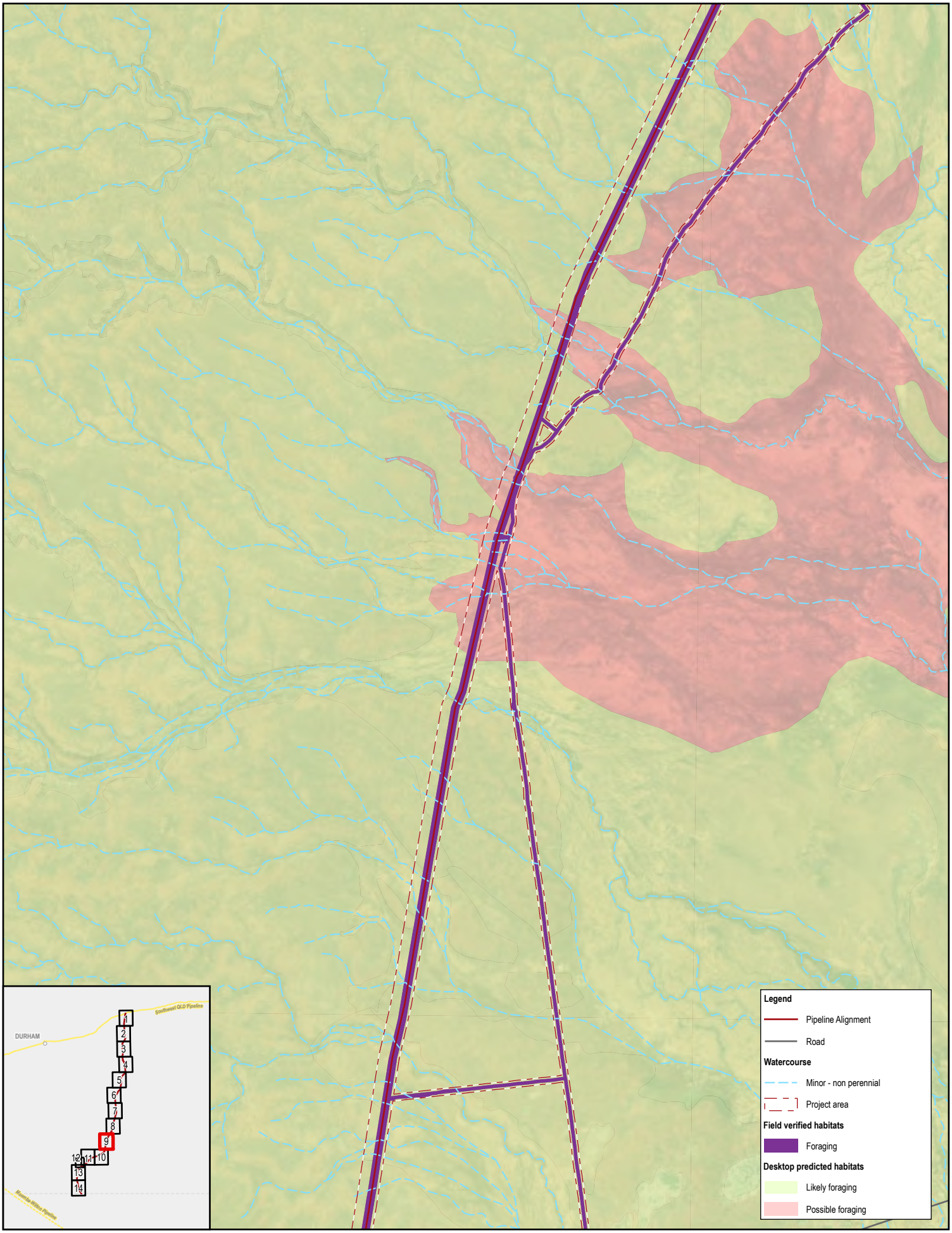
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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

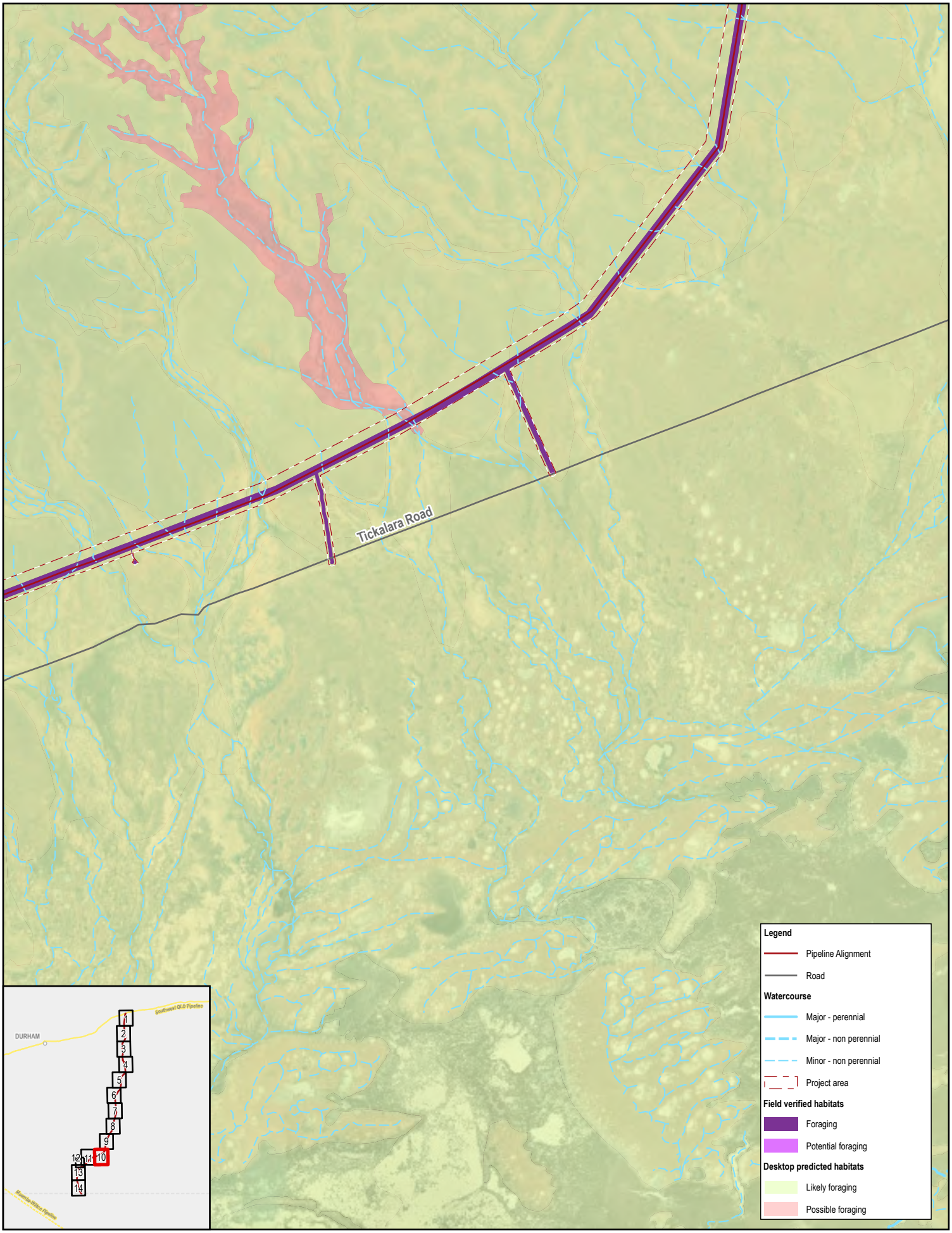
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Figure 4.7

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

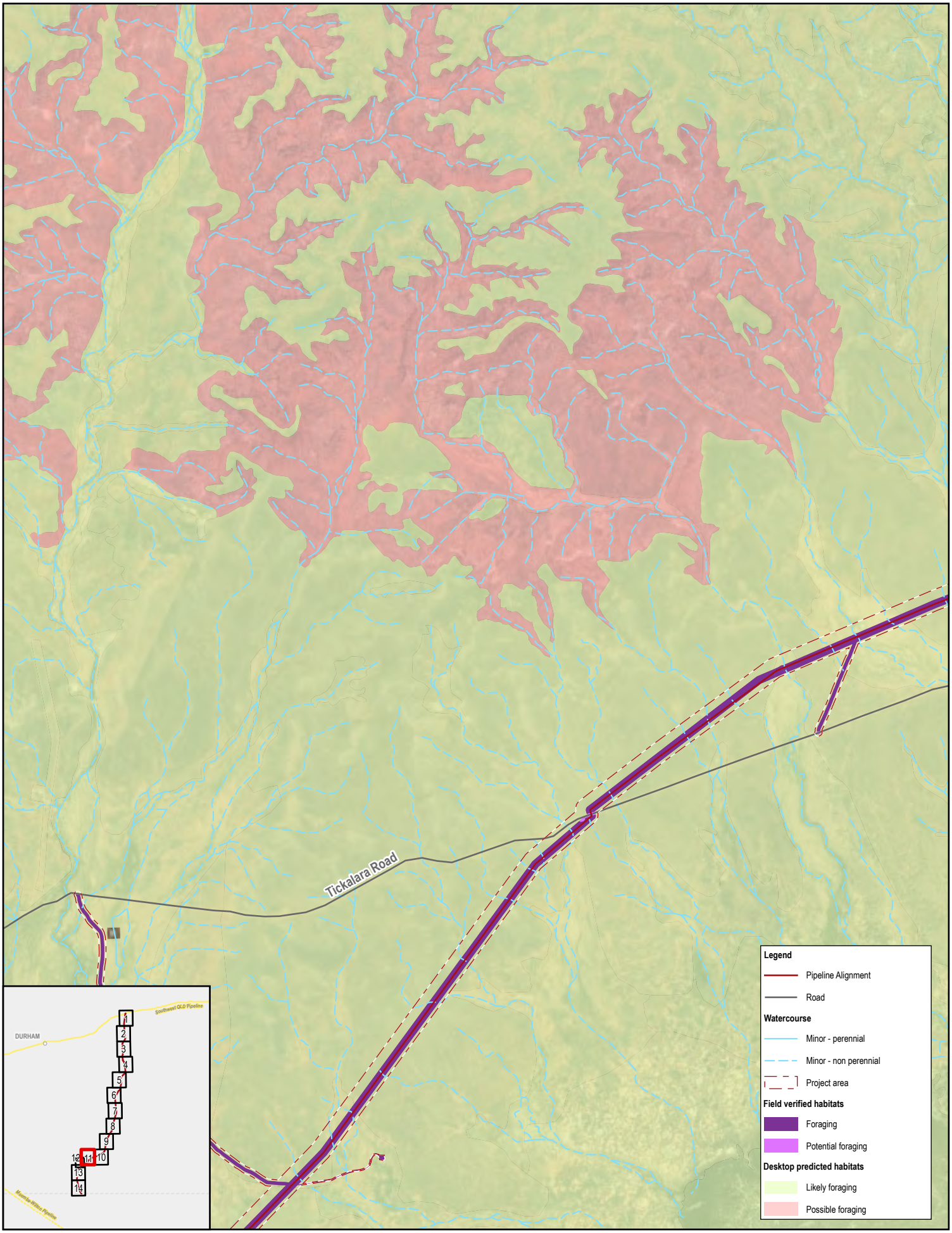
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Figure 4.7

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

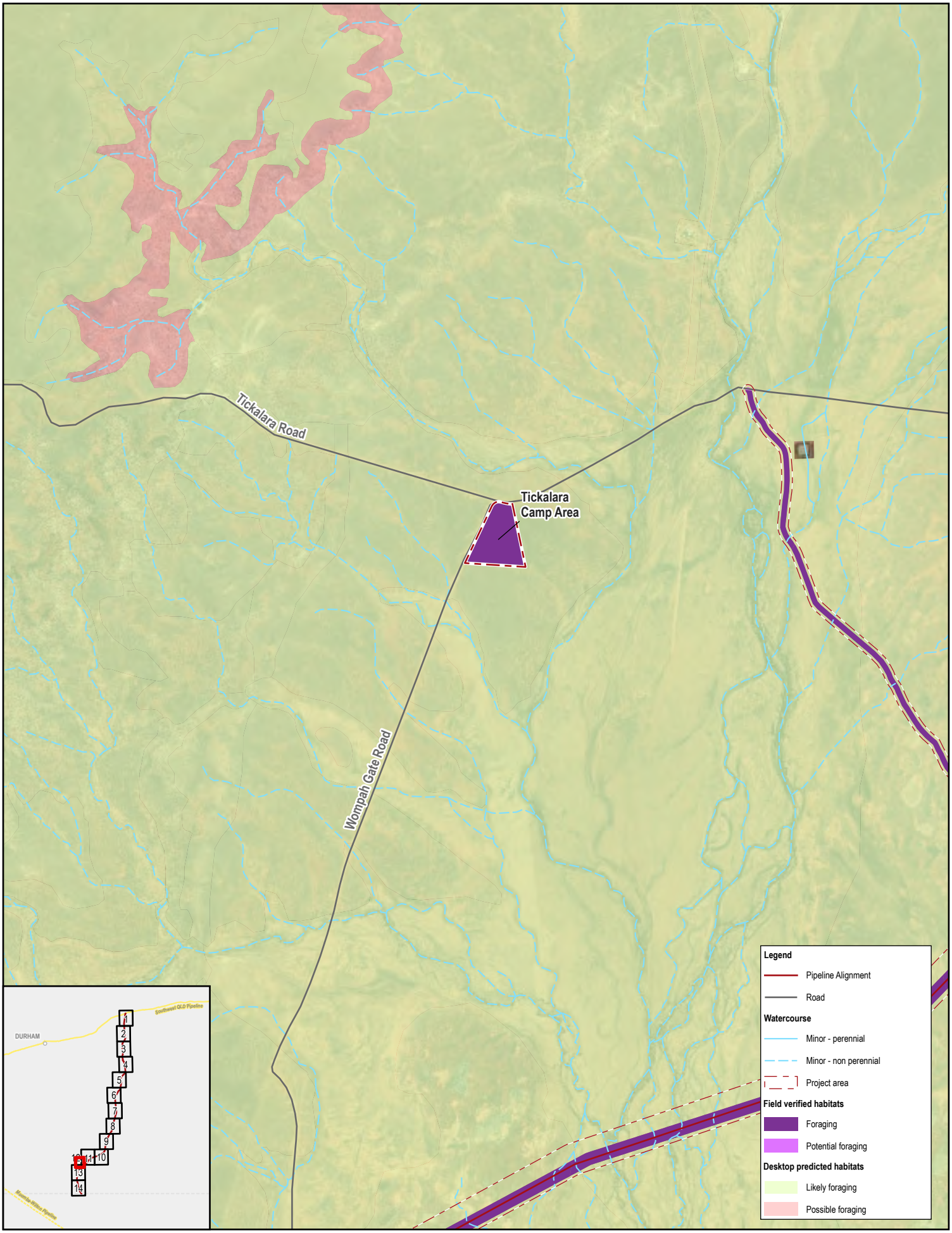
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Figure 4.7

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APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

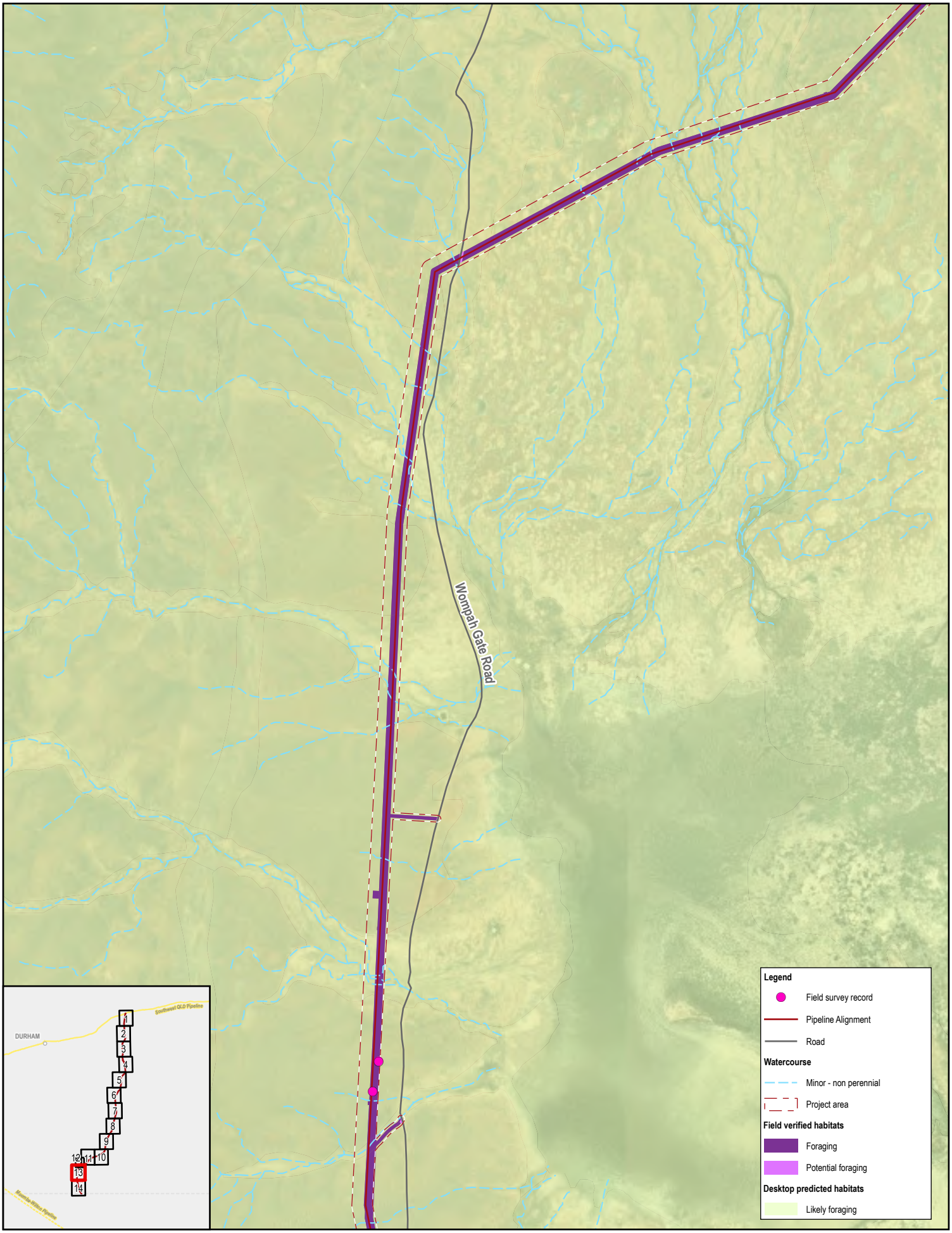
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Figure 4.7

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Kilometres

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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

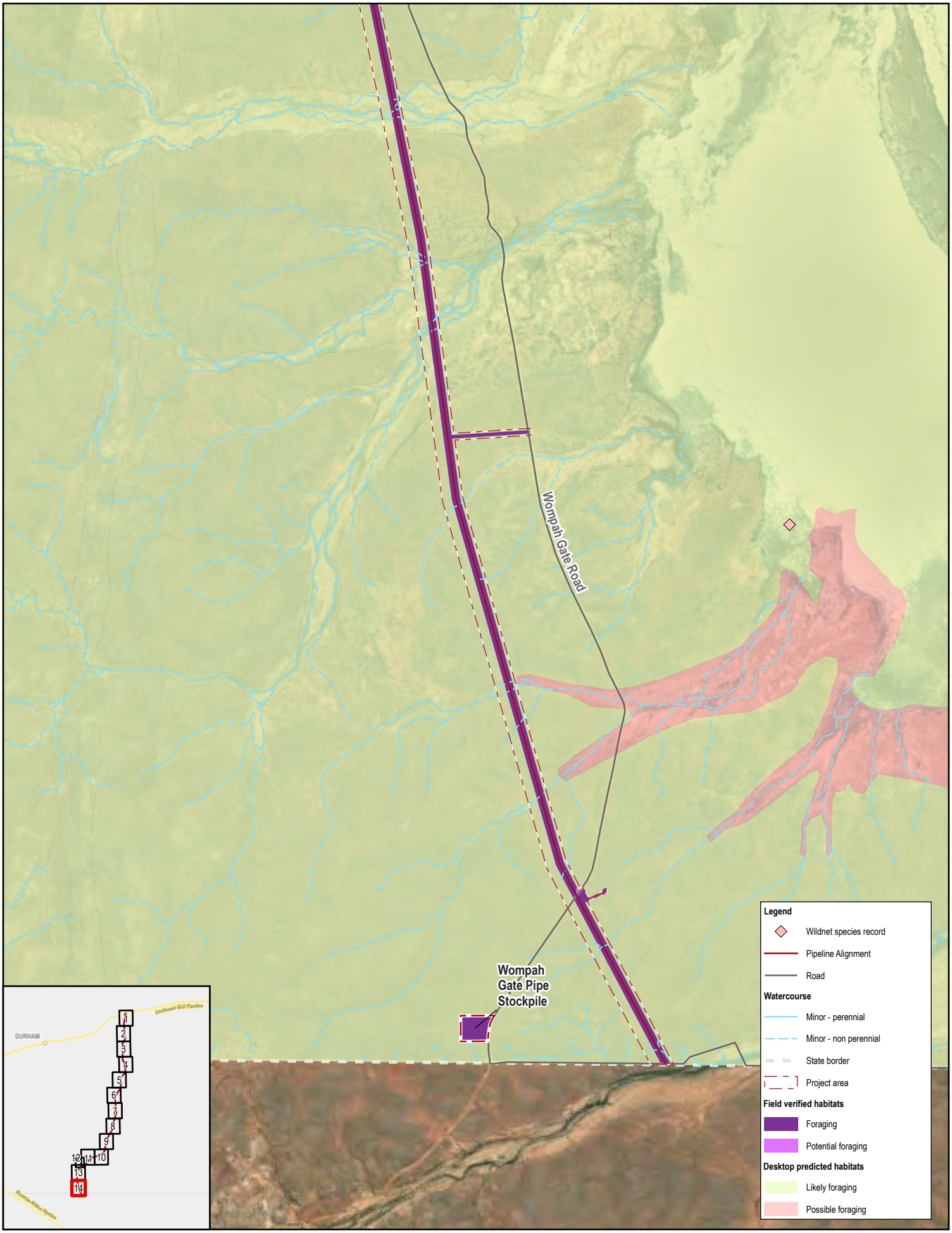
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Figure 4.7

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Blue-winged parrot habitat distribution

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Figure 4.7

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Painted honeyeater

The painted honeyeater is listed as **vulnerable** under the NC Act and EPBC Act. It is Australia's most specialised honeyeater, with a diet dominated by mistletoe fruits (particularly *Amyema* spp.), supplemented by nectar and arthropods (DoE, 2015c; DCCEEW, 2021). The species is nomadic and sparsely distributed, occurring at low densities across inland eastern Australia, with greatest abundance along the inland slopes of the Great Dividing Range from Victoria to southern Queensland (DoE, 2015c; DCCEEW, 2021). Seasonal movements are closely tied to the fruiting and flowering cycles of mistletoe, which also provide key nesting substrate (DoE, 2015c). Key habitat includes boree (*Acacia pendula*), brigalow (*A. harpophylla*), box-gum woodlands, box-ironbark forests, and riparian woodlands dominated by river red gum (*Eucalyptus tereticornis*) and black box (*E. largiflorens*). High-quality habitat is associated with mature eucalypt and acacia trees that support abundant mistletoe (DoE, 2015c; Oliver et al., 2003; DCCEEW, 2021).

Within the project site, suitable habitat is present in the form of eucalypt and acacia open woodlands with low densities of mistletoe (*Amyema* spp.). Most vegetation is considered marginal or stepping-stone habitat at the landscape scale, although some higher quality patches were found to occur in the northern end of the project site.

The primary REs assigned as habitat for the painted honeyeater within the project site were determined to be:

– **Potential foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis* +/- *E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis* +/- *Acacia aneura* +/- *A. cambagei* +/- *A. georginae* +/- *A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland +/- *Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei* +/- *Eucalyptus coolabah* low woodland on braided channel systems
  - 5.5.1 – *Acacia aneura* low woodland on Quaternary deposits
  - 5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments
  - 5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica, A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur
  - 5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields
  - 5.6.4 – *Atalaya hemiglauca* +/- *Acacia aneura* +/- *Acacia* spp. +/- *Corymbia terminalis* low open woodland on reticulate sand dunes.

In addition to this, observed isolated mistletoe records were recorded and incorporated into this species mapped habitat.

The species was not detected during field surveys. However, there are recent regional records including a 2021 sighting approximately 4 km south-west of KP 84, and a 2015 record approximately 27 km from KP 172 (ALA, 2025). Suitable habitat distribution within the project site is shown in Figure 4.8.

Red goshawk

The red goshawk is listed as **endangered** under the NC Act and EPBC Act. It is a solitary and wide-ranging raptor that occurs at very low densities across northern and eastern Australia (Blakers et al., 1984; Aumann & Baker-Gabb, 1991; Barrett et al., 2003). In Queensland, strongholds are concentrated in north-eastern and Cape York regions, though birds are also recorded in southern and central parts of the state, often along riparian corridors and open forest mosaics (Czechura & Hobson, 2000).

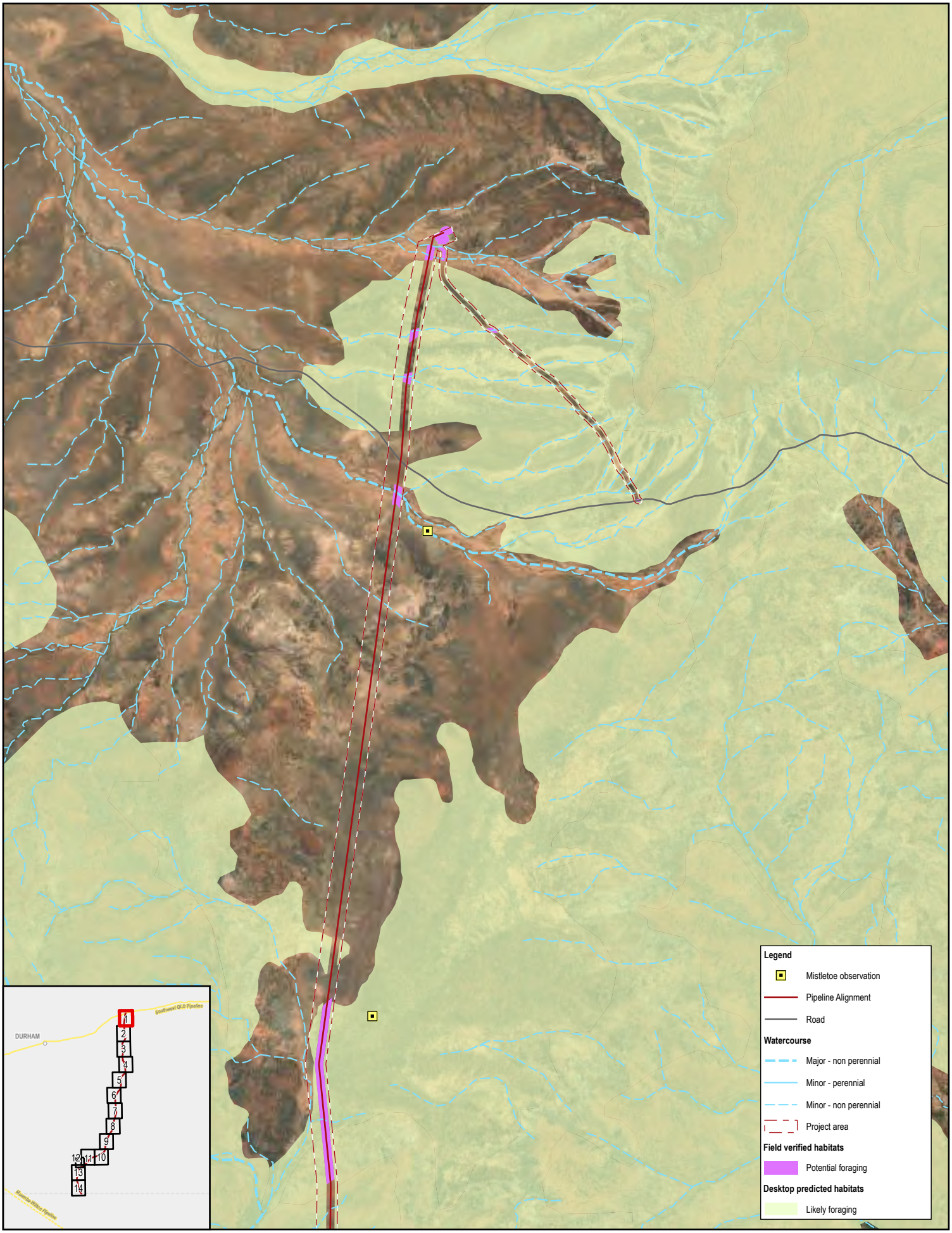
The species is strongly associated with intact forest and woodland mosaics containing permanent water and abundant bird prey (Marchant & Higgins, 1993; Czechura, 1996). Over 95 per cent of its diet consists of medium-sized birds, with males taking species in the 100–250 g range such as rainbow lorikeets (*Trichoglossus haematodus*), (Aumann & Baker-Gabb, 1991). Resident pairs occupy extensive territories, with home ranges estimated between 120 km² and 200 km², and adults recorded hunting 5–10 km from nest sites (Aumann & Baker-Gabb, 1991; Czechura, 1996).

The red goshawk has experienced a dramatic contraction in its breeding distribution in recent decades, with all known Queensland nesting records restricted to Cape York Peninsula in Far North Queensland (MacColl et al., 2023). Radiotracking has also indicated that all recent red goshawk records within the arid zone are associated with dispersing sub-adults, with adults typically remaining resident within their nesting range year-round (MacColl, pers. comm, 2026). The project area is well outside the species 'known' or 'potential' breeding range based on mapping produced in the recent Commonwealth Renewables Environmental Research Initiative (MacColl, pers. Comm, 2026).

Within the project site, no breeding habitat, nesting sites or resident populations were identified, and the area lies outside the species' known and modelled breeding range. Woodland structures typically required for breeding (>14 m canopy height) were absent. However, potential foraging habitat is present, particularly within riparian corridors, open floodplains, and wetlands that support concentrations of bird prey. The primary REs assigned as habitat for the red goshawk within the project site were determined to be:

– **Potential foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.5.1 – *Acacia aneura* low woodland on Quaternary deposits
  - 5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments
  - 5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica, A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur
  - 5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields
  - 5.6.4 – *Atalaya hemiglauca +/- Acacia aneura +/- Acacia* spp. *+/- Corymbia terminalis* low open woodland on reticulate sand dunes.

The species was not recorded during surveys. The closest record is from 2025, approximately 143 km north-east of the pipeline alignment (ALA, 2025). However, given the species' very large home ranges, cryptic nature and capacity to disperse across broad landscapes, the project area may be occasionally used for foraging of vagrant individuals and dispersing sub-adults outside the species core range. Suitable habitat distribution within the project site is shown in Figure 4.8.



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Kilometres

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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

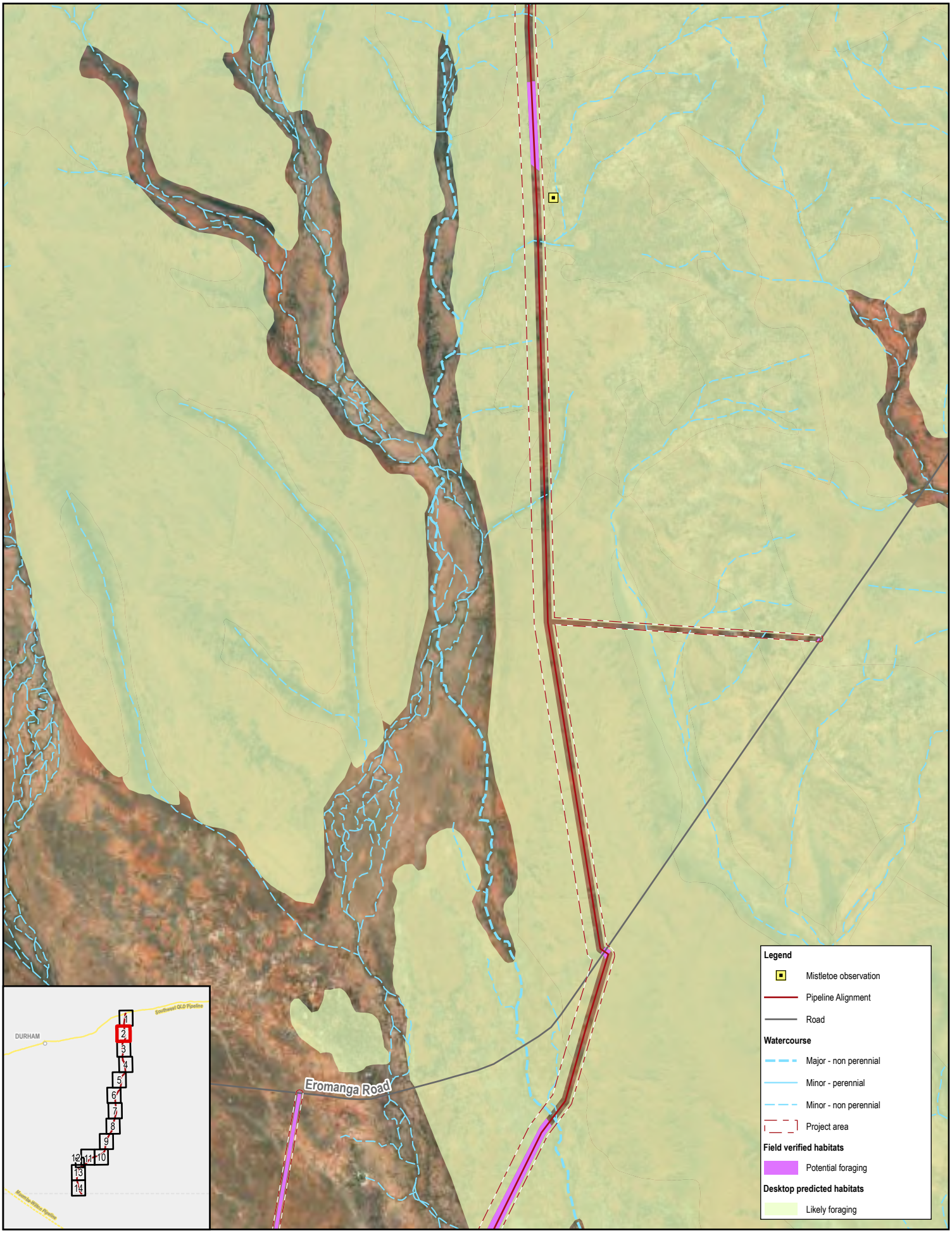
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Figure 4.8

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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

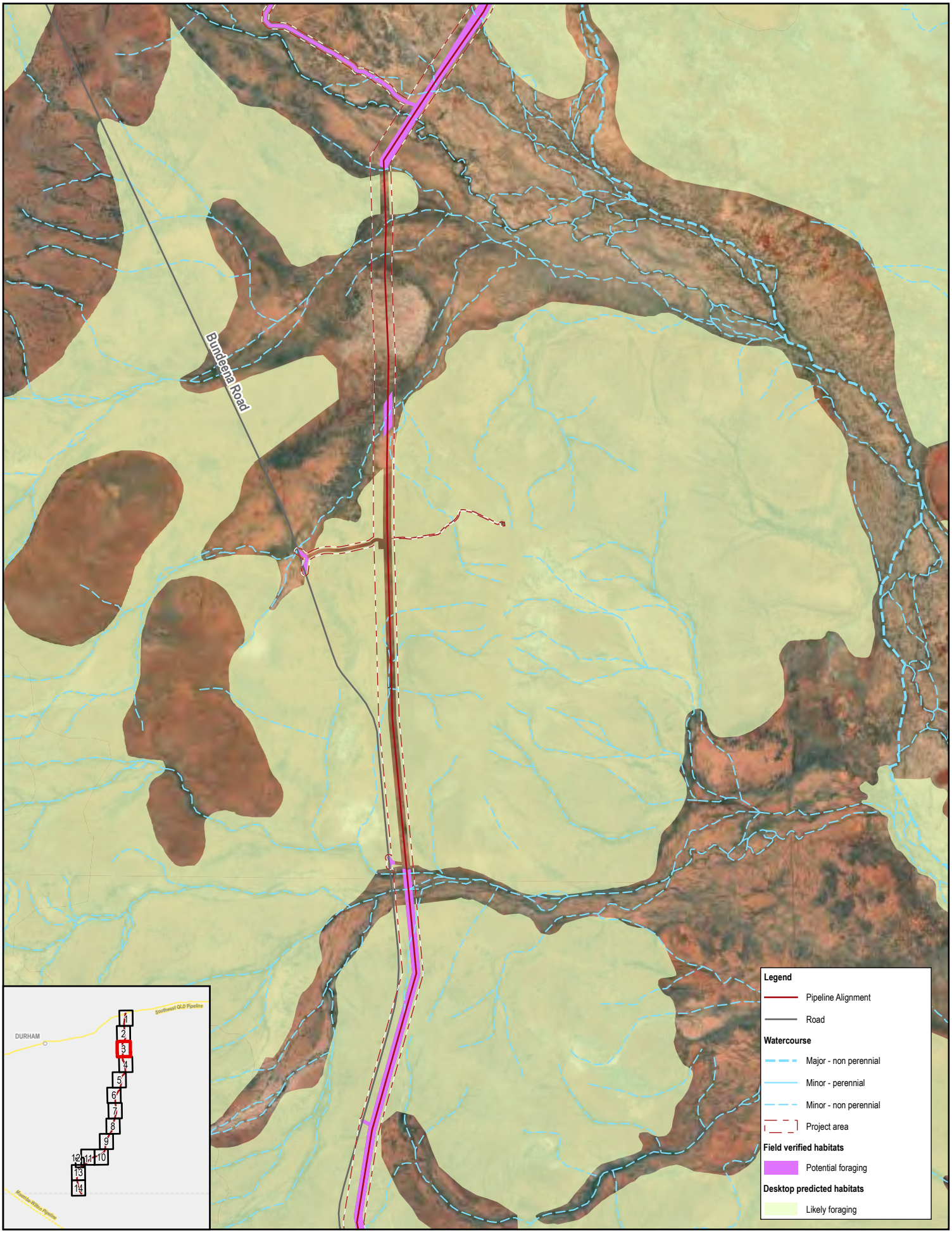
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Figure 4.8

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Kilometres

Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

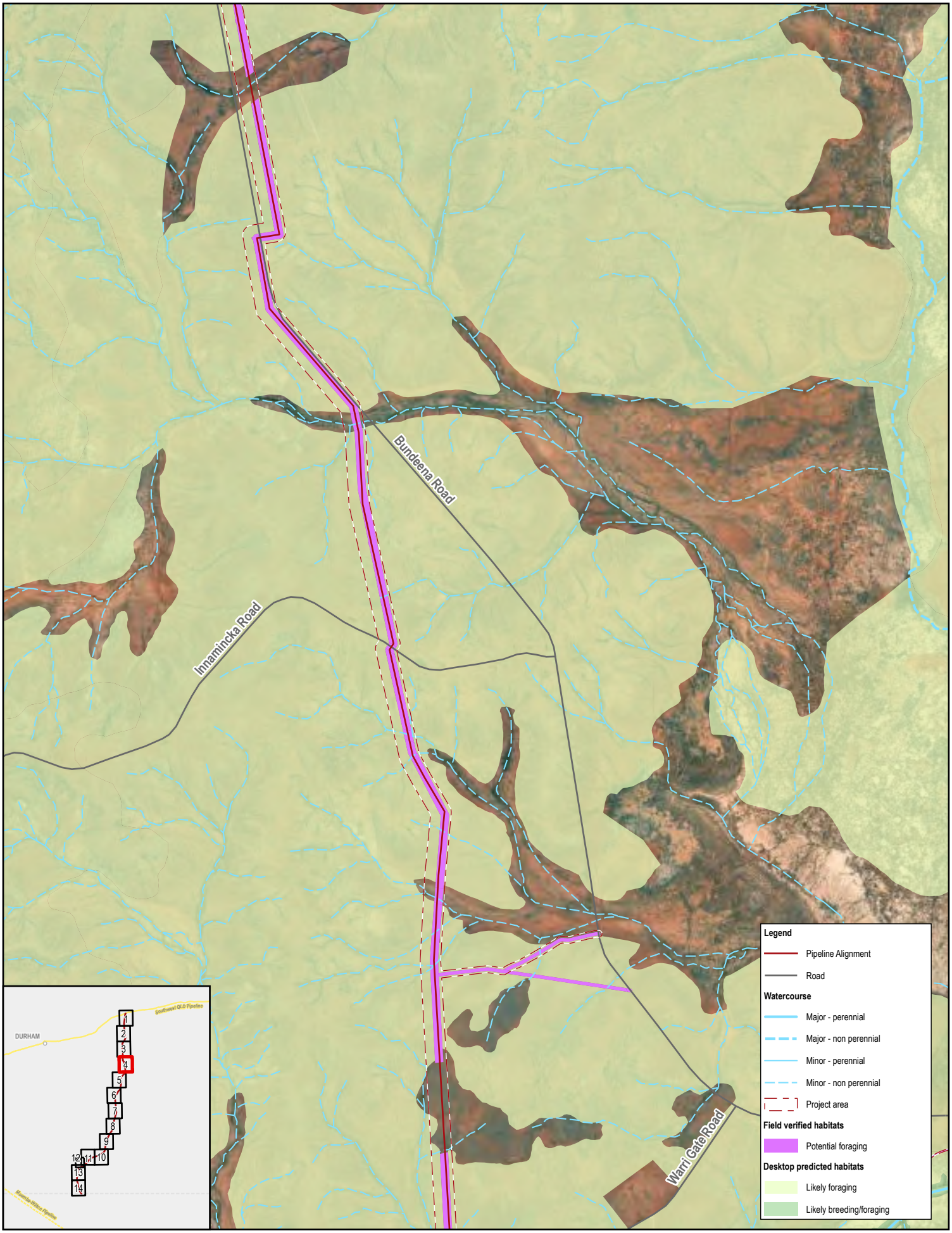
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Figure 4.8

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

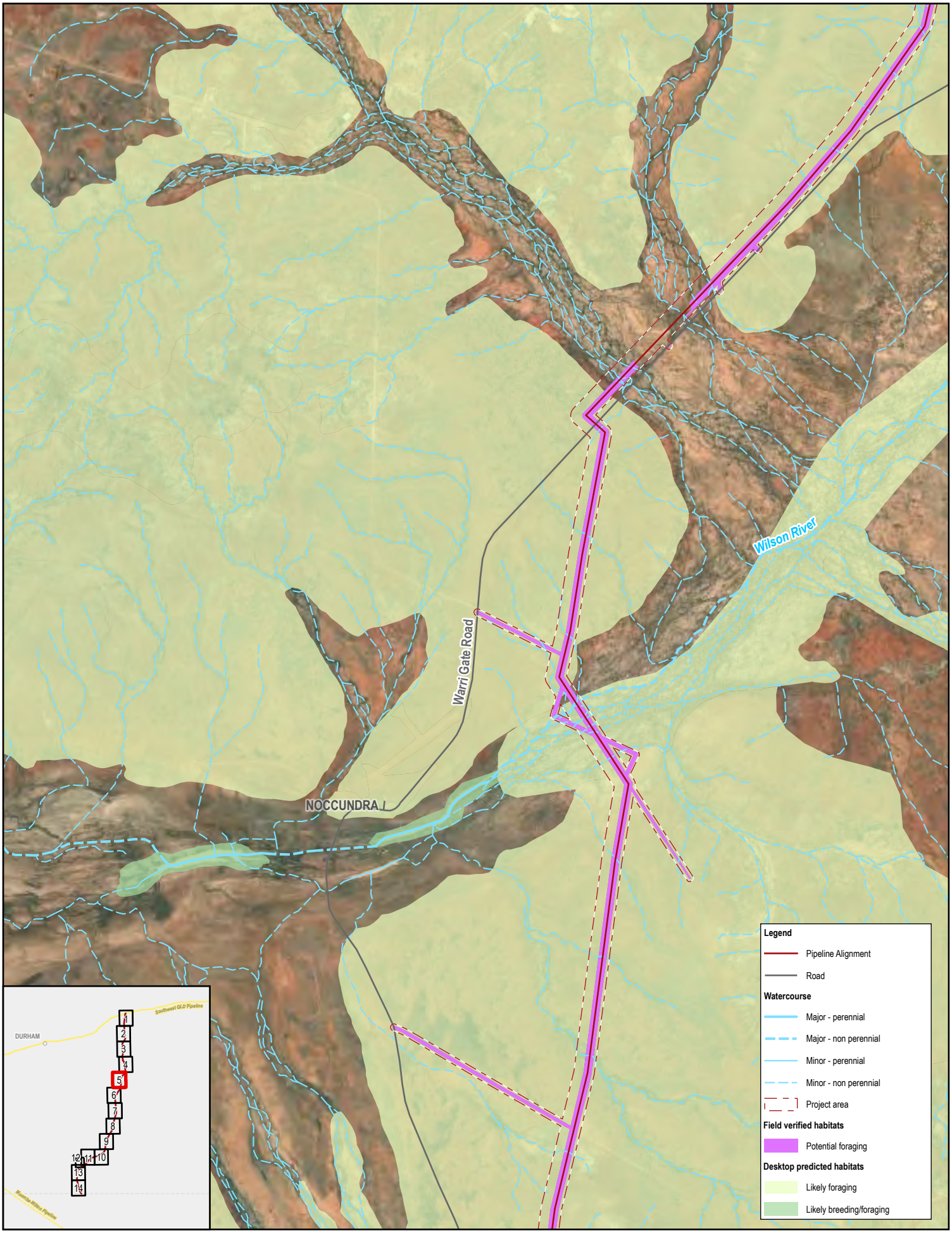
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Figure 4.8

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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

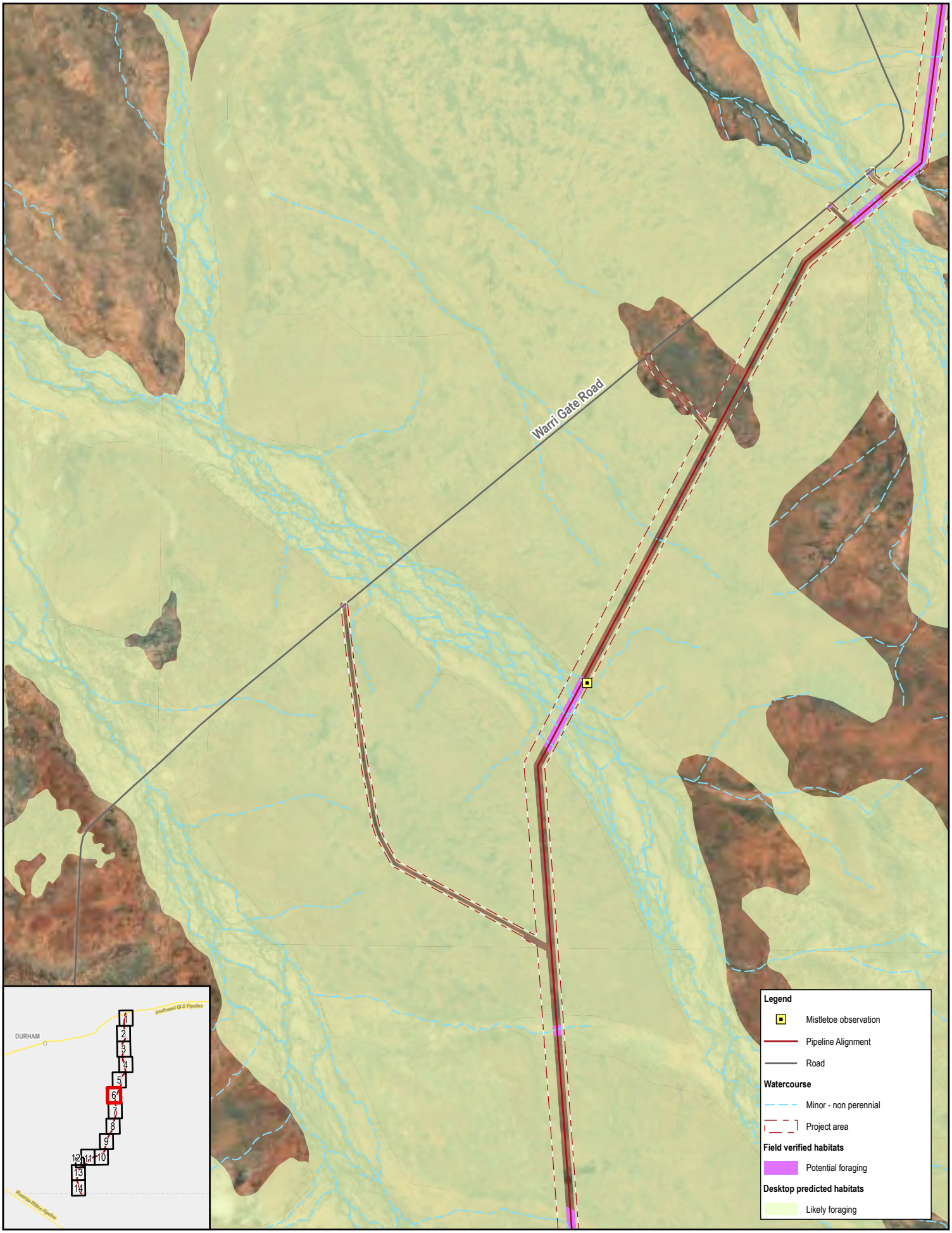
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Figure 4.8

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

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Figure 4.8

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APA Group
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Painted honeyeater habitat distribution

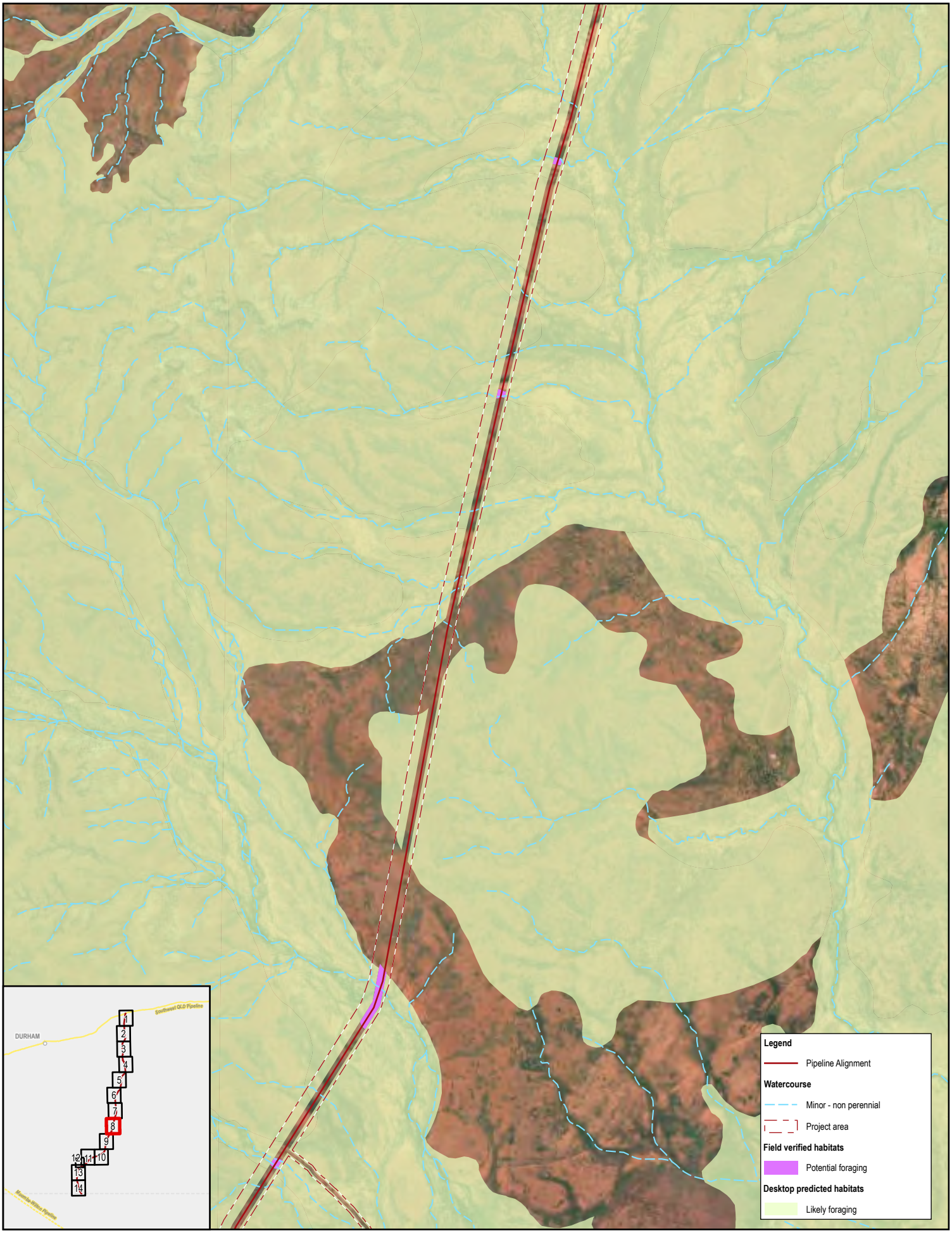
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Figure 4.8

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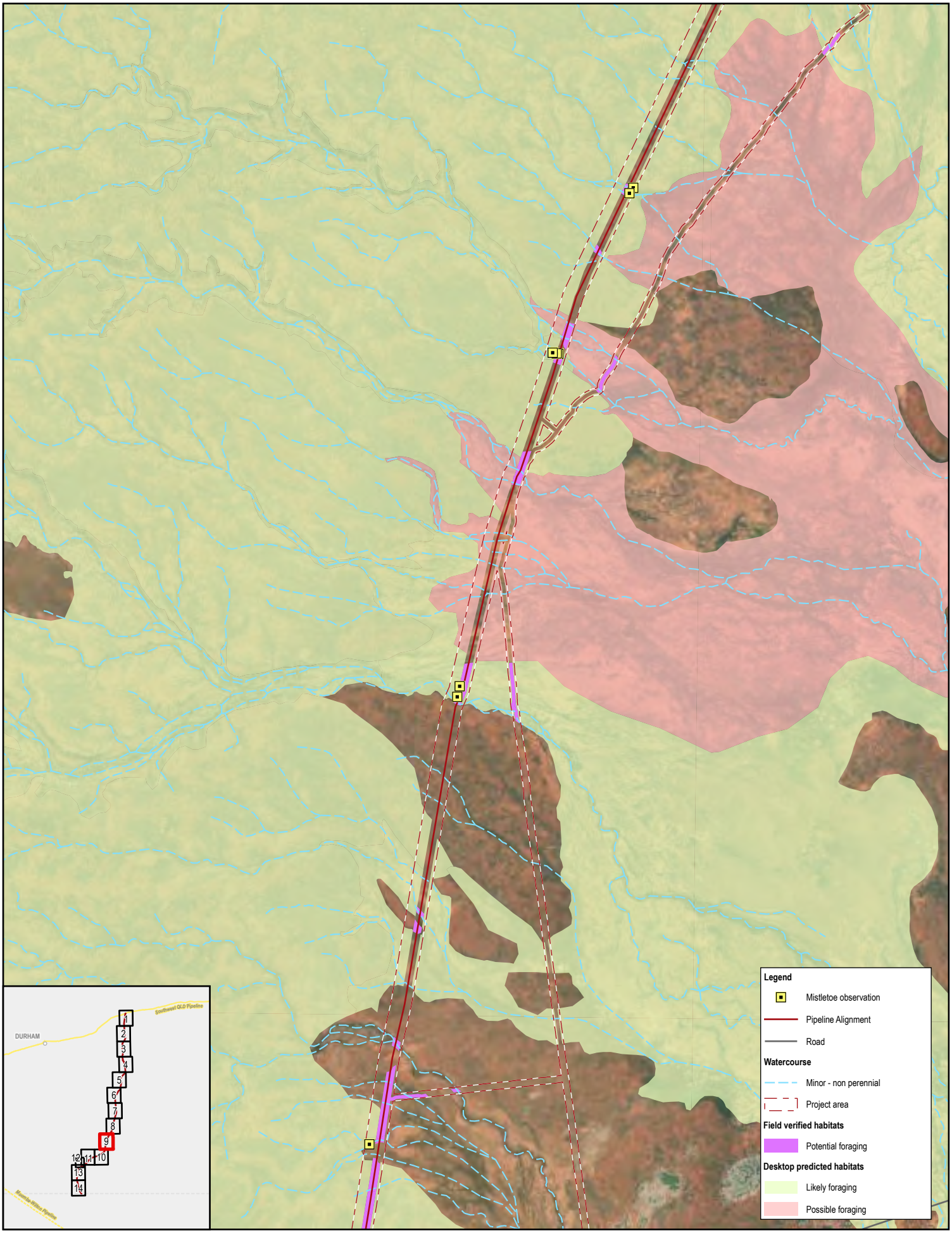
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Figure 4.8

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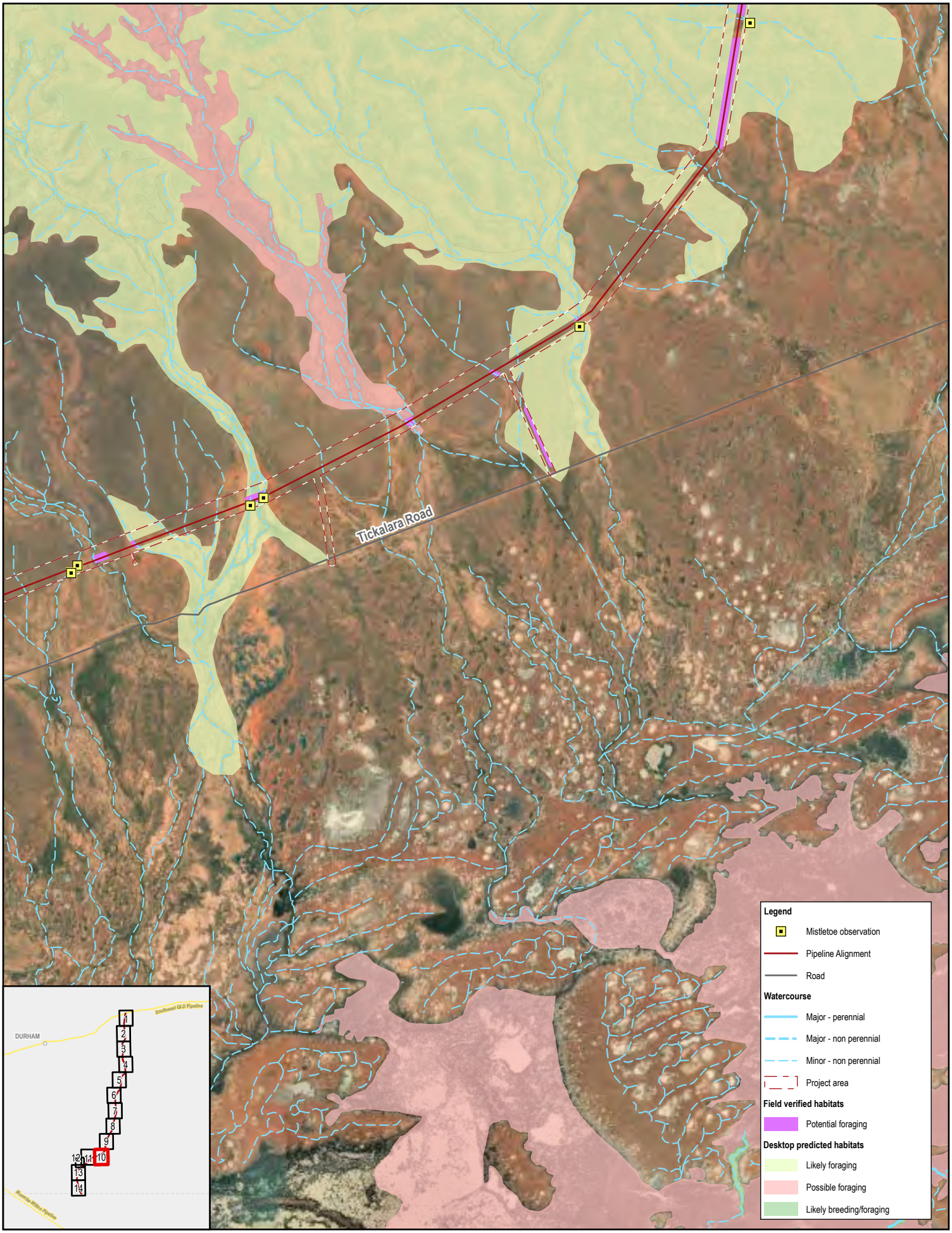
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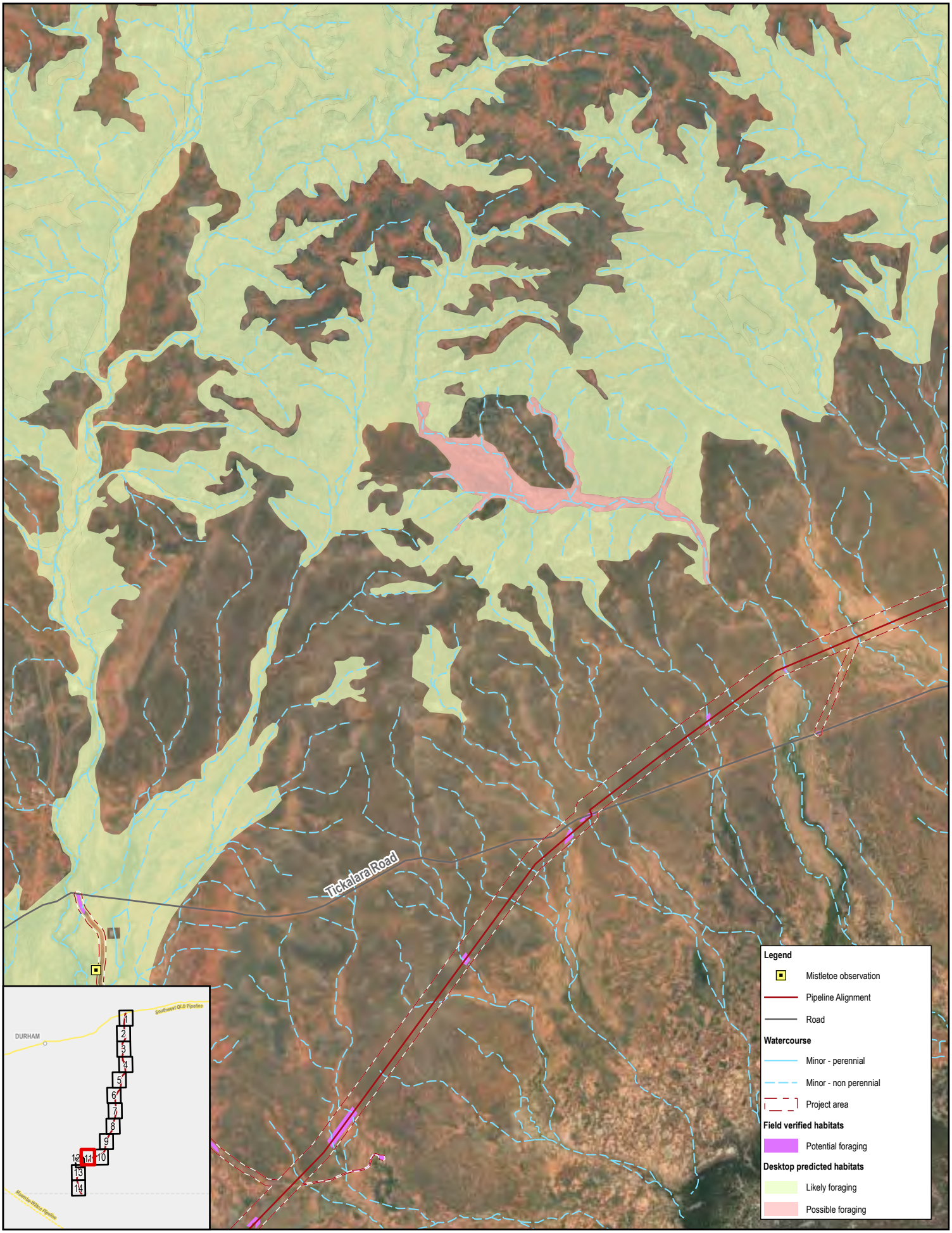
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Painted honeyeater habitat distribution

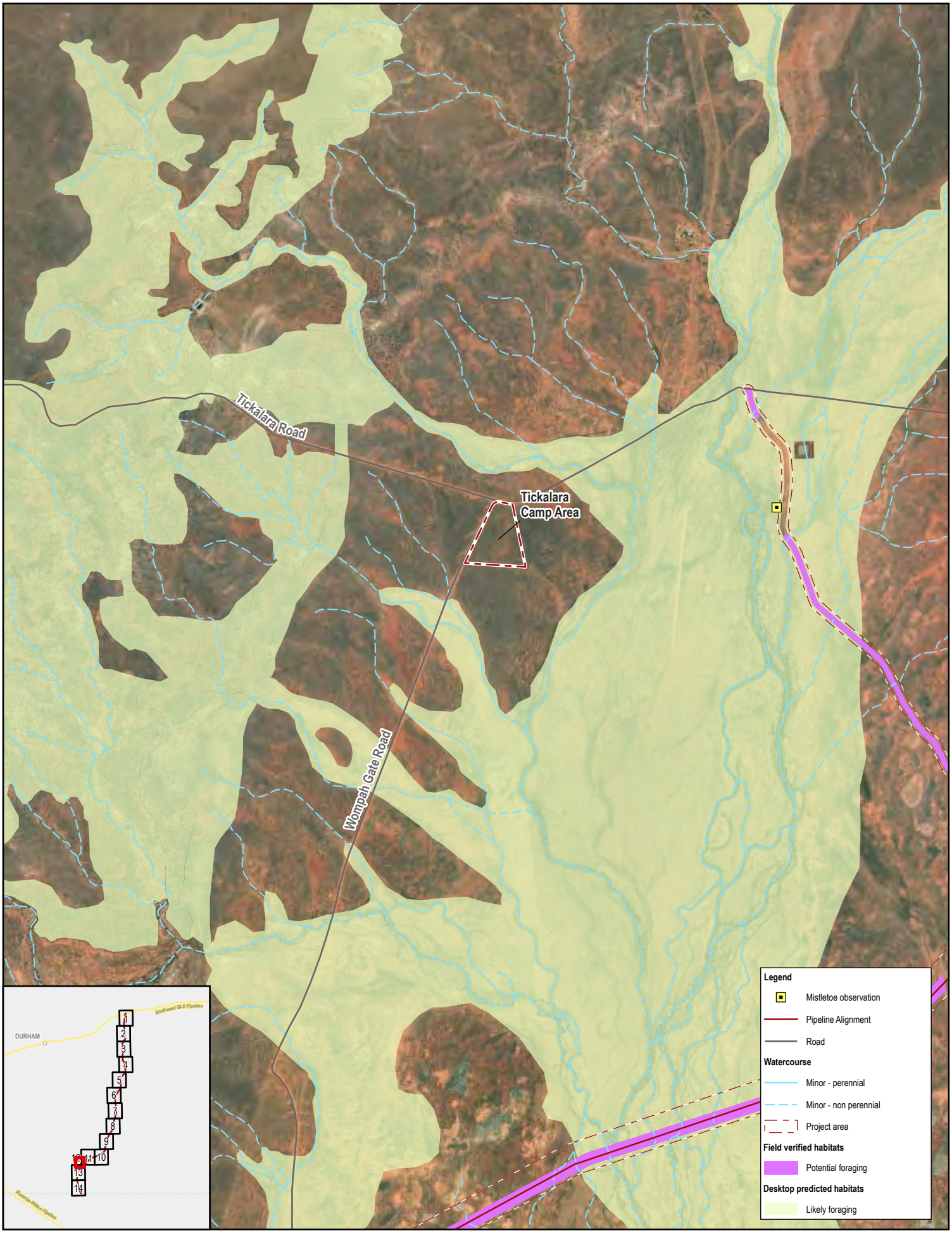
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Figure 4.8

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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

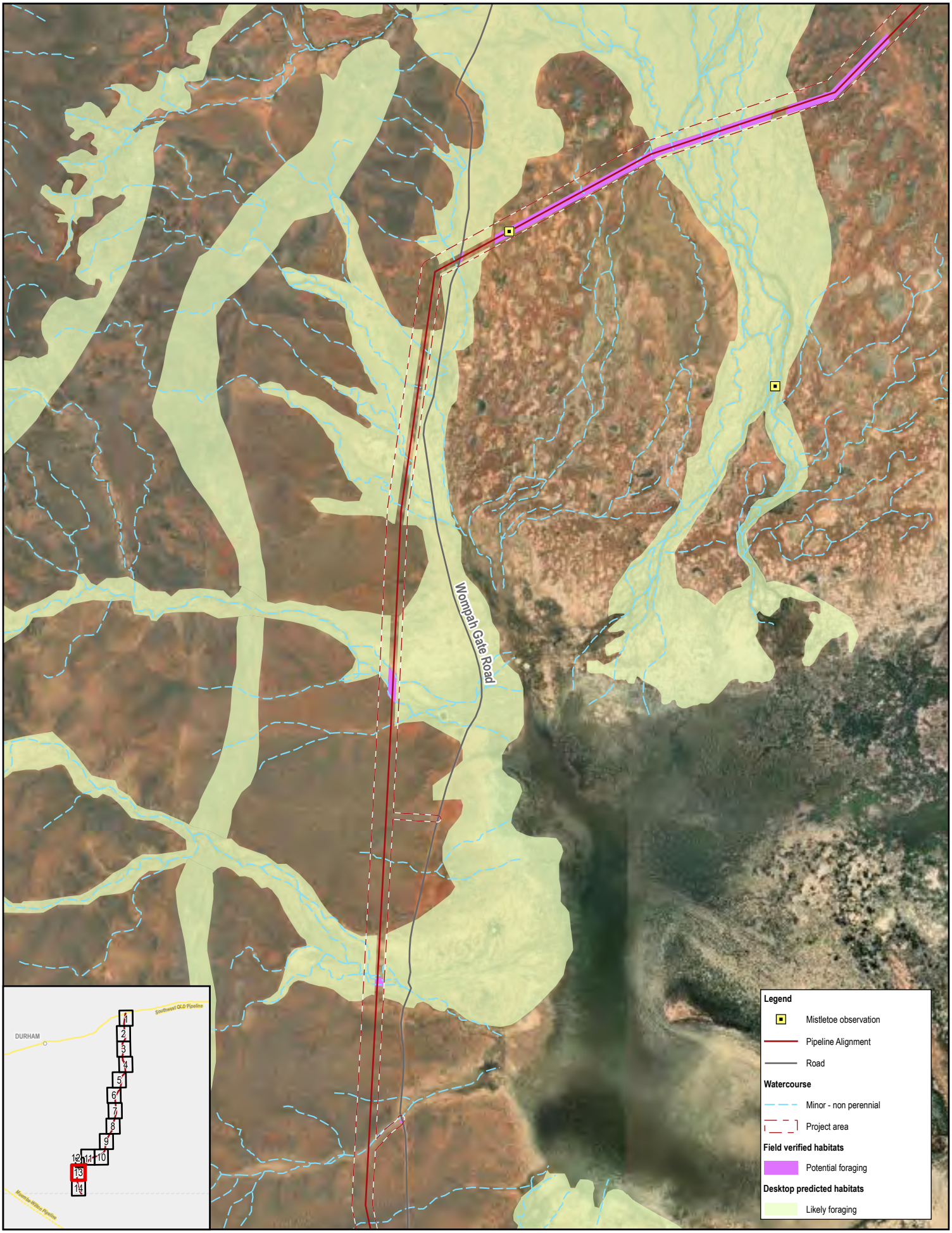
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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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Painted honeyeater habitat distribution

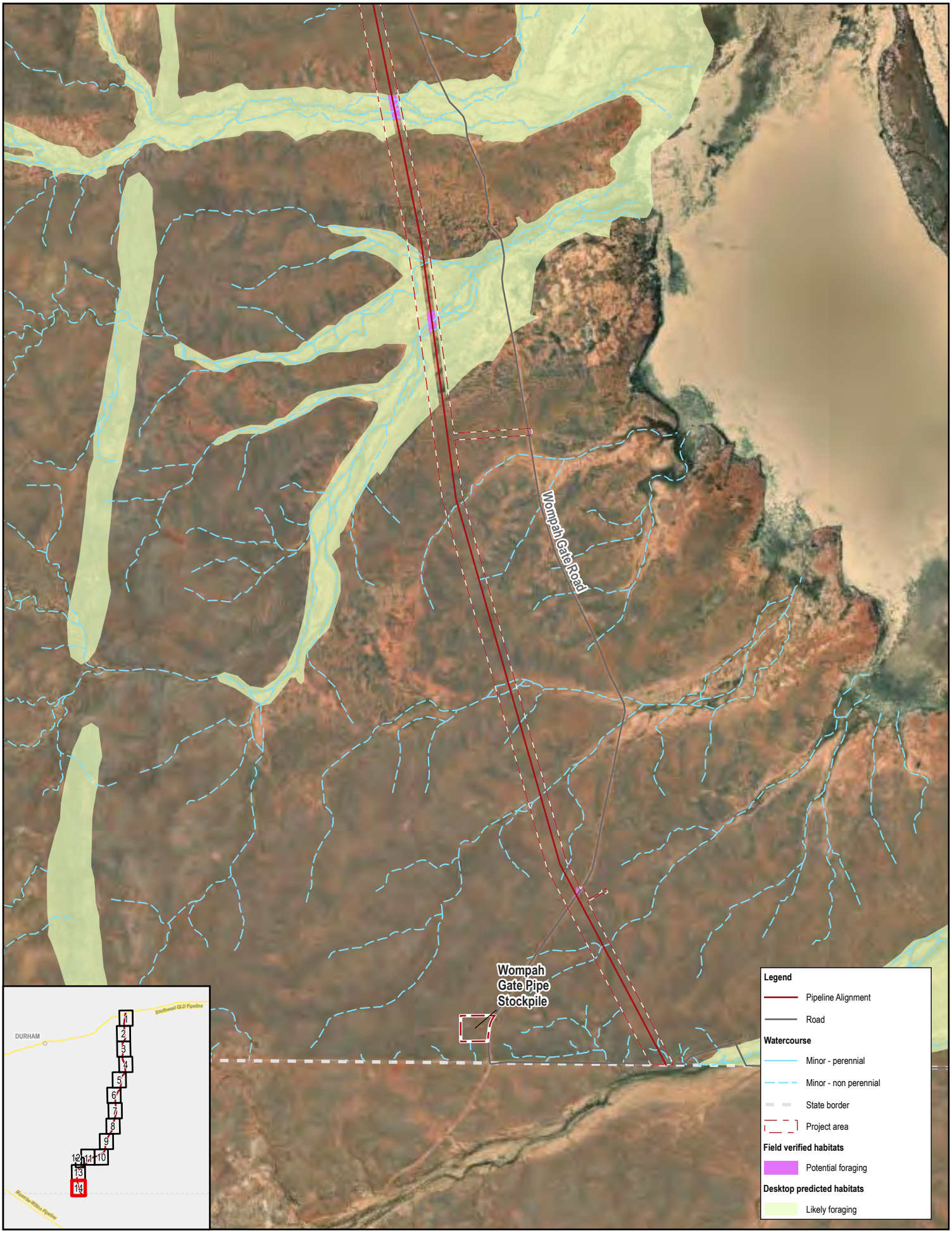
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Figure 4.8

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Bulloo Interlink Pipeline

Painted honeyeater habitat distribution

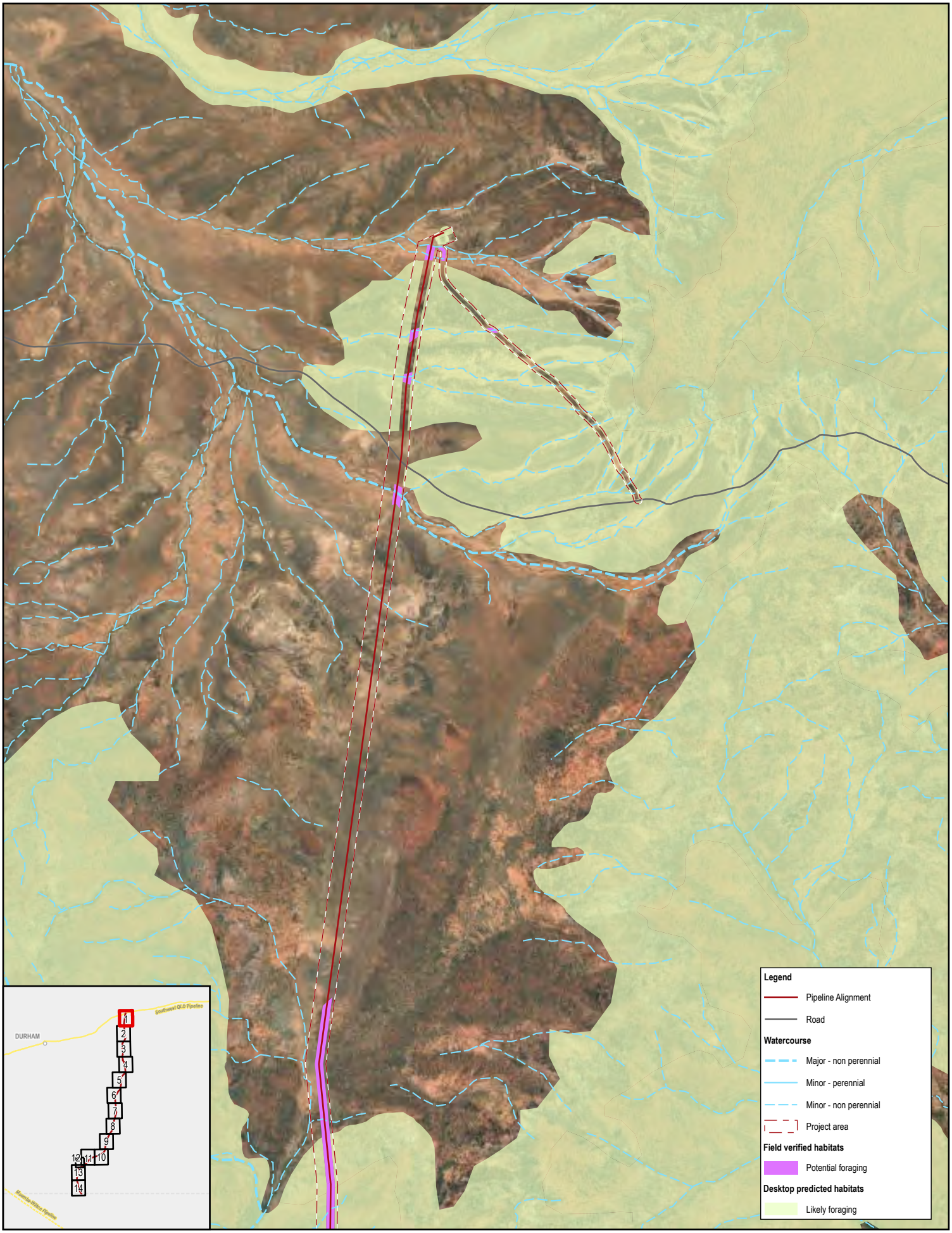
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Figure 4.8

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Kilometres

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Bulloo Interlink Pipeline

Red goshawk habitat distribution

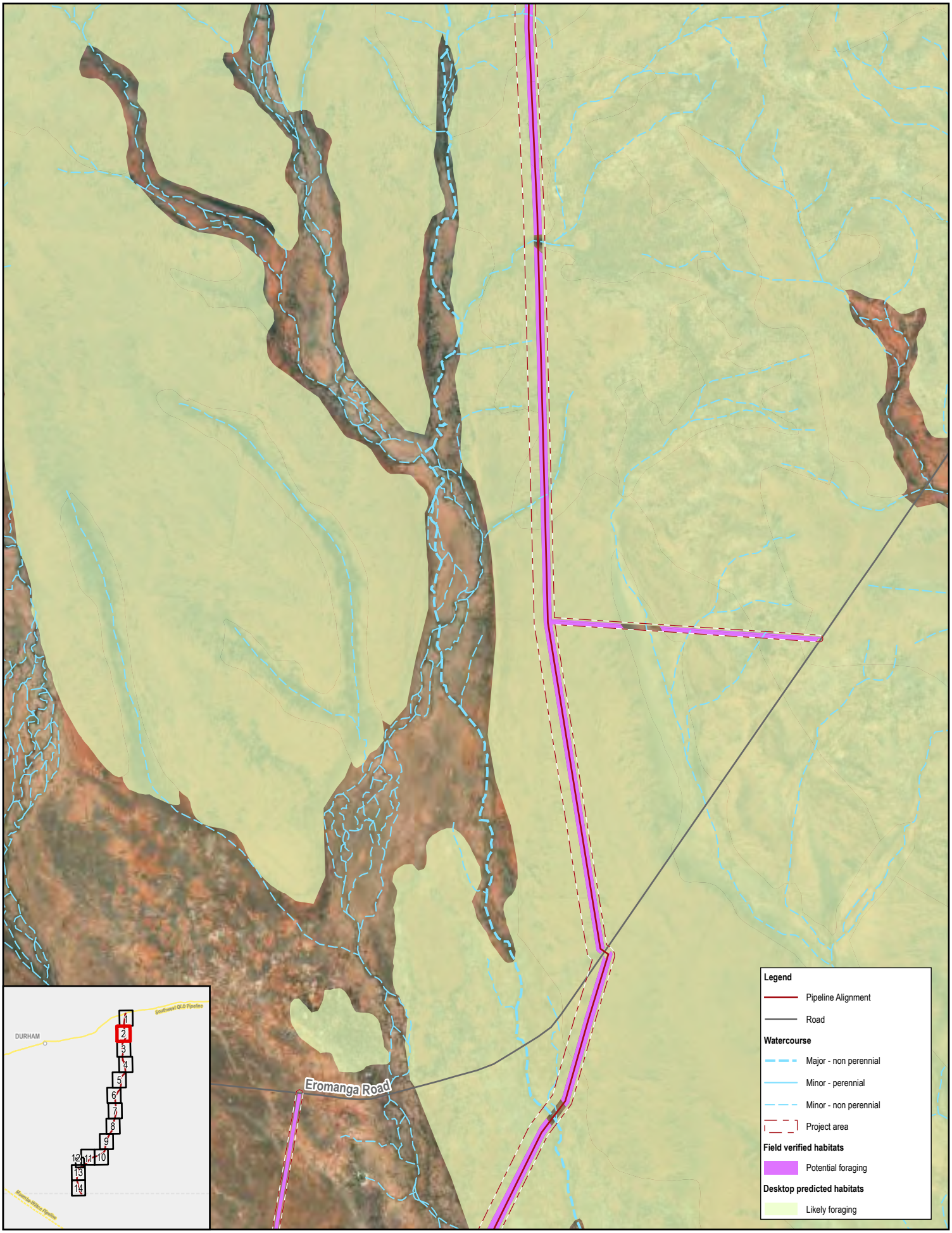
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Kilometres

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Bulloo Interlink Pipeline

Red goshawk habitat distribution

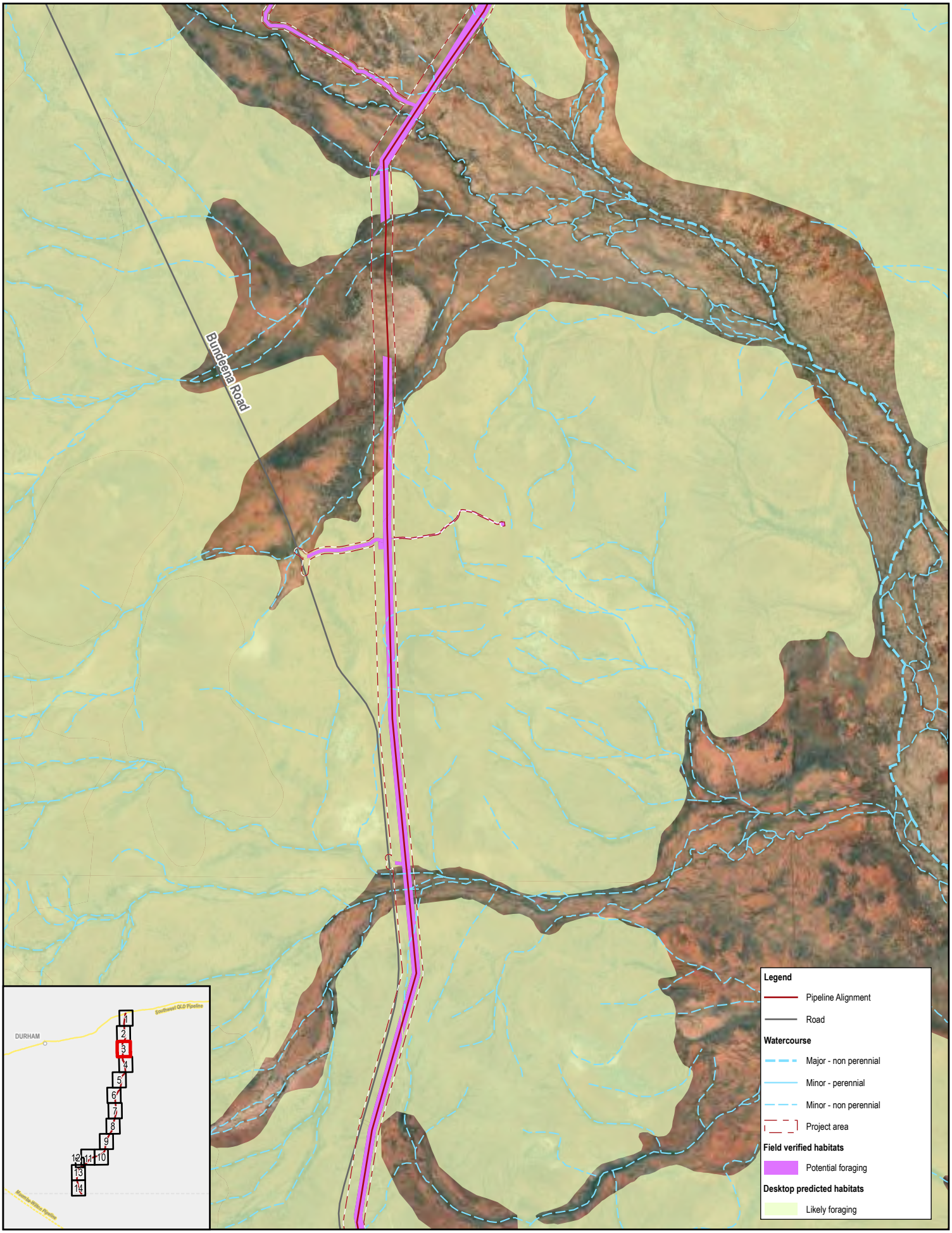
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Kilometres

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APA Group
Bulloo Interlink Pipeline

Red goshawk habitat distribution

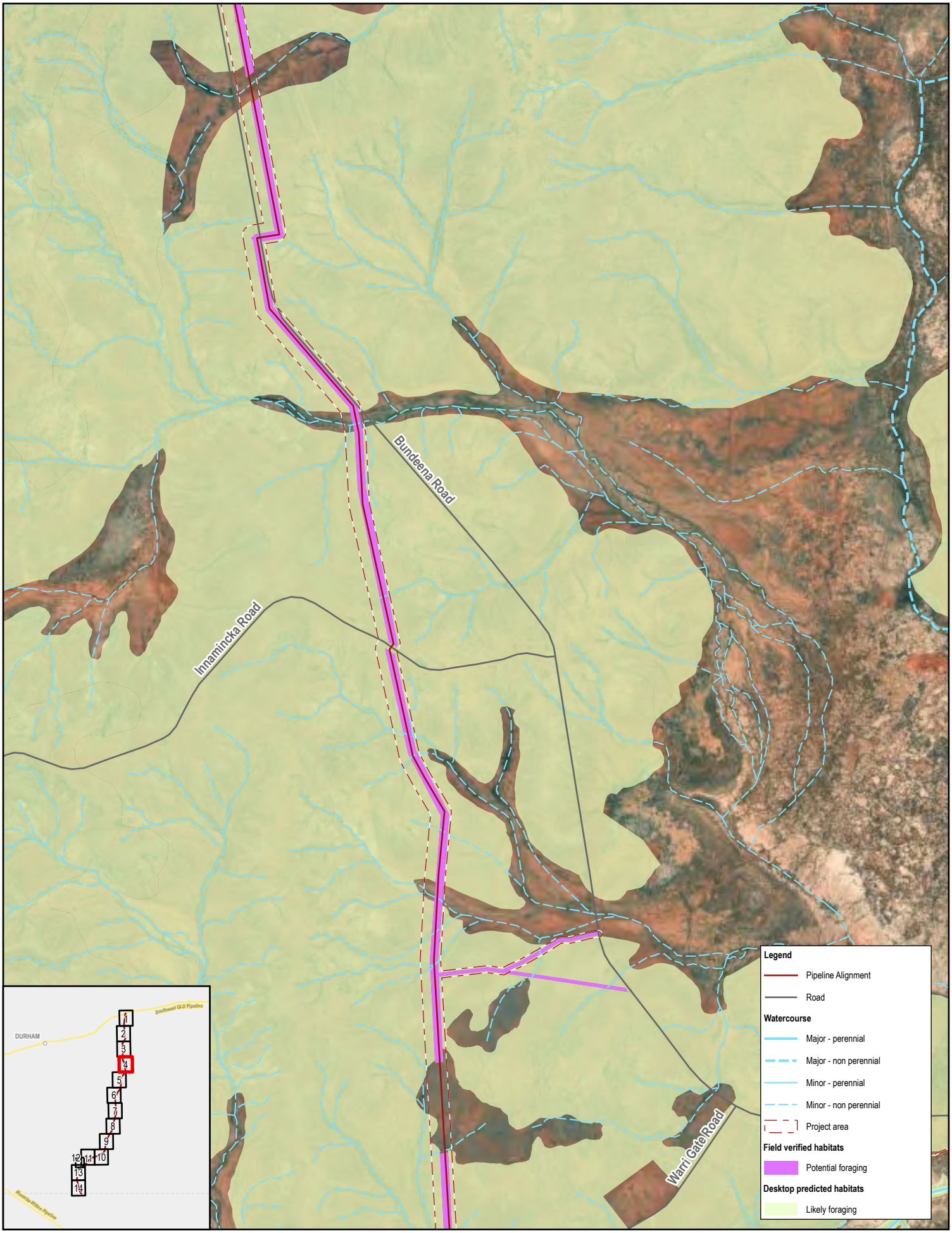
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

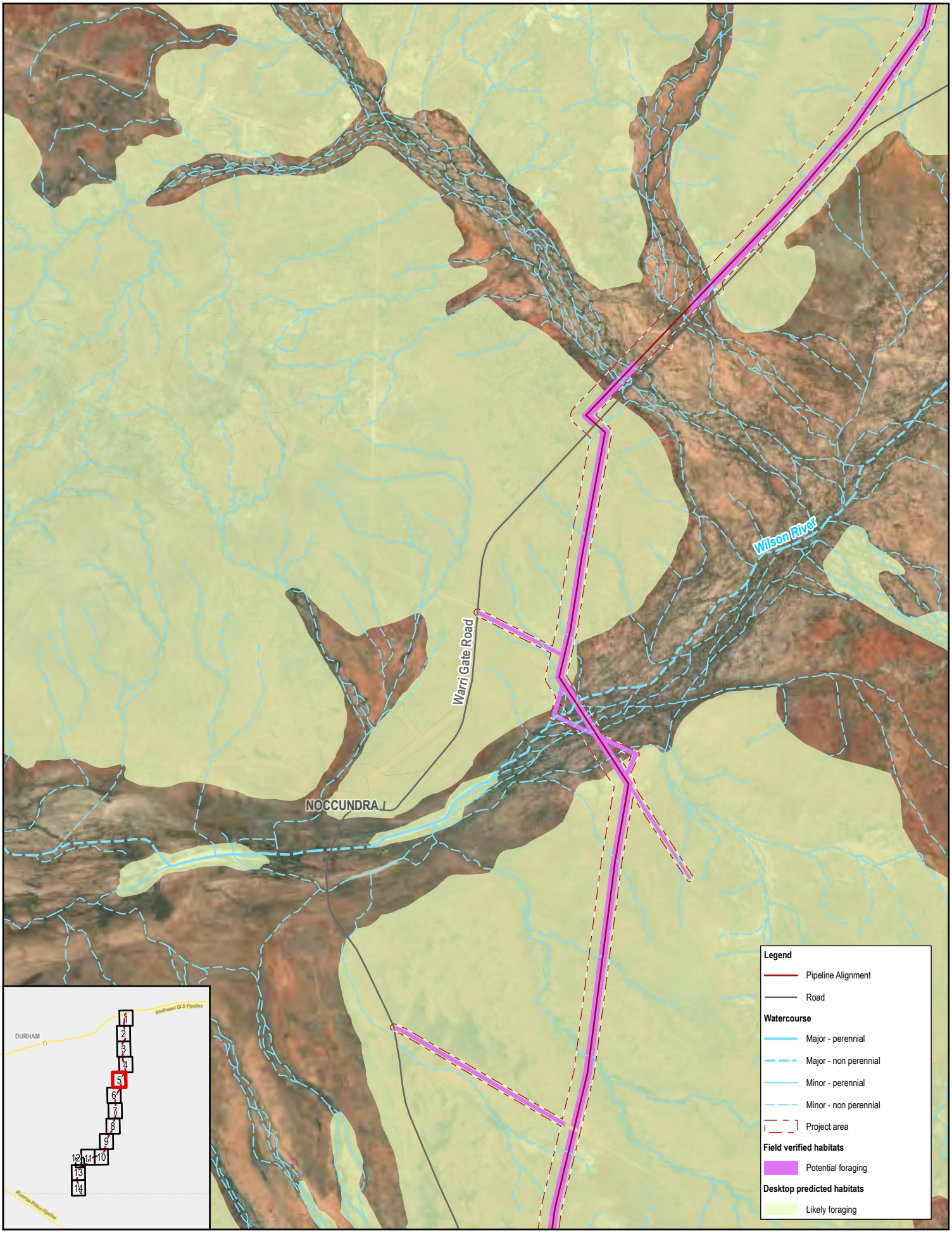
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APA Group
Bulloo Interlink Pipeline

Red goshawk habitat distribution

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Figure 4.9

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Bulloo Interlink Pipeline

Red goshawk habitat distribution

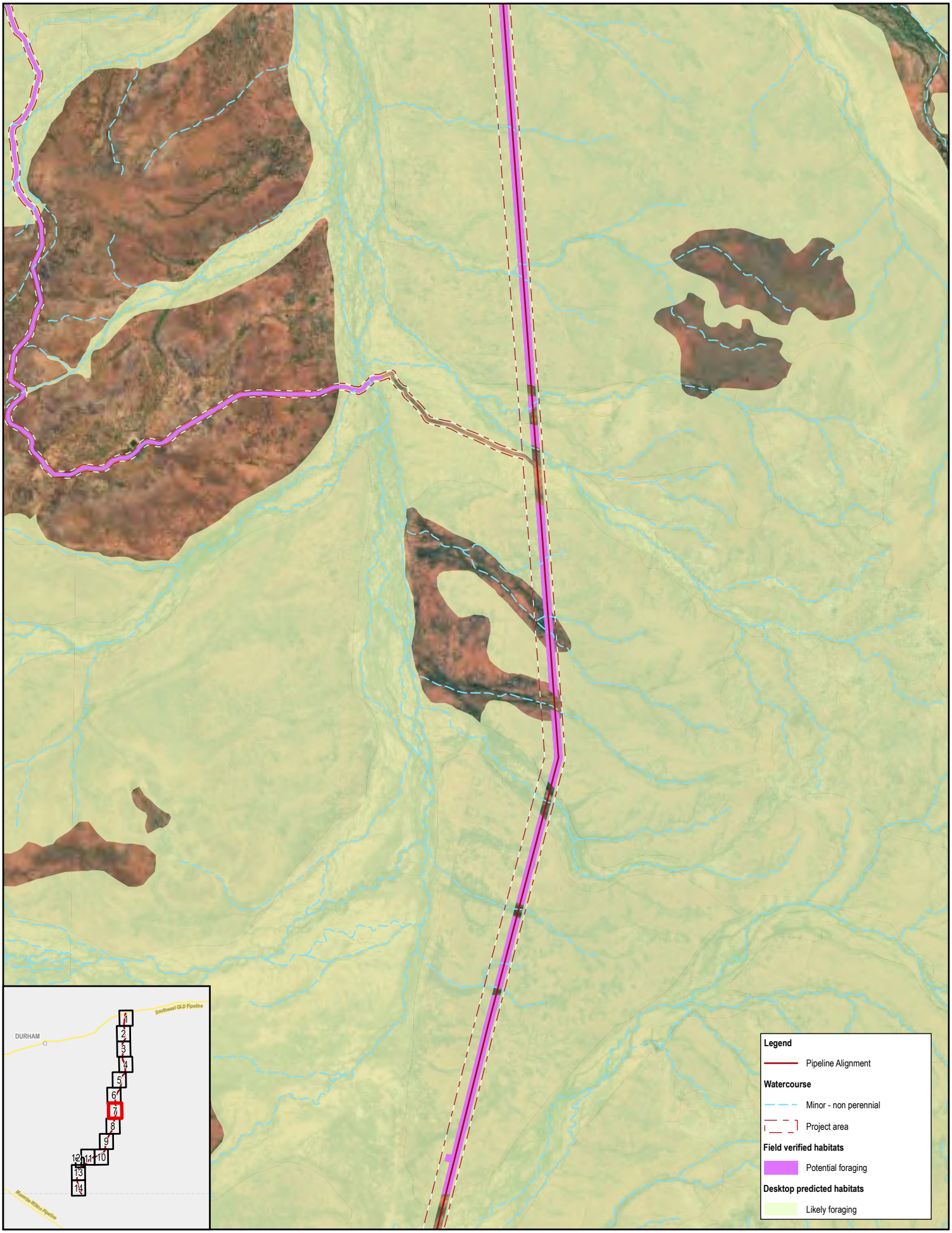
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

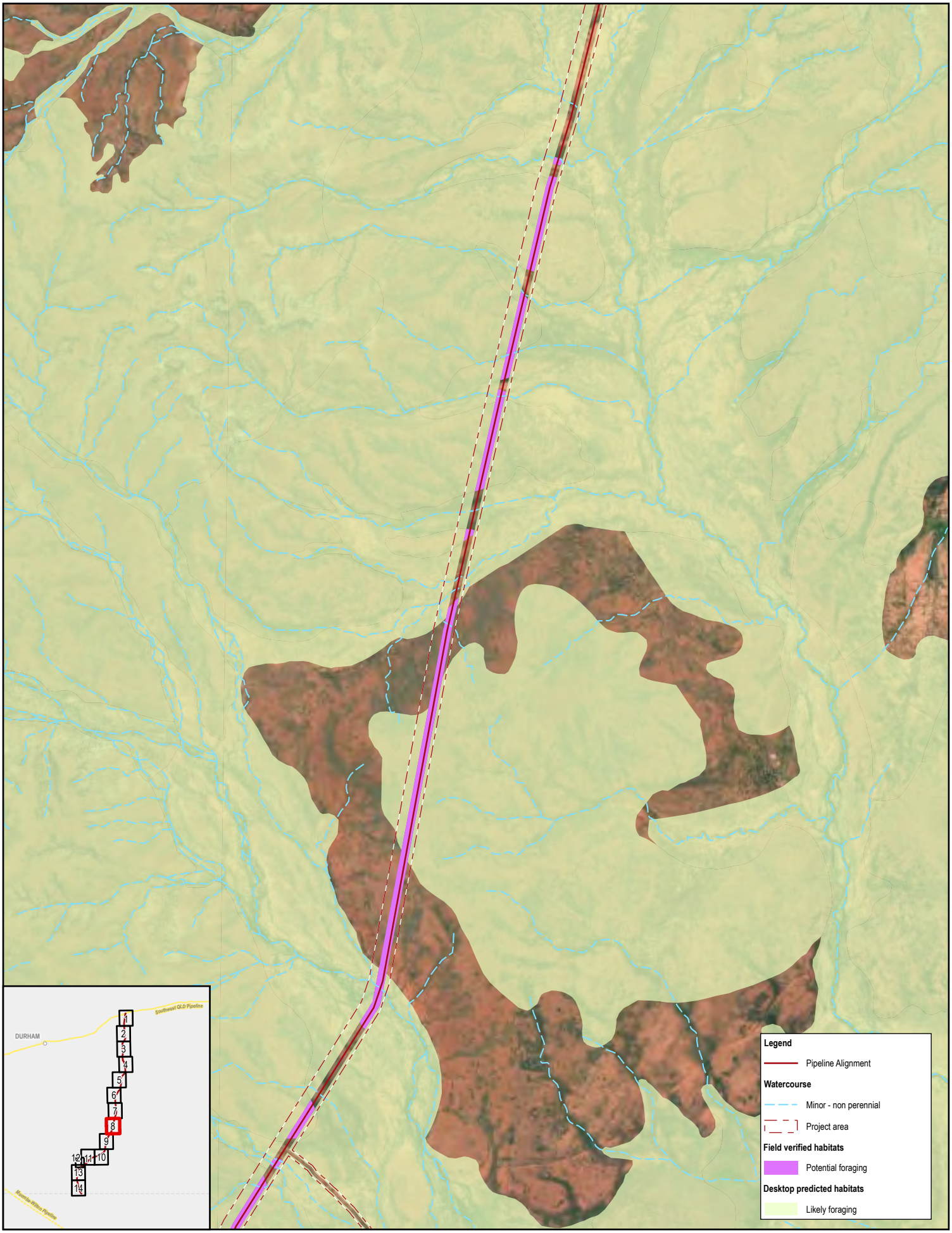
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Figure 4.9

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Bulloo Interlink Pipeline

Red goshawk habitat distribution

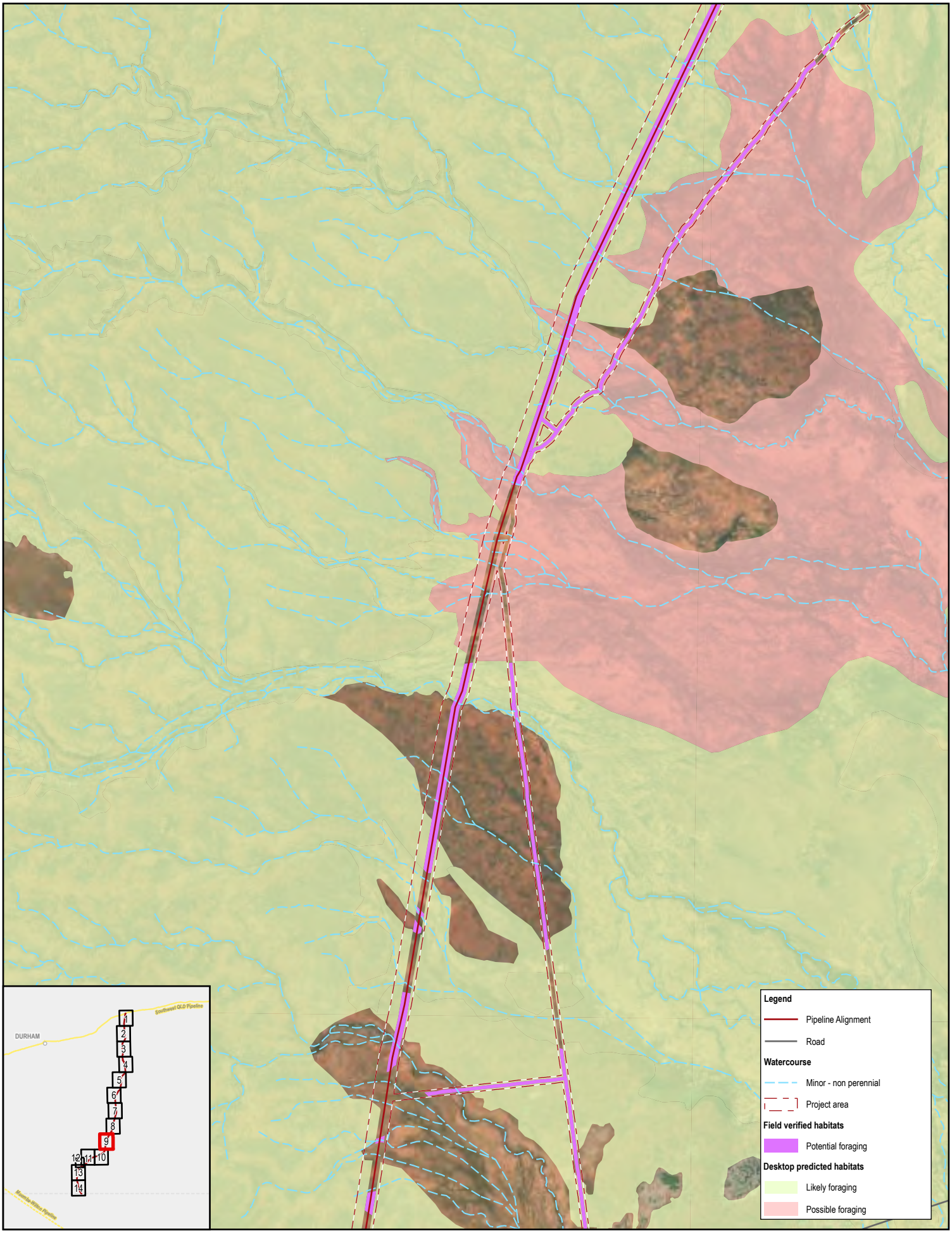
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

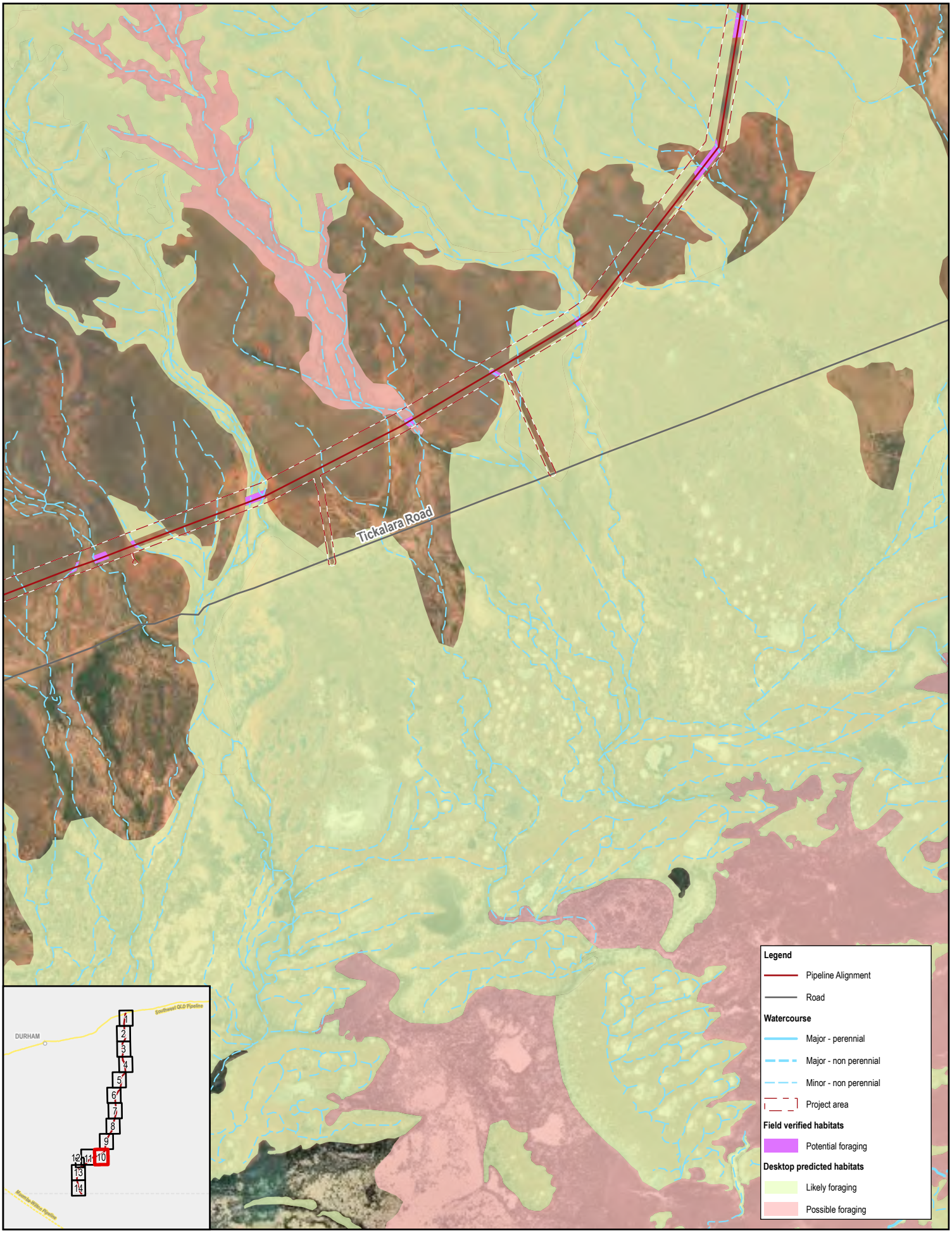
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

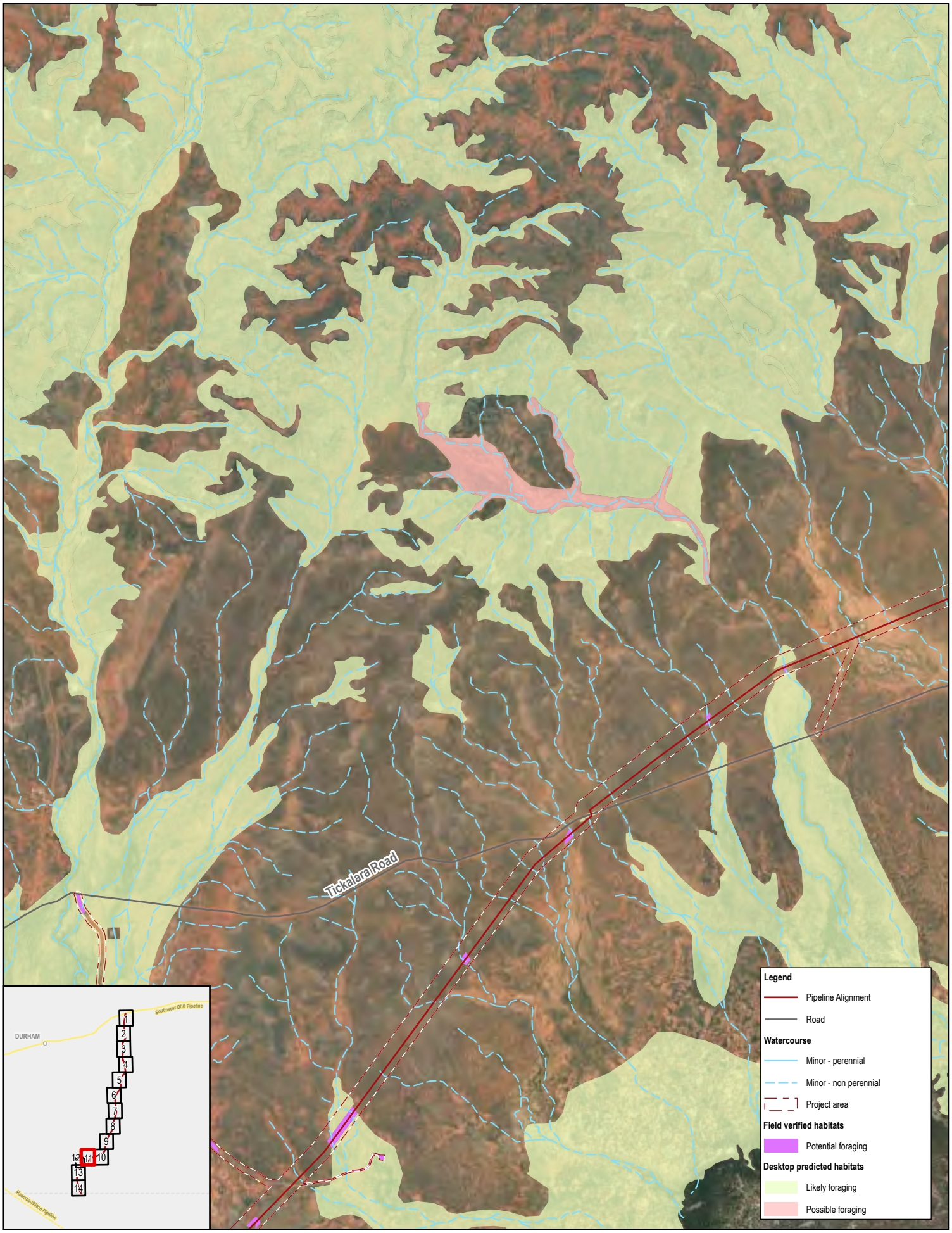
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Red goshawk habitat distribution

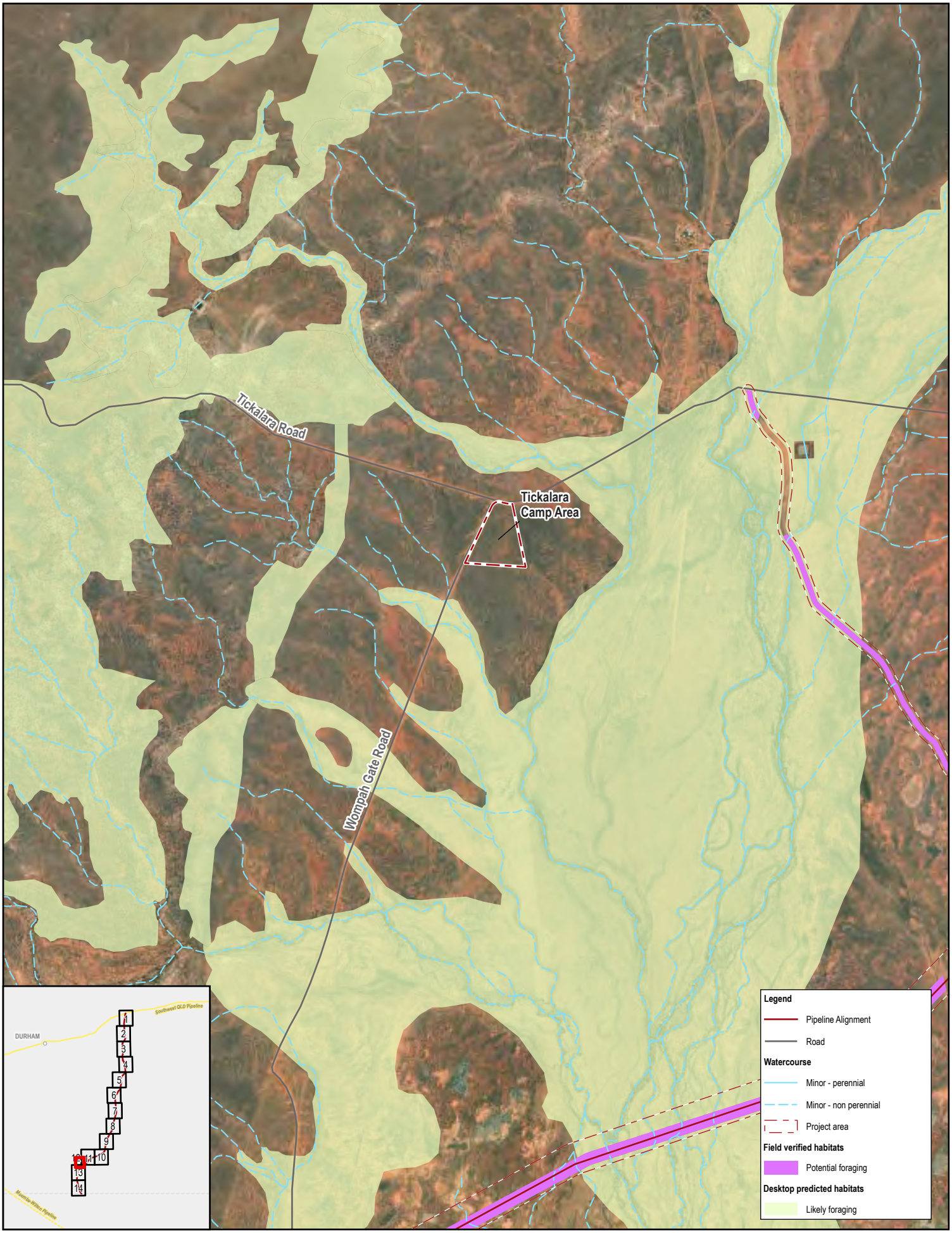
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

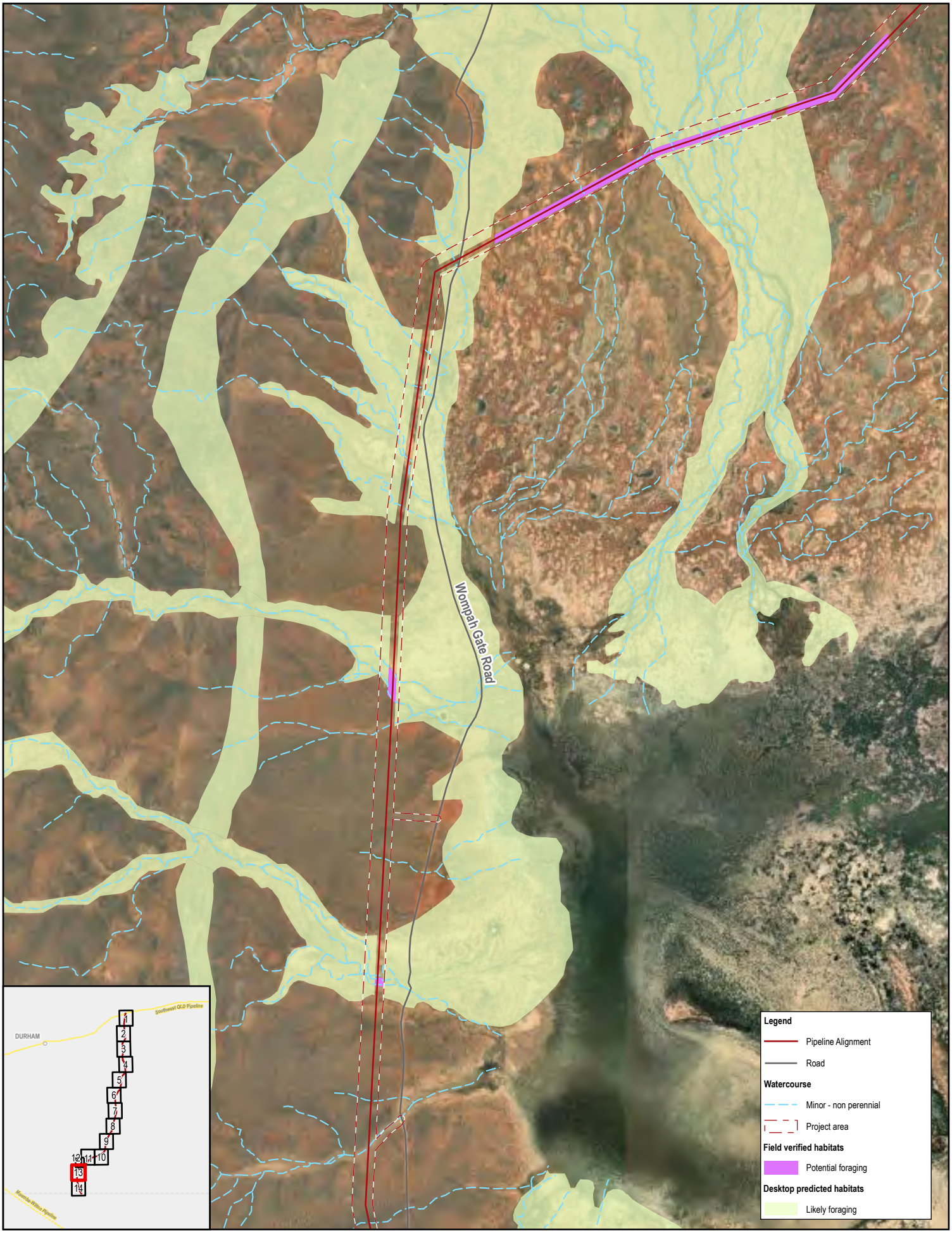
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Red goshawk habitat distribution

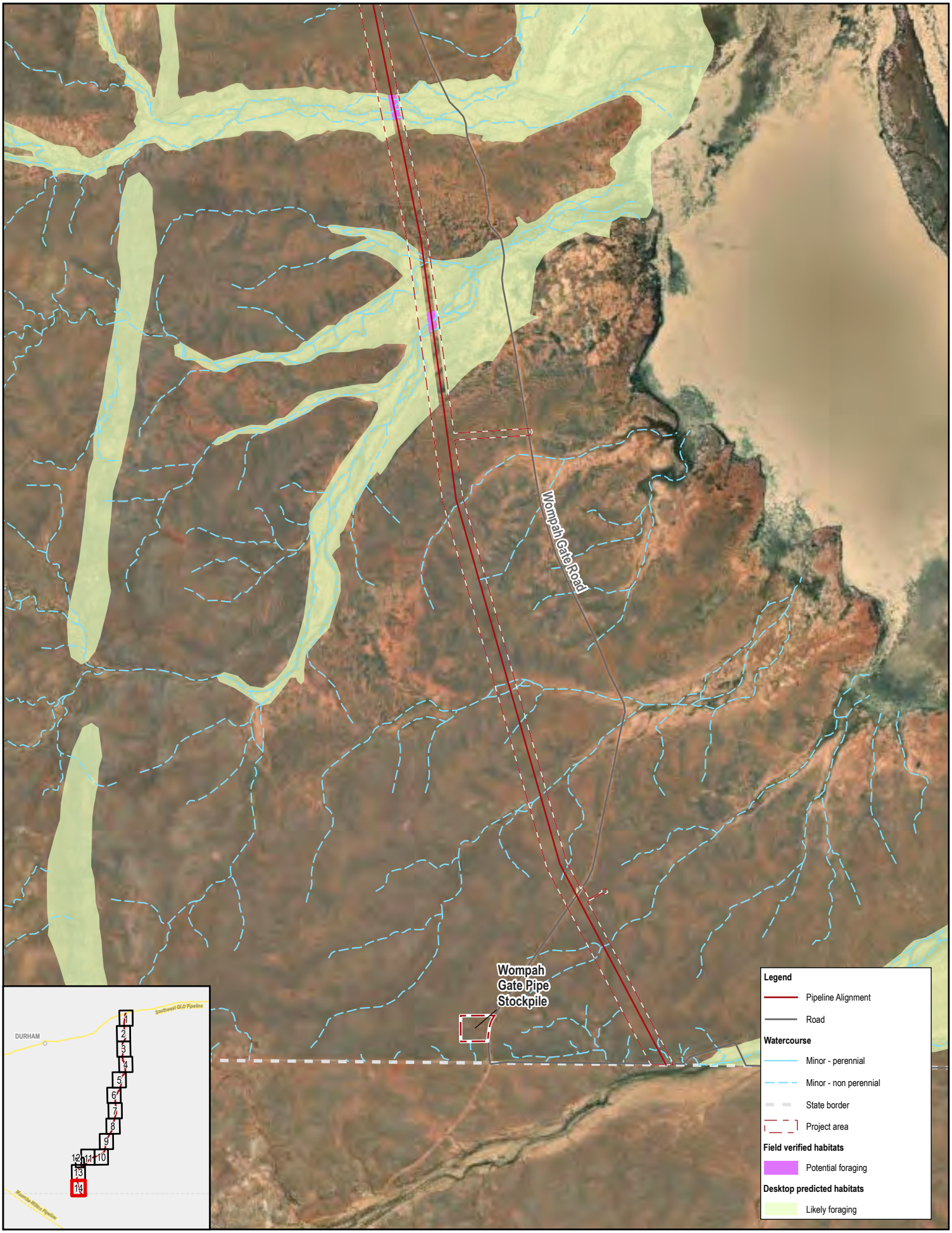
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Bulloo Interlink Pipeline

Red goshawk habitat distribution

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Figure 4.9

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Sharp-tailed sandpiper

The sharp-tailed sandpiper is listed as **vulnerable** under the NC Act and migratory under the EPBC Act. It is a monotypic species with no recognised subspecies (Horsfield, 1821). The sharp-tailed sandpiper is a small to medium-sized migratory shorebird with distinct seasonal plumage variation.

The species breeds in northern Siberia, from the Lena River delta east to the Kolyma River delta, and migrates through eastern Asia to overwinter in Australasia. In Australia, it is widespread during the non-breeding season, occurring in all states, most abundantly in the south-east, in both inland and coastal freshwater and saline wetlands. Birds are common in shallow wetlands, floodplains, vegetated margins, and artificial systems such as sewage ponds and flooded crops (Cramp, 1985; Higgins & Davies, 1996; BirdLife Australia, 2021).

In Queensland, the species is widespread along the coast and scattered inland, including central and south-western regions. The primary REs assigned as habitat for the sharp-tailed sandpiper within the project site were determined to be:

– **Potential roosting and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp. open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks.

Within the project site, these regional ecosystems represent potential and locally suitable foraging or short-term roosting habitat that may be used opportunistically during migration or foraging in the non-breeding period. There is no listed internationally or nationally important habitat that occurs in the project area for the sharp-tailed sandpiper under the EPBC Act, as listed in the *National Directory of important Migratory Shorebird Habitat* (DCCEEW 2025).

The sharp-tailed sandpiper was not detected during field surveys for the project; however, nearby records include a 2018 record 3 km from KP 231 and a 2018 record 1.5 km from KP 212 (ALA, 2025). Given its wide-ranging, highly mobile ecology and use of ephemeral and artificial wetlands, the species is considered to have potential to occur on a transient basis within suitable wetland and floodplain habitats in the project site. Suitable habitat distribution within the project site is shown in Figure 4.10.

Curlew sandpiper

The curlew sandpiper is listed as **critically endangered** under the NC Act and migratory under the EPBC Act. It is a monotypic species, with no recognised subspecies (Pontoppidan, 1763). Other common names include pygmy curlew, curlew stint, and redcrop.

The species breeds in the high Arctic of Siberia, from Chosa Bay to the Chukotskiy Peninsula, and migrates along the East Asian–Australasian Flyway to overwinter across coastal and inland wetlands of Australia, Africa, India, and the Middle East (BirdLife International, 2021; Van Gils & Wiersma, 1996). In Australia, curlew sandpipers are most common in the south-east and north-west, roosting and foraging in intertidal mudflats, sandy and shelly substrates, saltmarshes, shallow lagoons, and inland ephemeral wetlands following flooding. They are gregarious, often mixing with other shorebirds at foraging and roosting sites (Rogers et al., 2008).

In Queensland, the species is widespread along the coast south of Cairns and scattered inland, with regular records from the Gulf of Carpentaria and around Mount Isa. Habitat used by the curlew sandpiper during the non-breeding season includes a mosaic of feeding and roosting habitat. The species is likely highly selective about foraging environments due to its specialised feeding techniques. Feeding habitat includes exposed sandy or soft mud substrates on intertidal flats and beaches. In general, feeding takes place over the whole tidal range; however, like most migratory shorebird species, upper tidal flats are likely especially important. Large, interconnected networks of feeding sites are important at a flyway scale to enable the species to cope with natural and human-driven environmental change; however, individual sites may be used opportunistically depending on local conditions (DCCEEW, 2023d).

The primary REs assigned as habitat for the curlew sandpiper within the project site were determined to be:

– **Potential roosting and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp*.* open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks.

Within the project site, these regional ecosystems represent potential and locally suitable roosting or foraging habitat that may be used opportunistically following inundation events.

Although the species was not recorded during project surveys, nearby records include a 2018 record 3 km from KP 231, and a 2018 record 1.5 km from KP 212 (ALA, 2025). Given the species' mobility, reliance on ephemeral wetlands, and widespread use of inland and coastal habitats, the curlew sandpiper is considered likely to occur within the project area. Suitable habitat distribution within the project site is shown in Figure 4.10.

Common greenshank

The common greenshank is listed as **endangered** under the NC Act and migratory under the EPBC Act. It breeds across the Palearctic and migrates to Australasia for the non-breeding season, occurring widely across inland and coastal wetlands (Higgins & Davies, 1996). Greenshanks are versatile, diurnal and nocturnal feeders that forage by picking, probing, sweeping and lunging in shallow water and along wet margins, taking insects, crustaceans, annelids, molluscs and small fish (del Hoyo et al., 1996; BirdLife Australia, 2021). Roosting occurs on coasts and inland at estuaries, mudflats, mangrove lagoons, billabongs, sewage ponds and flooded crops (Higgins & Davies, 1996; BirdLife Australia, 2021).

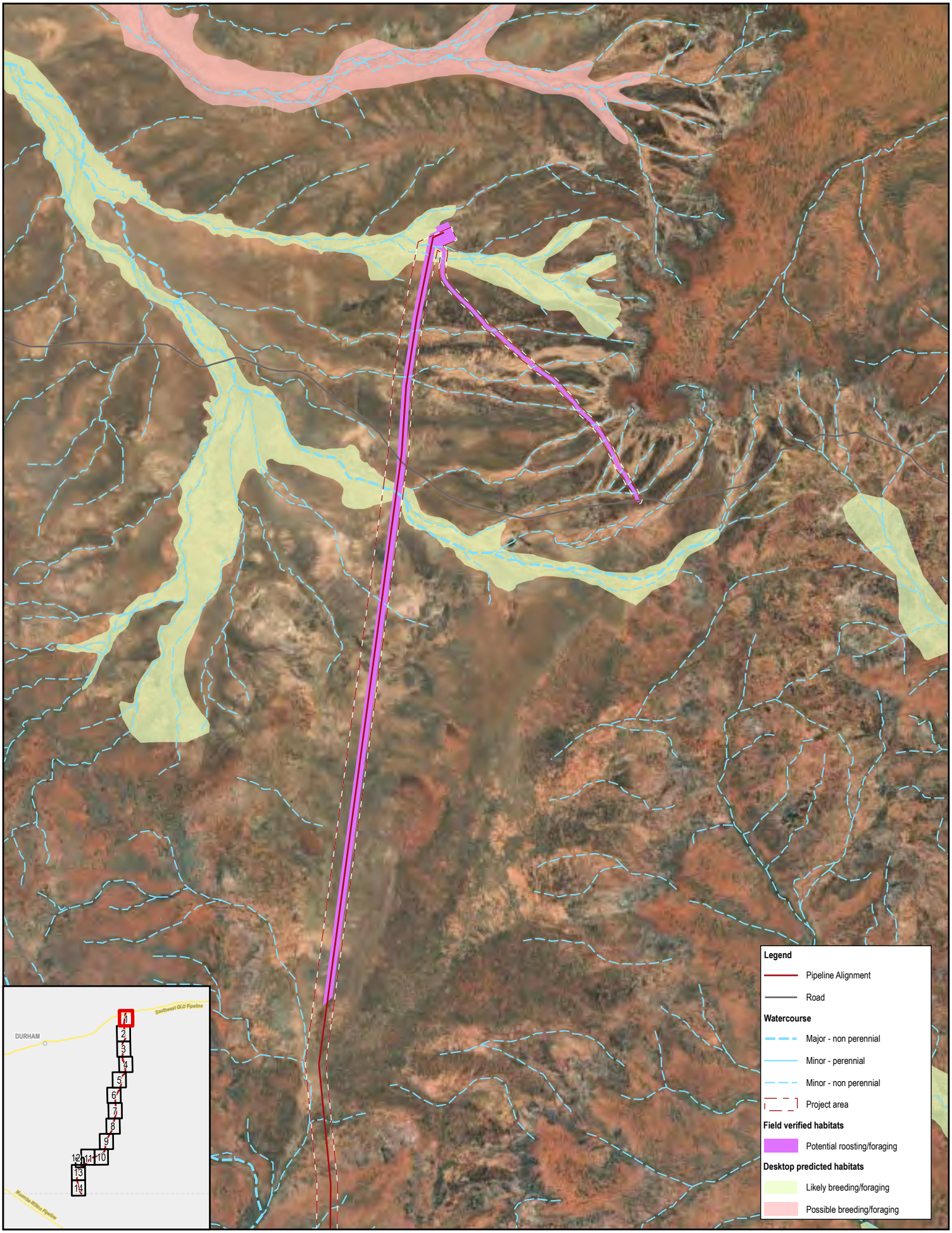
Habitat used by the common greenshank during the non-breeding season includes a mosaic of feeding and roosting habitats. During the non-breeding season the species inhabits a variety of freshwater, marine, and artificial wetlands. They have been recorded in swamps, open muddy/rocky shores of lakes and large rivers, sewage farms, saltworks, inundated rice-fields, ponds, reservoirs, flooded grasslands, saltmarshes, sandy/muddy coastal flats, mangroves, estuaries, lagoons and pools on tidal reefs, or areas of exposed coral (del Hoyo et al., 1996; BirdLife International, 2021b). Such habitats may be used opportunistically depending on local conditions, particularly in response to rainfall and inundation events.

The primary REs assigned as habitat for the common greenshank within the project site were determined to be:

– **Potential roosting and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp*.* open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks.

Within the project site, these regional ecosystems represent potential and locally suitable roosting or foraging habitat that may be used transiently by common greenshanks during the non-breeding season. They do not constitute internationally or nationally important habitats for foraging, staging, roosting or non-breeding habitat for the species under the EPBC Act.

The species was not detected during field surveys; however, there is a 2001 record approximately 1 km south-east of KP 78, indicating the species is likely to occur transiently within the project area (ALA, 2025). Suitable habitat distribution within the project site is shown in Figure 4.10.



Paper Size ISO A4

0 0.35 0.7 1.05 1.4

Kilometres

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

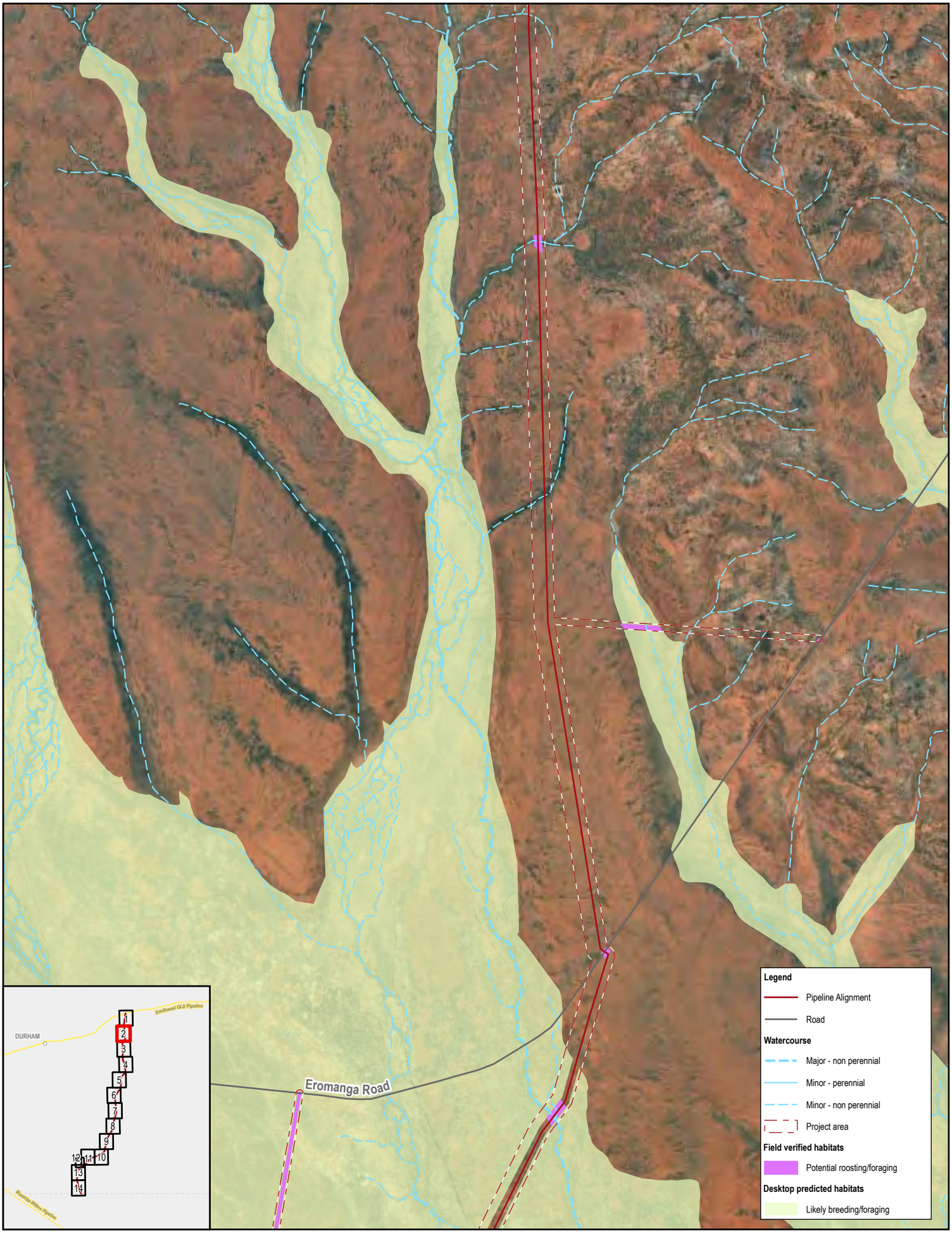
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Figure 4.10

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

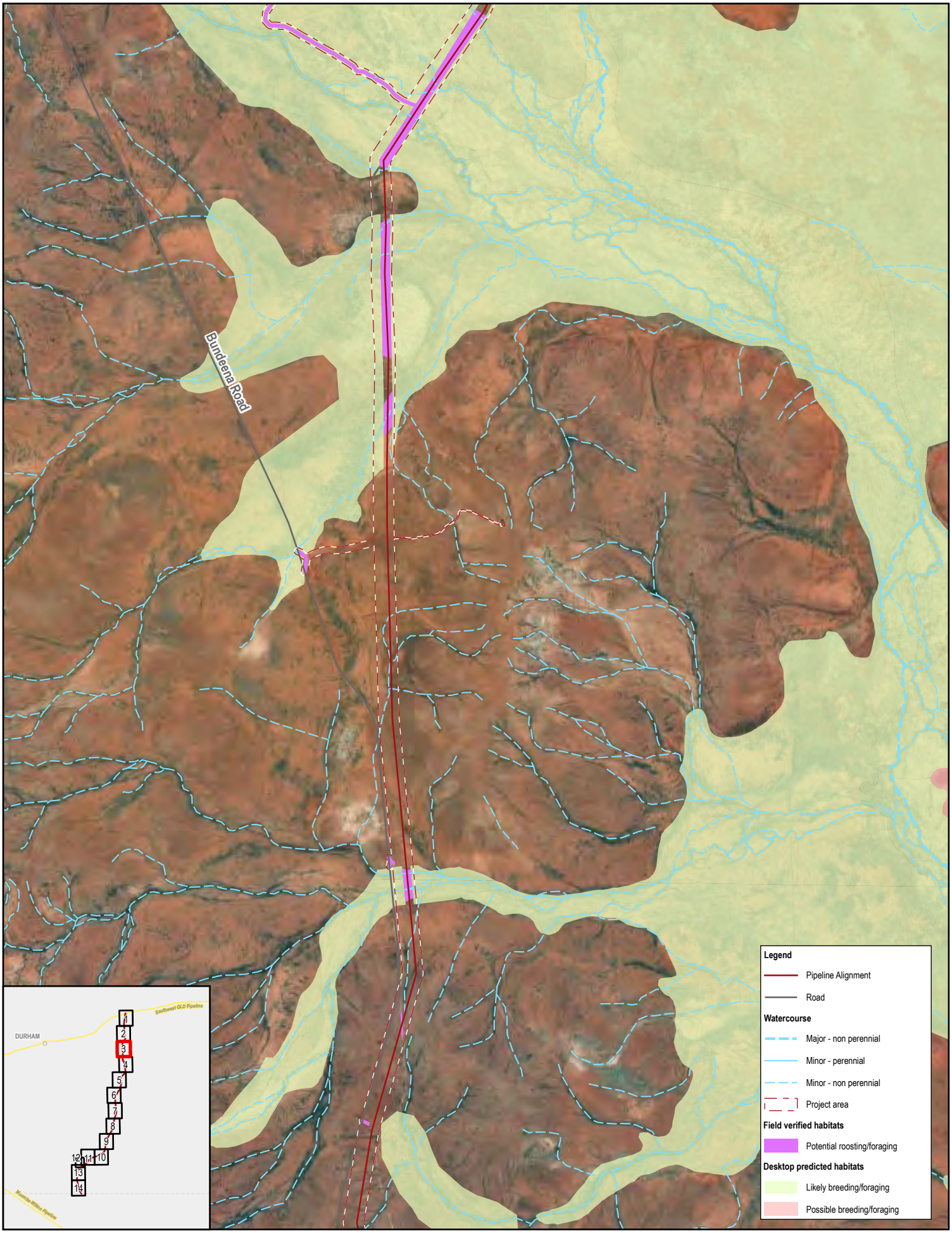
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Figure 4.10

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Paper Size ISO A4

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

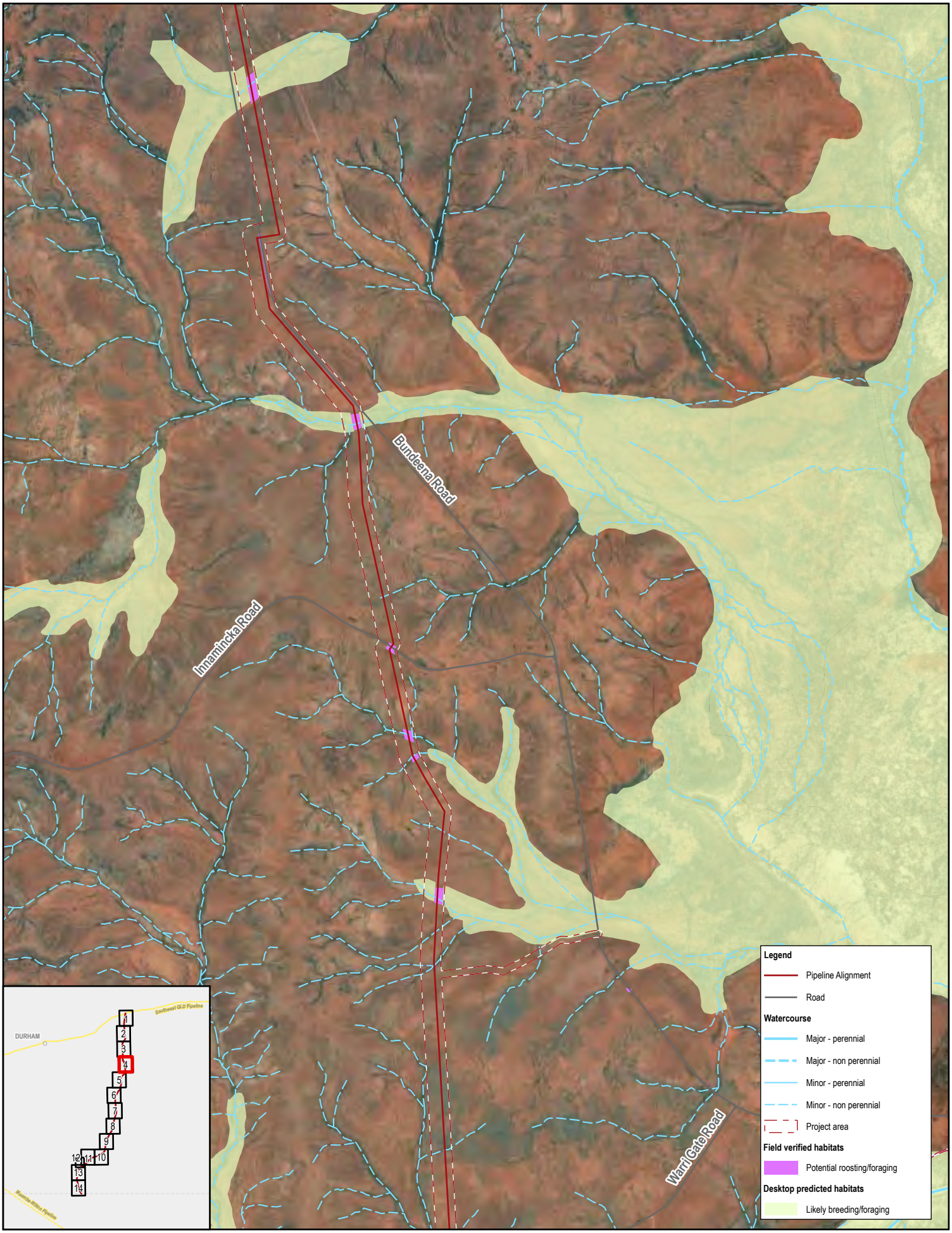
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Figure 4.10

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Kilometres

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Map Projection: Transverse Mercator
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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

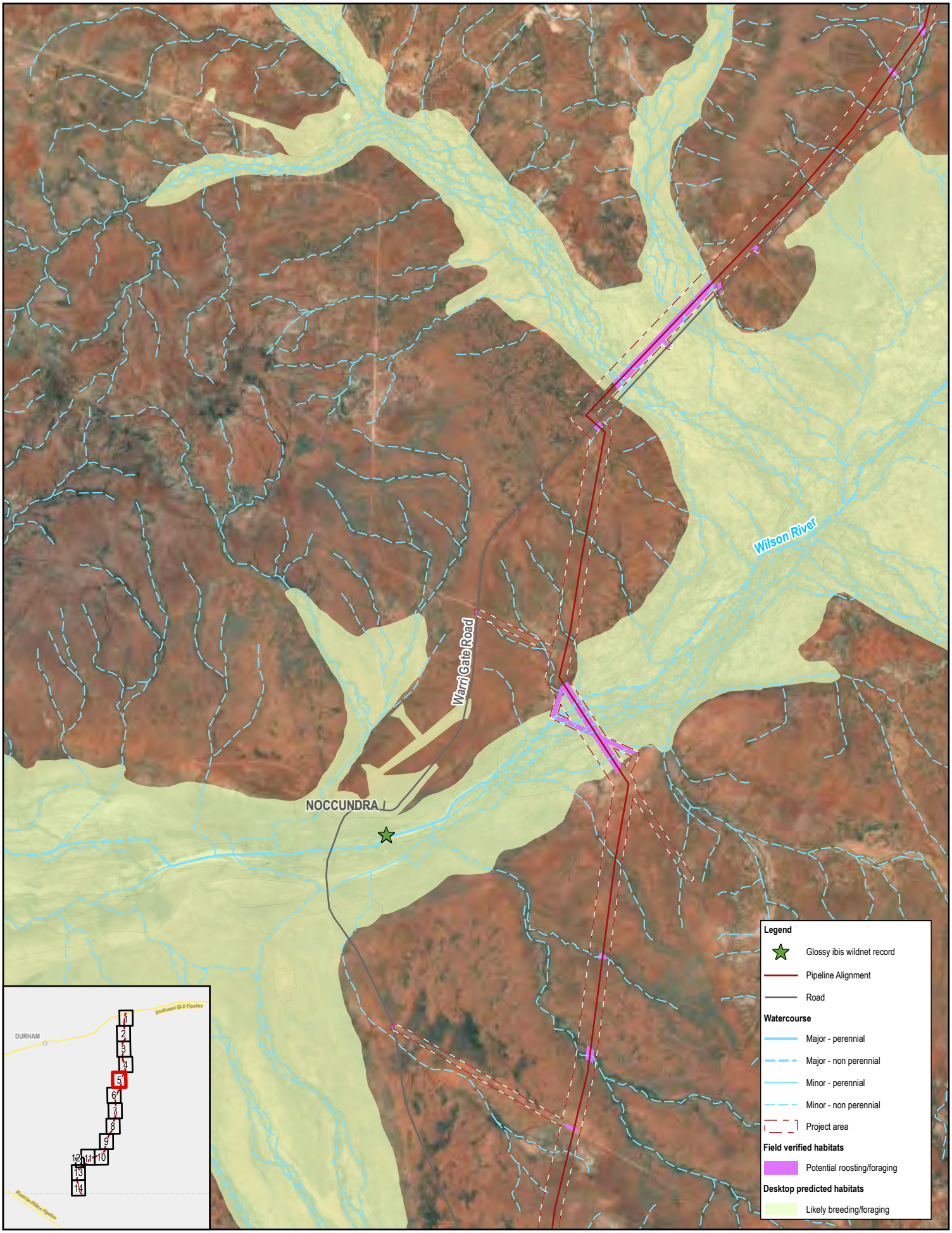
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Figure 4.10

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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

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Figure 4.10

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Kilometres

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

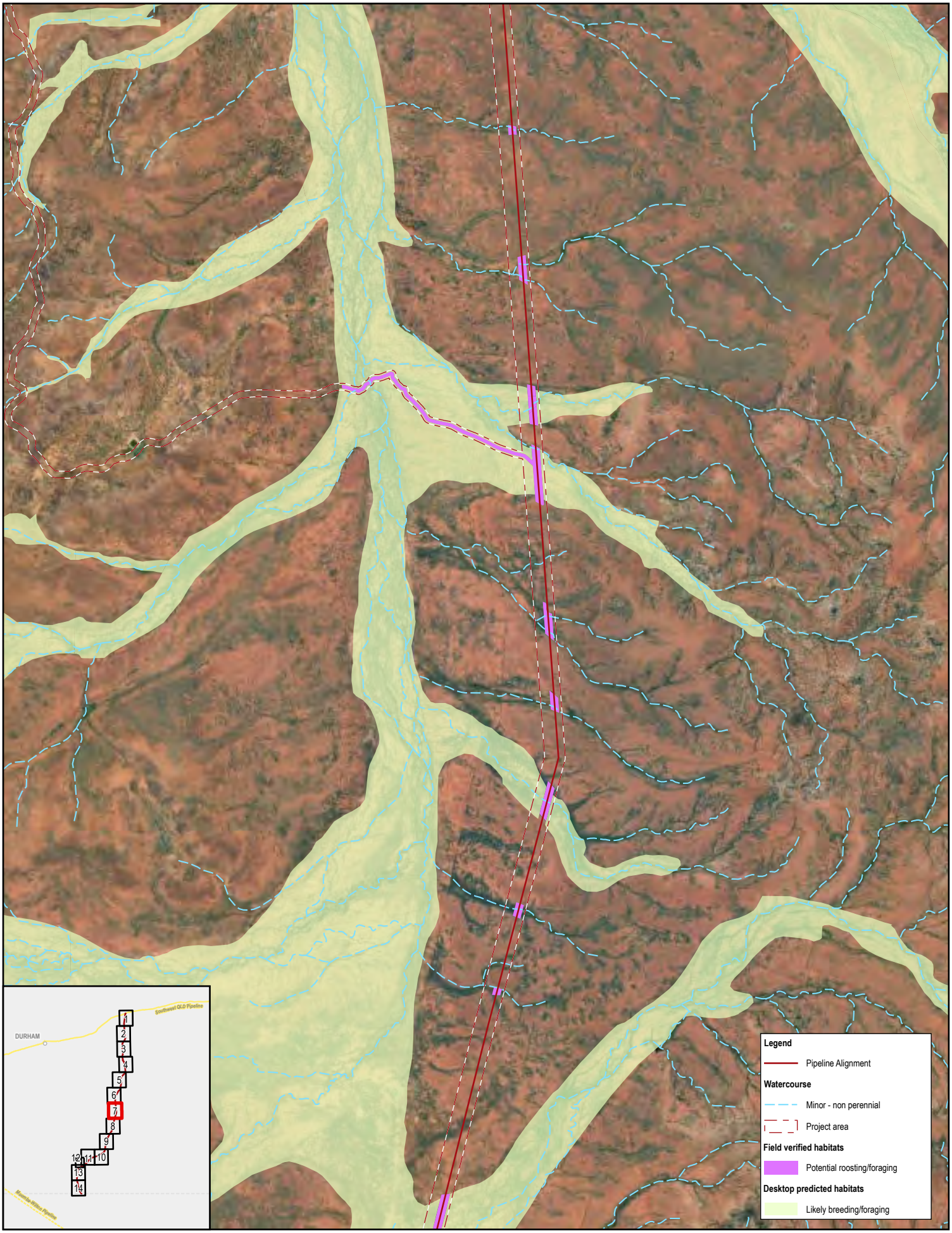
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Figure 4.10

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

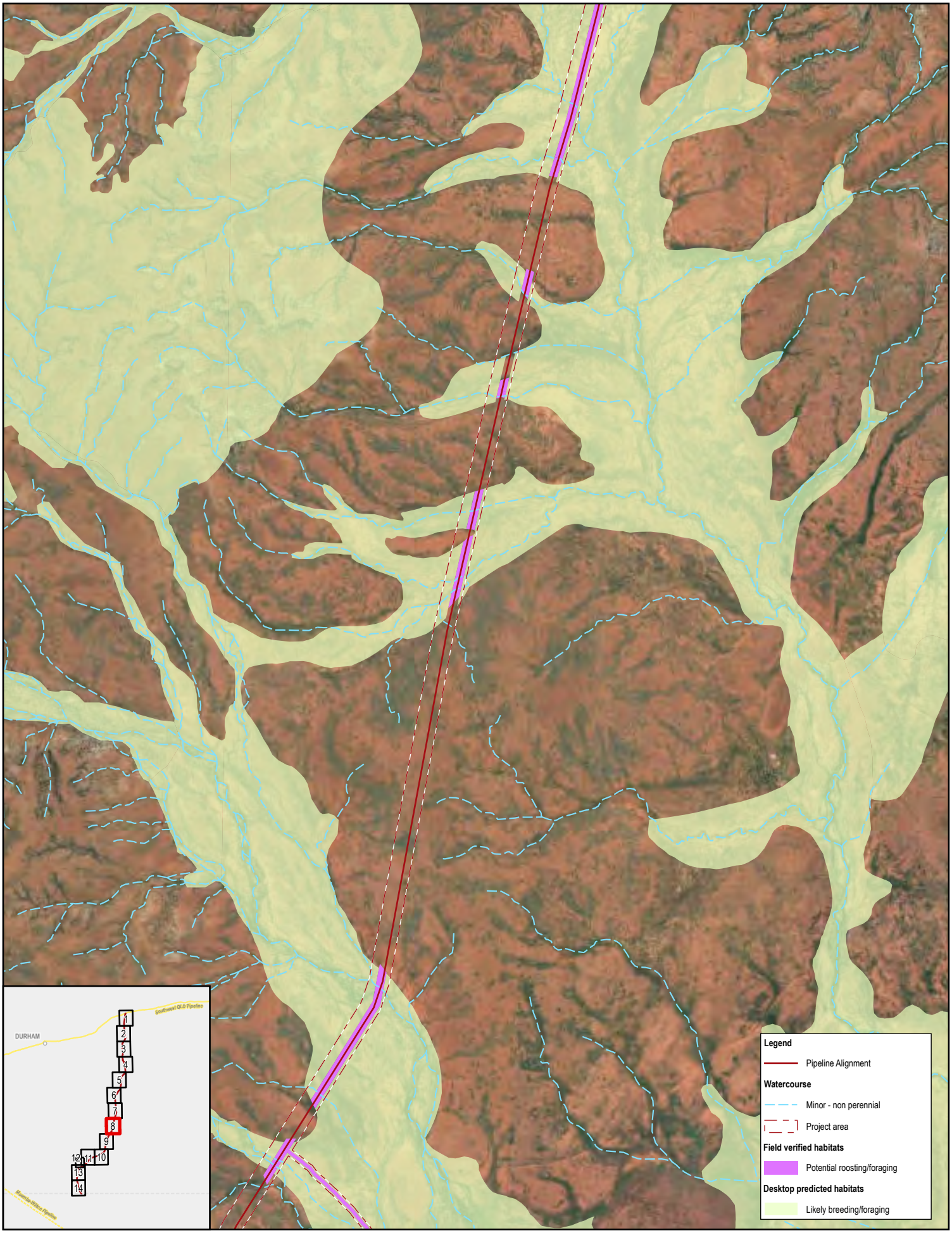
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Figure 4.10

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

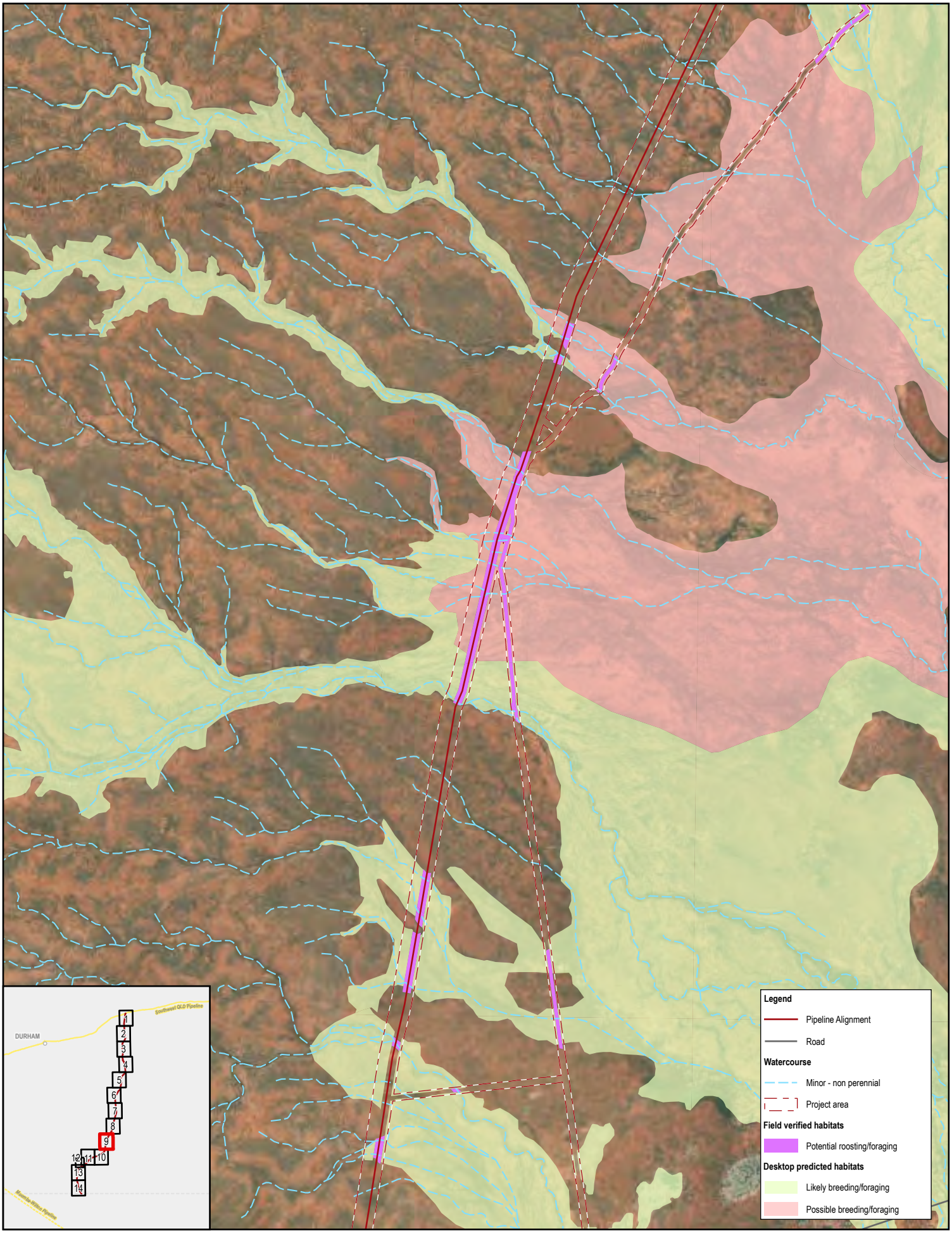
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Figure 4.10

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

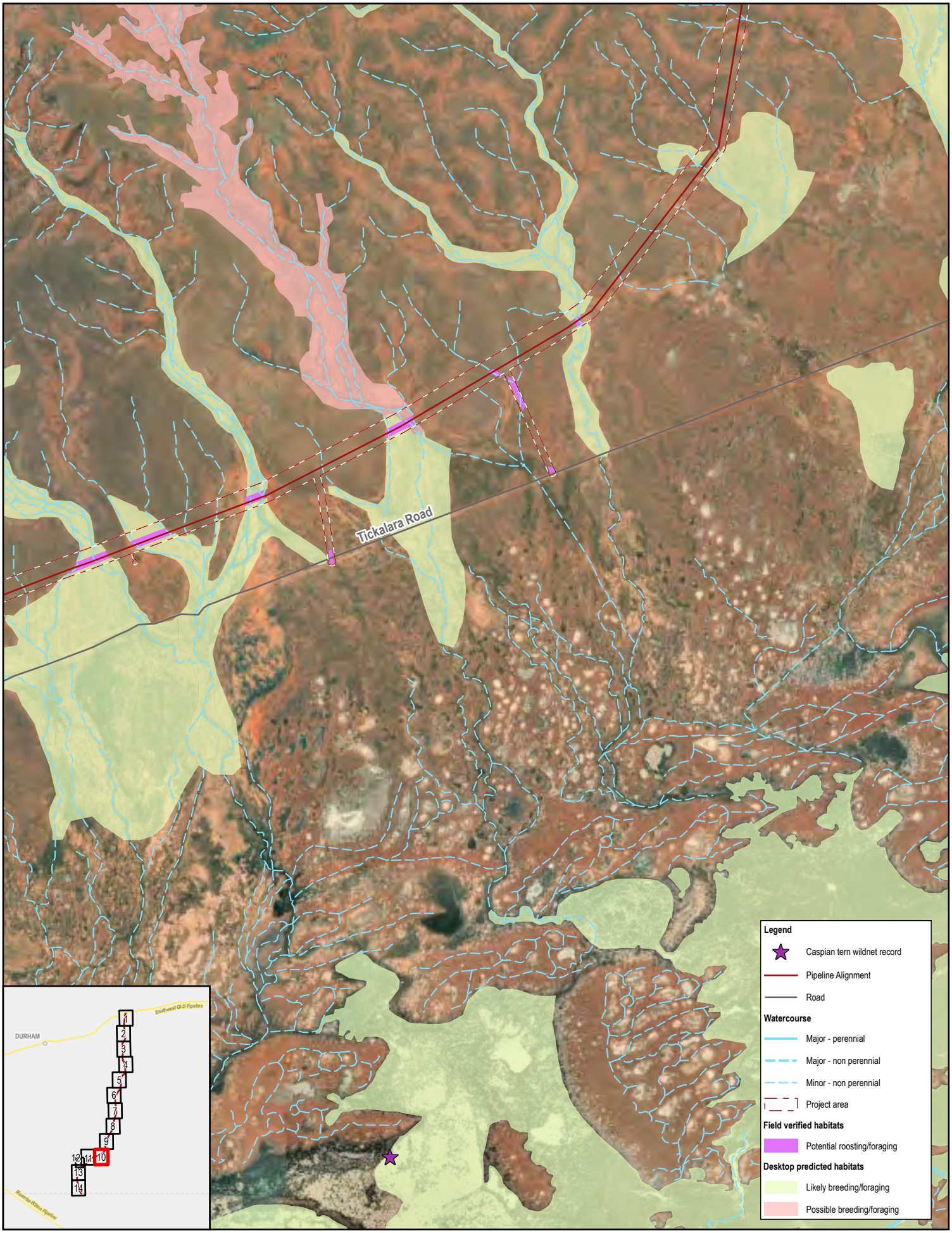
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Figure 4.10

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

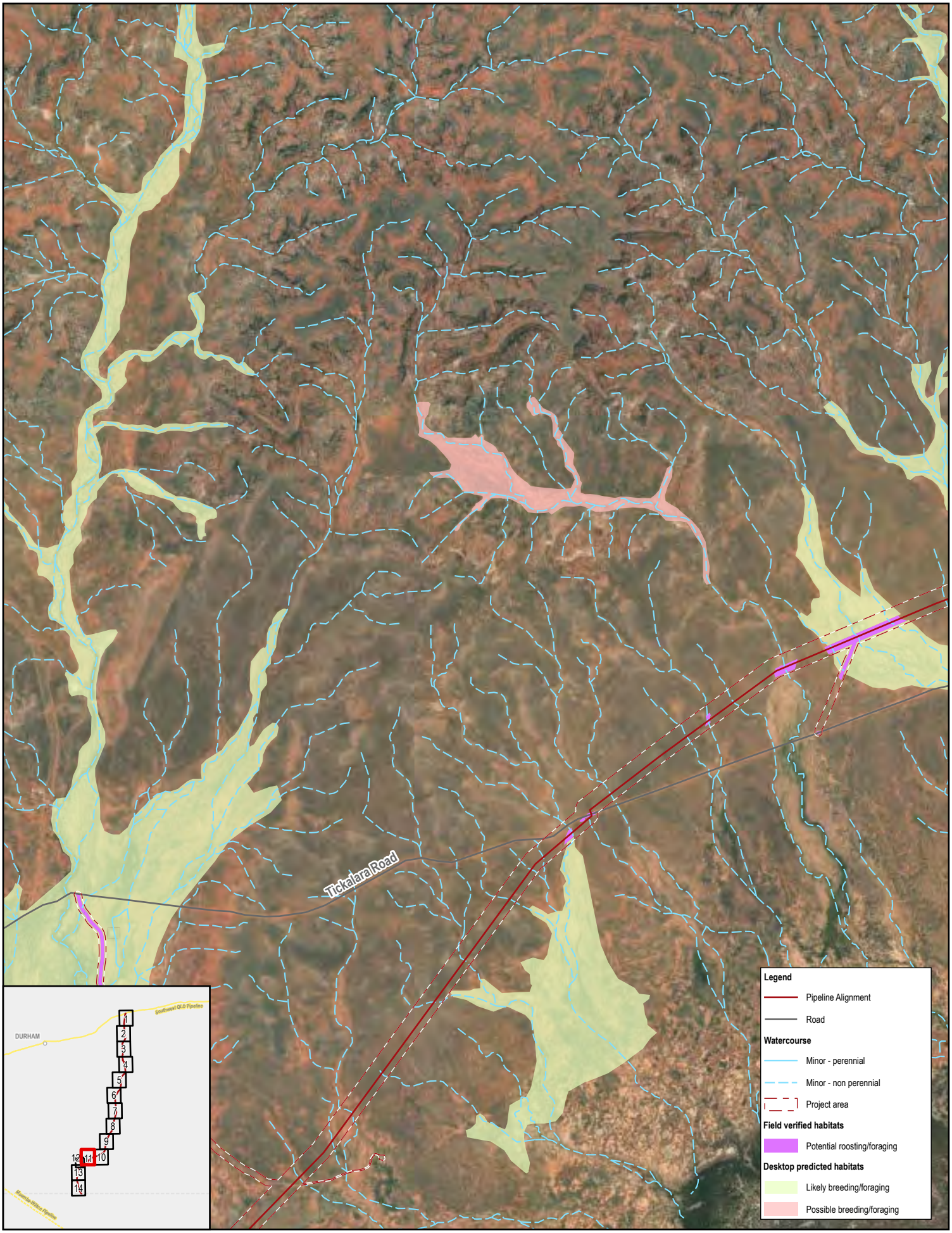
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Figure 4.10

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

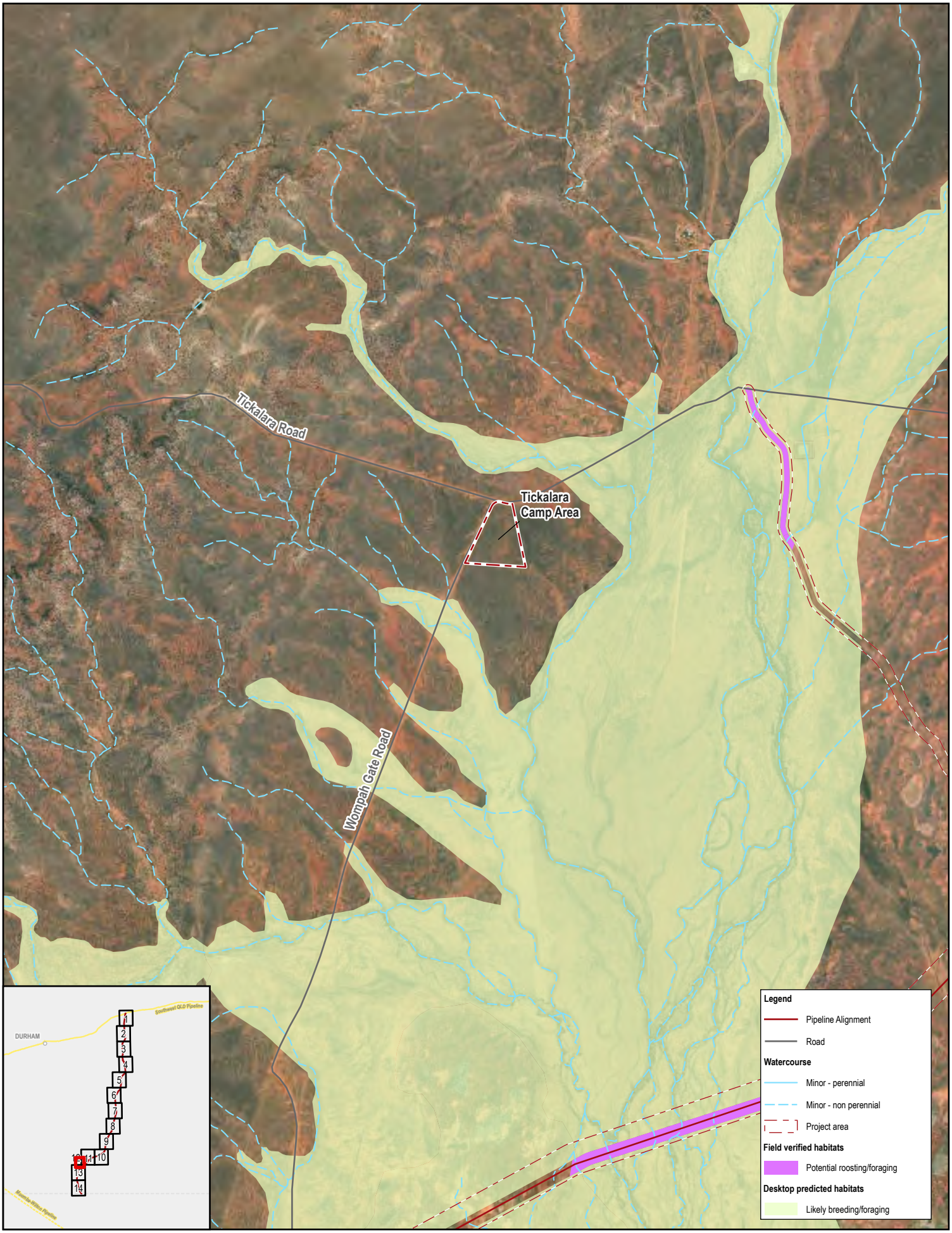
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Figure 4.10

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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

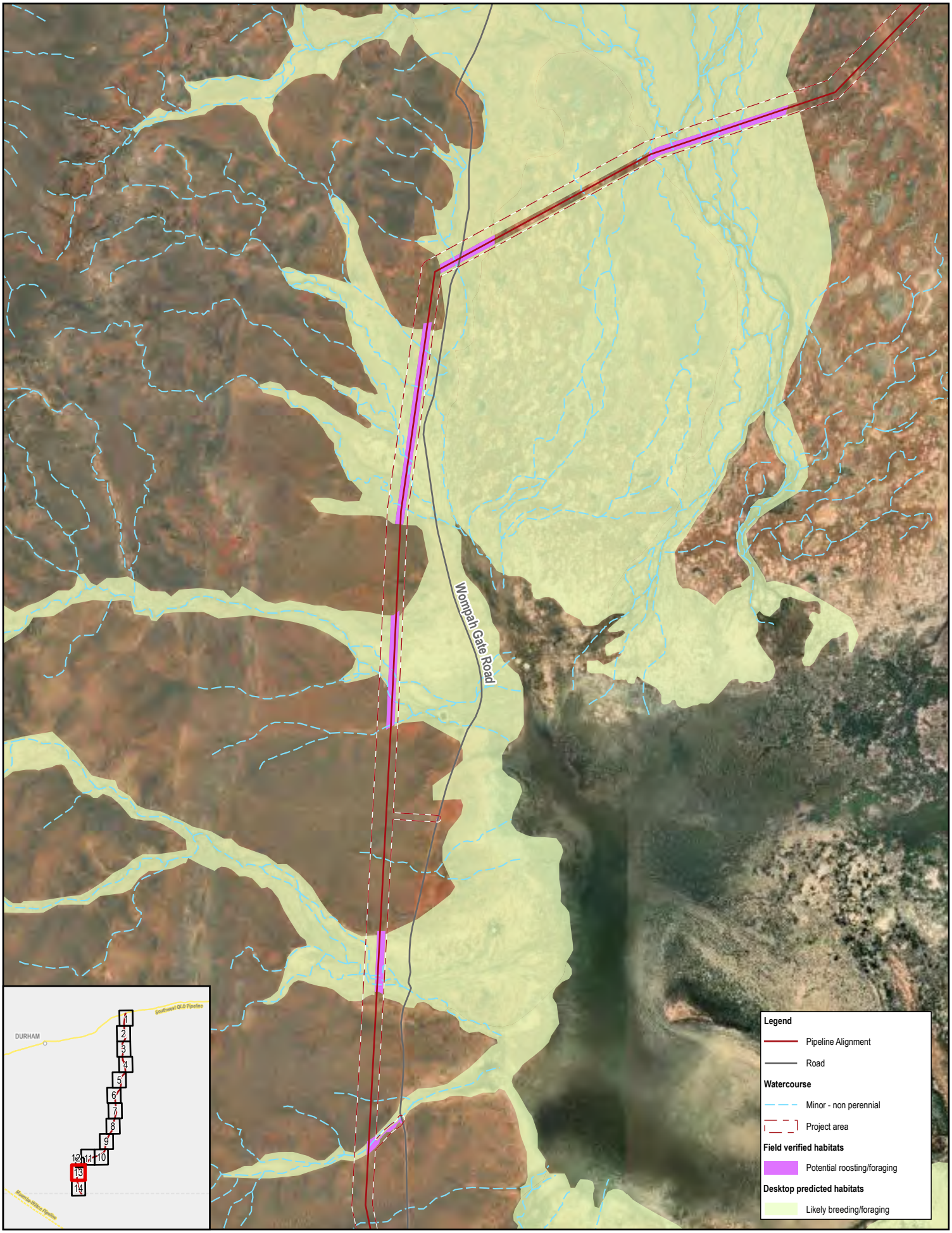
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Figure 4.10

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Kilometres

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Bulloo Interlink Pipeline

Migratory birds habitat distribution

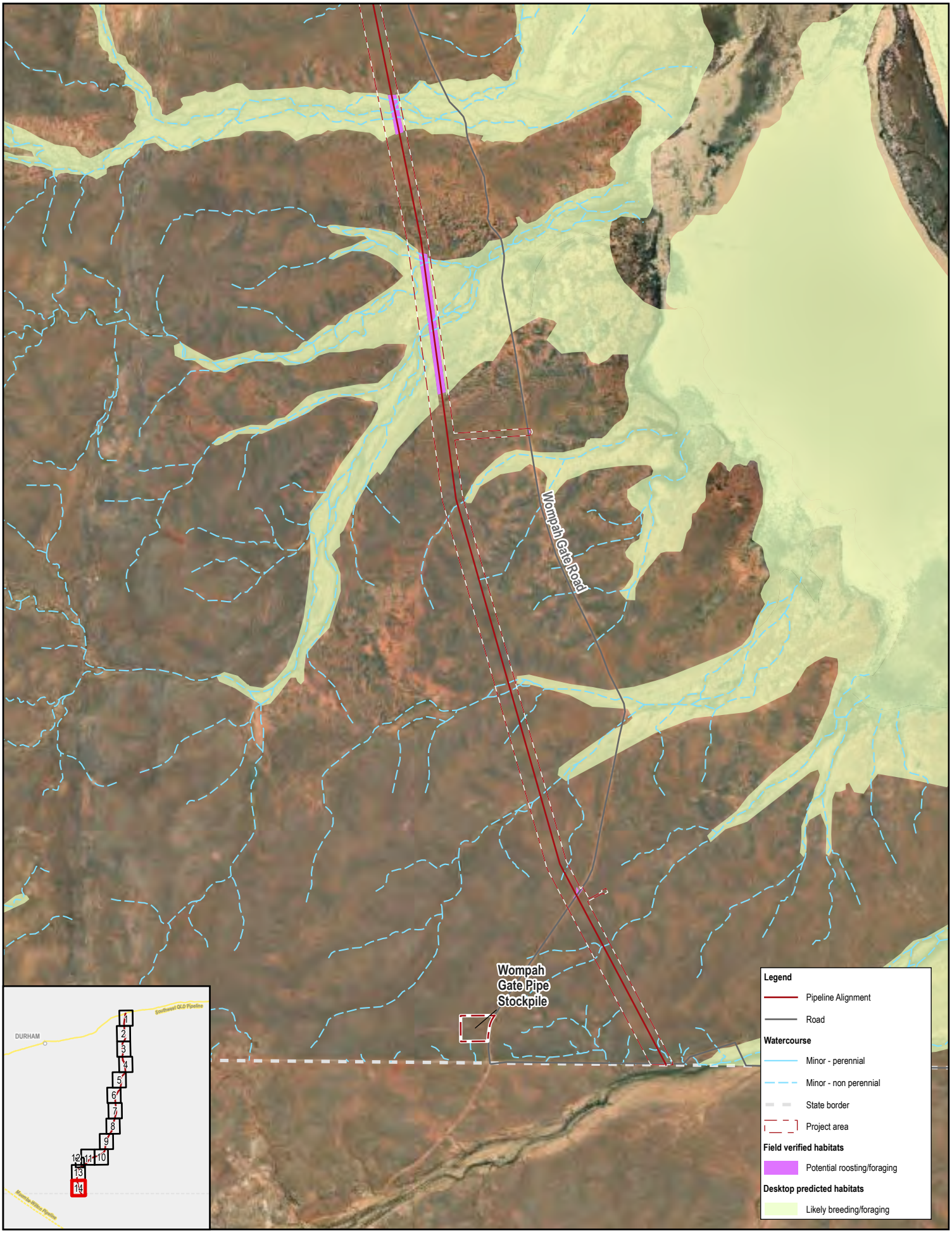
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Figure 4.10

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APA Group
Bulloo Interlink Pipeline

Migratory birds habitat distribution

Project No. **12661648**
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Figure 4.10

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Grey falcon

The grey falcon is listed as **vulnerable** under the NC Act and EPBC Act. It is Australia's rarest falcon, occurring at very low densities across inland and semi-arid regions, particularly where annual rainfall is below 500 mm (Marchant & Higgins, 1993; Garnett et al., 2011; Schoenjahn, 2018). The species is largely confined to the interior, with strongholds in the Murray–Darling Basin, Eyre Basin, and central Australia, and it is largely absent from Cape York, eastern coastal regions, and southern Victoria (Barrett et al., 2003; Schoenjahn, 2018).

The grey falcon is closely associated with timbered lowland plains, acacia shrublands, and tussock grasslands, particularly were crossed by tree-lined watercourses that provide nesting opportunities (Garnett et al., 2011). While it hunts over open woodlands and treeless plains, breeding is strongly tied to large mature eucalypts, especially river red gum (*Eucalyptus camaldulensis*) and coolibah (*E. coolabah*), often re-using stick nests built by other raptors or corvids (Marchant & Higgins, 1993; Schoenjahn, 2013). Breeding generally occurs from June to November, with clutch sizes of 1–4 eggs and young sometimes remaining dependent on parents for up to 12 months (Cupper & Cupper, 1980; Schoenjahn, 2018).

The species feeds predominantly on birds, particularly pigeons, doves, parrots, cockatoos, and finches, although occasional predation on small mammals and reptiles has been recorded (Marchant & Higgins, 1993; Schoenjahn, 2013). Its wide foraging range and low nesting densities contribute to its rarity and make populations highly sensitive to the loss of large nesting trees along riparian corridors (Schoenjahn, 2018).

Within the project area, suitable habitat is present in the form of open woodlands, acacia shrublands, and treeless plains with scattered large trees. Riparian corridors also provide potential breeding sites in mature eucalypts. important habitat attributes for the species' persistence at a regional scale (TSSC, 2020).

The primary REs assigned as habitat for the grey falcon within the project site were determined to be:

– **Potential breeding and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis* +/- *E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis* +/- *Acacia aneura* +/- *A. cambagei* +/- *A. georginae* +/- *A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland +/- *Duma florulenta* shrubland on braided channel systems.
– **Potential foraging habitat:**
  - 5.3.9 – *Acacia cambagei* +/- *Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp. open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks
  - 5.5.1 – *Acacia aneura* low woodland on Quaternary deposits
  - 5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments
  - 5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields
  - 5.6.4 – *Atalaya hemiglauca* +/- *Acacia aneura* +/- *Acacia* spp. +/- *Corymbia terminalis* low open woodland on reticulate sand dunes.

Within the project site, these regional ecosystems represent potential and locally suitable breeding or foraging habitat for the grey falcon.

The grey falcon was not recorded during field surveys; however, there are numerous regional records including a 2021 sighting approximately 5 km from KP 231, a 2011 record 3 km from KP 71, and a 2017 record 3 km from KP 60 (ALA, 2025). These records, combined with the availability of suitable foraging and potential breeding habitat, indicate the species is likely to occur within the project area. Suitable habitat distribution within the project site is shown in Figure 4.11.

Latham's snipe

Latham's snipe is listed as **vulnerable** under the NC Act and migratory under the EPBC Act. The species breeds in northern Japan and far eastern Russia and migrates to south-eastern Australia for the non-breeding season (Higgins & Davies, 1996; Naarding, 1985).

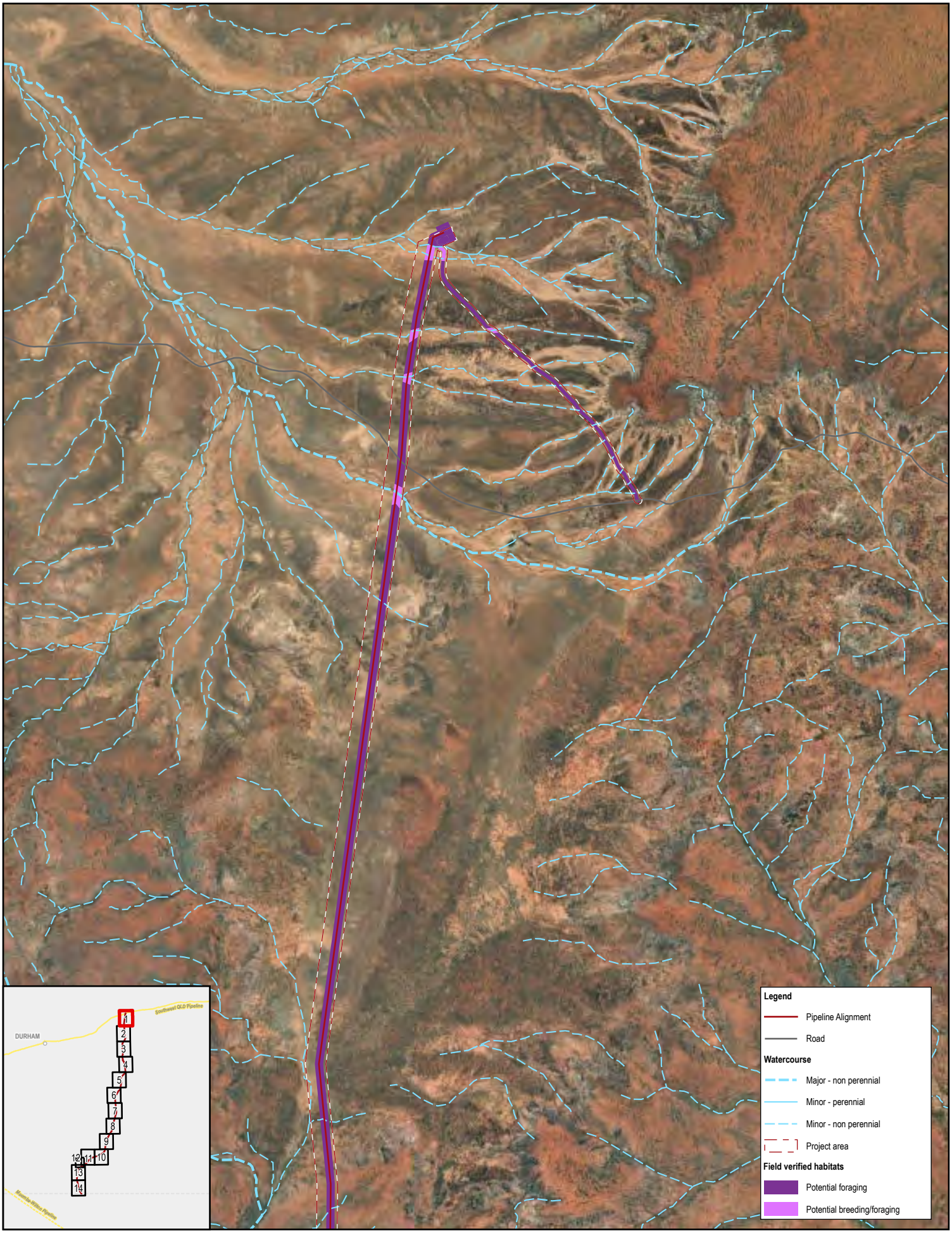
In Australia, the species is a widespread but low-density non-breeding visitor, occurring mainly along the east coast from Cape York to south-eastern South Australia, with inland records extending into Queensland, NSW, and Victoria (Frith et al., 1977; Barrett et al., 2003). The species is highly mobile during the non-breeding season, moving in response to rainfall and wetland availability (Naarding, 1983; Naarding, 1984).

Latham's snipe occupies shallow vegetated wetlands, ephemeral drainage lines, floodplains, and creek margins, typically roosting by day under dense sedges, reeds, rushes, and lignum and dispersing at night to forage (BirdLife Australia, 2021). Foraging is omnivorous, including seeds and other plant material, earthworms, spiders, and insects such as flies and beetles, typically obtained by probing into soft mud with its long bill (Frith et al., 1977; Todd, 2000). The species is not reliant on permanent wetlands but requires access to seasonal habitats that provide both cover and feeding substrates.

Within the project site, potential habitat for Latham's snipe is present in the form of drainage lines, floodplain depressions, and ephemeral wetlands that provide shallow muddy margins and dense cover. The primary REs assigned as habitat for Latham's snipe within the project site were determined to be:

– **Potential roosting and foraging habitat:**
  - 5.3.2 – *Eucalyptus camaldulensis +/- E. coolabah* open woodland on levees and banks of drainage lines
  - 5.3.4 – *Eucalyptus camaldulensis +/- Acacia aneura +/- A. cambagei +/- A. georginae +/- A. cyperophylla var. cyperophylla* woodland on drainage lines within ranges
  - 5.3.5 – *Eucalyptus coolabah* open woodland *+/- Duma florulenta* shrubland on braided channel systems
  - 5.3.9 – *Acacia cambagei +/- Eucalyptus coolabah* low woodland on braided channel systems
  - 5.3.21 – Variable sparse to open herbland, *Senna* spp. open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks.

The species was not recorded during field surveys; however, there is a 2005 record approximately 4 km south-west of KP 84, with no other recent or nearby records (ALA, 2025). Given the species' reliance on seasonal wetlands and highly mobile non-breeding behaviour, it is considered to have potential to occur opportunistically within the project area. Suitable habitat distribution within the project site is shown in Figure 4.11.



Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

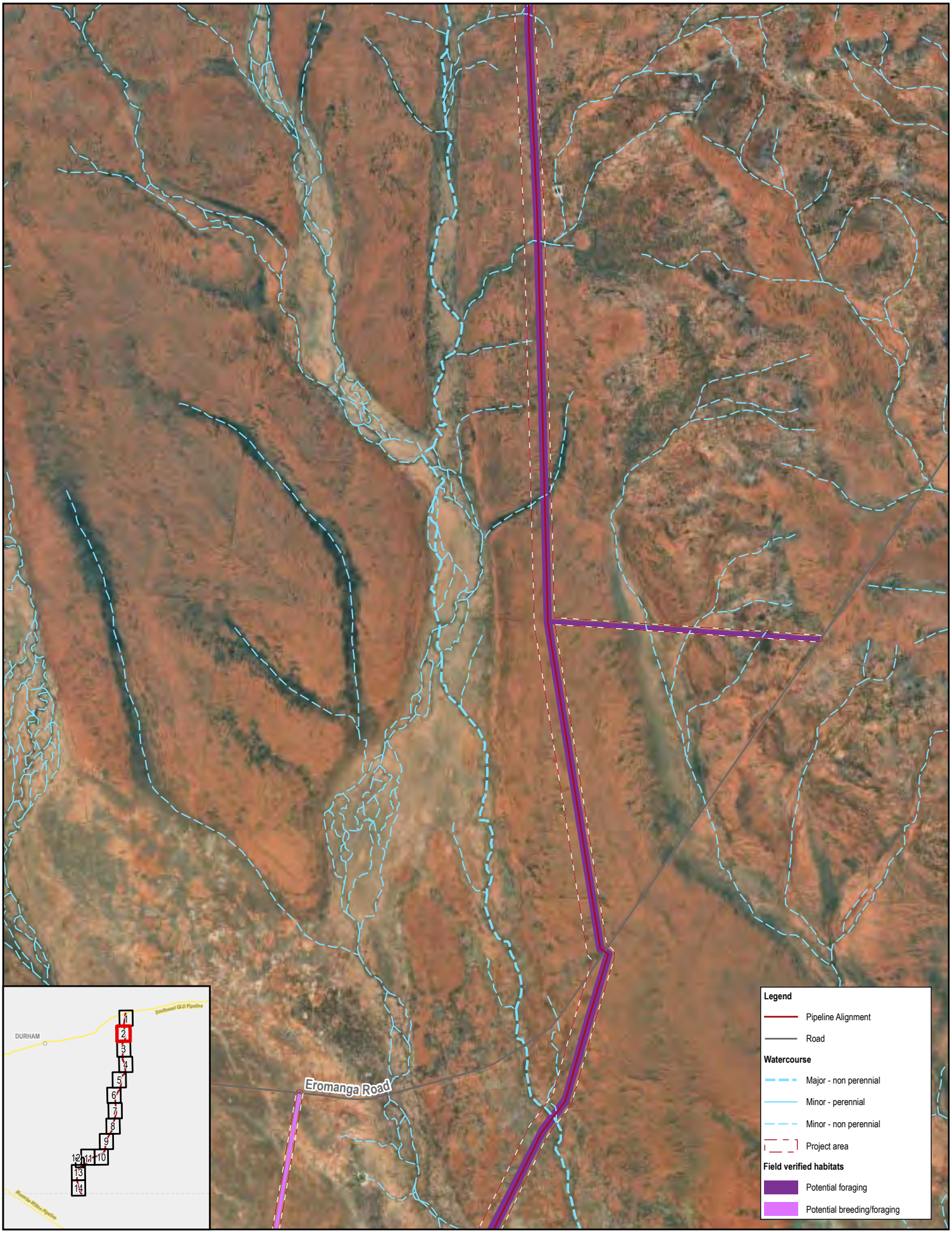
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

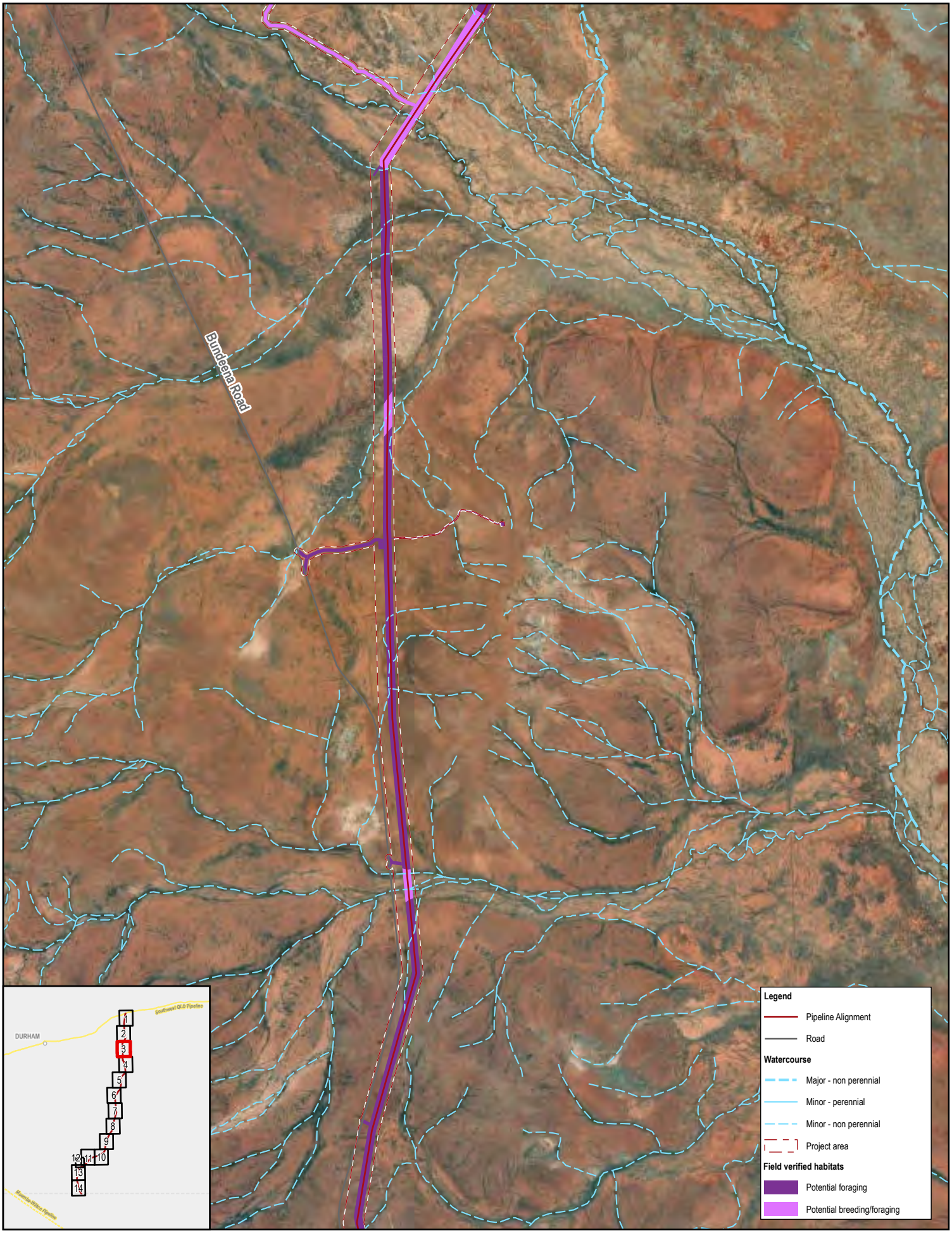
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

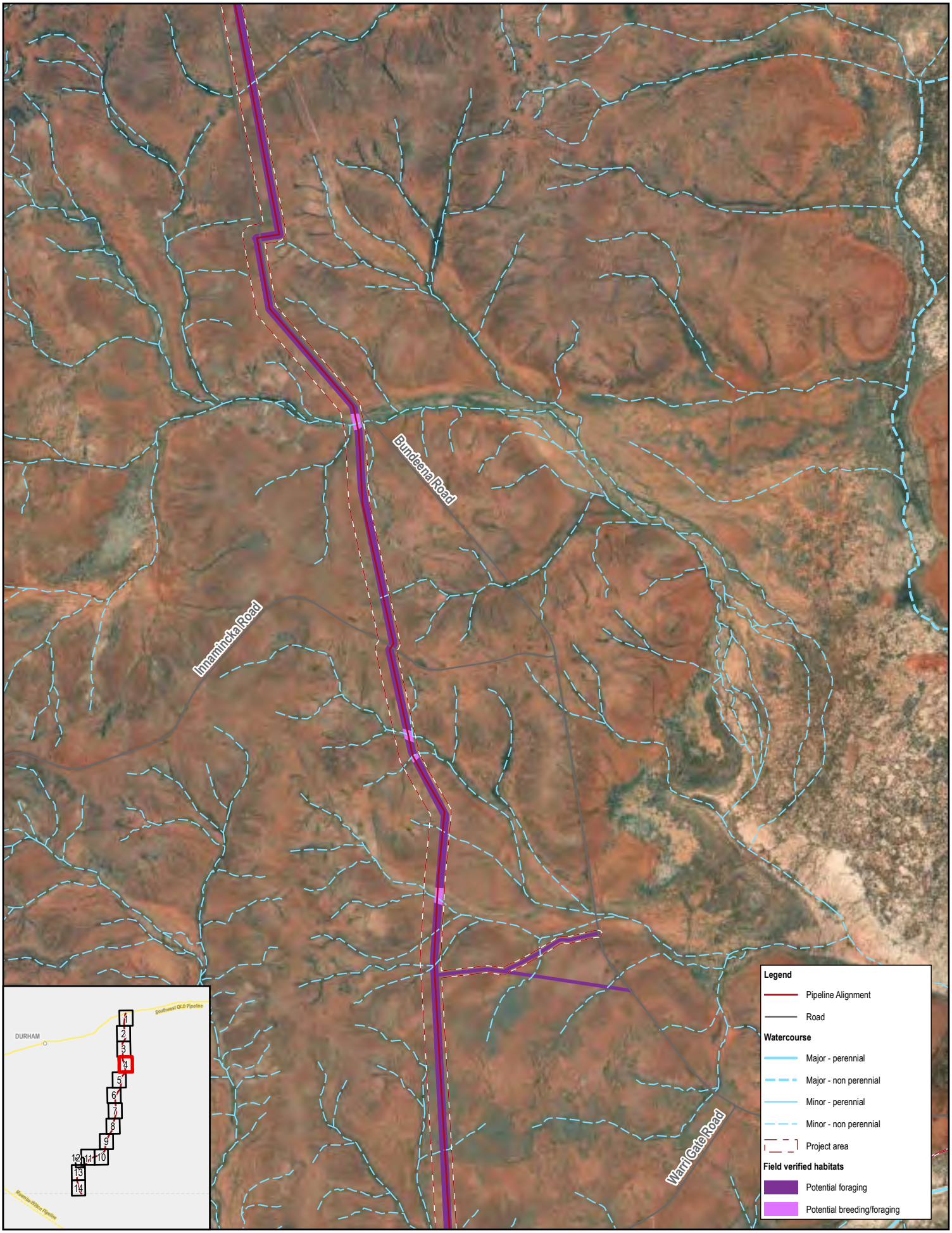
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

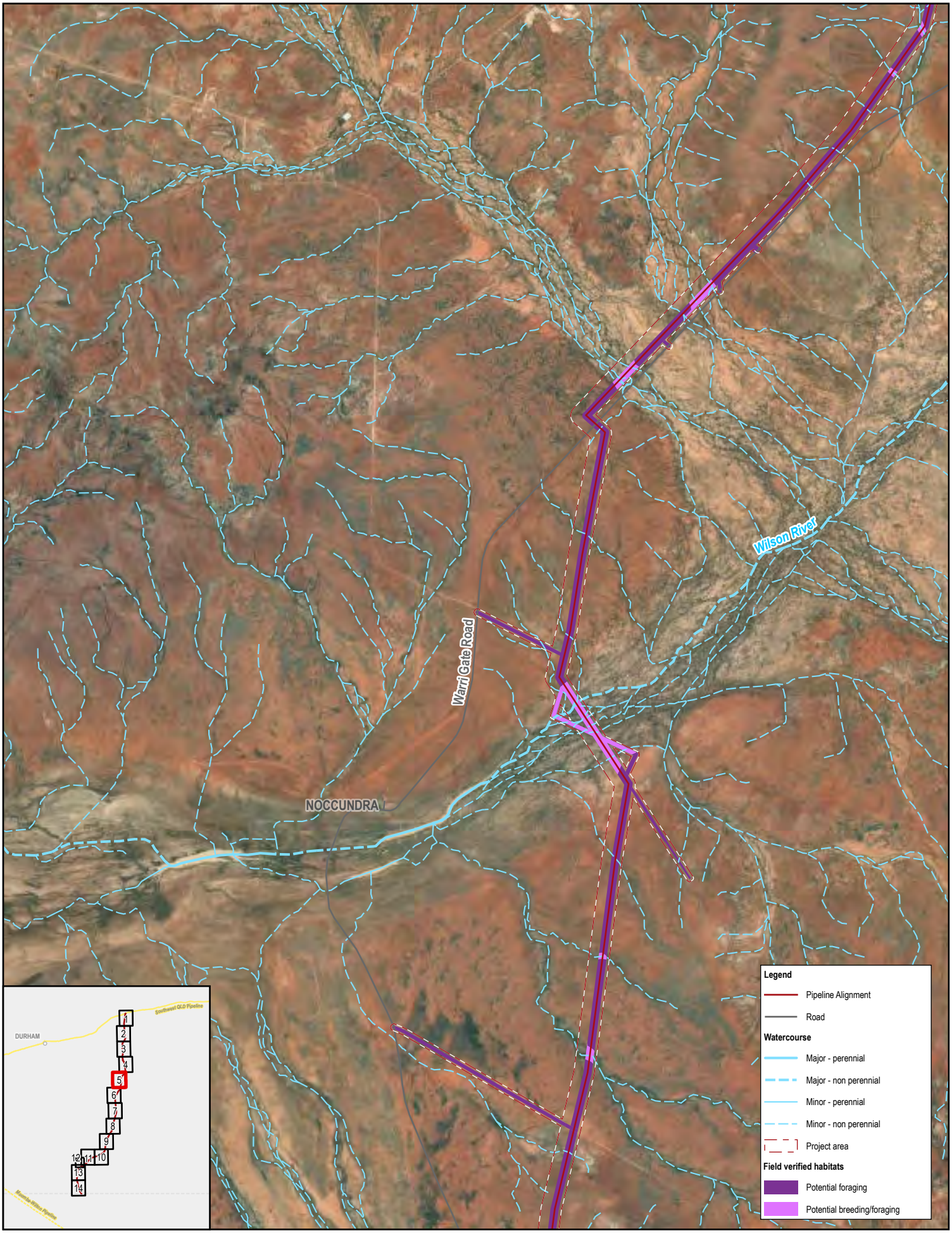
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

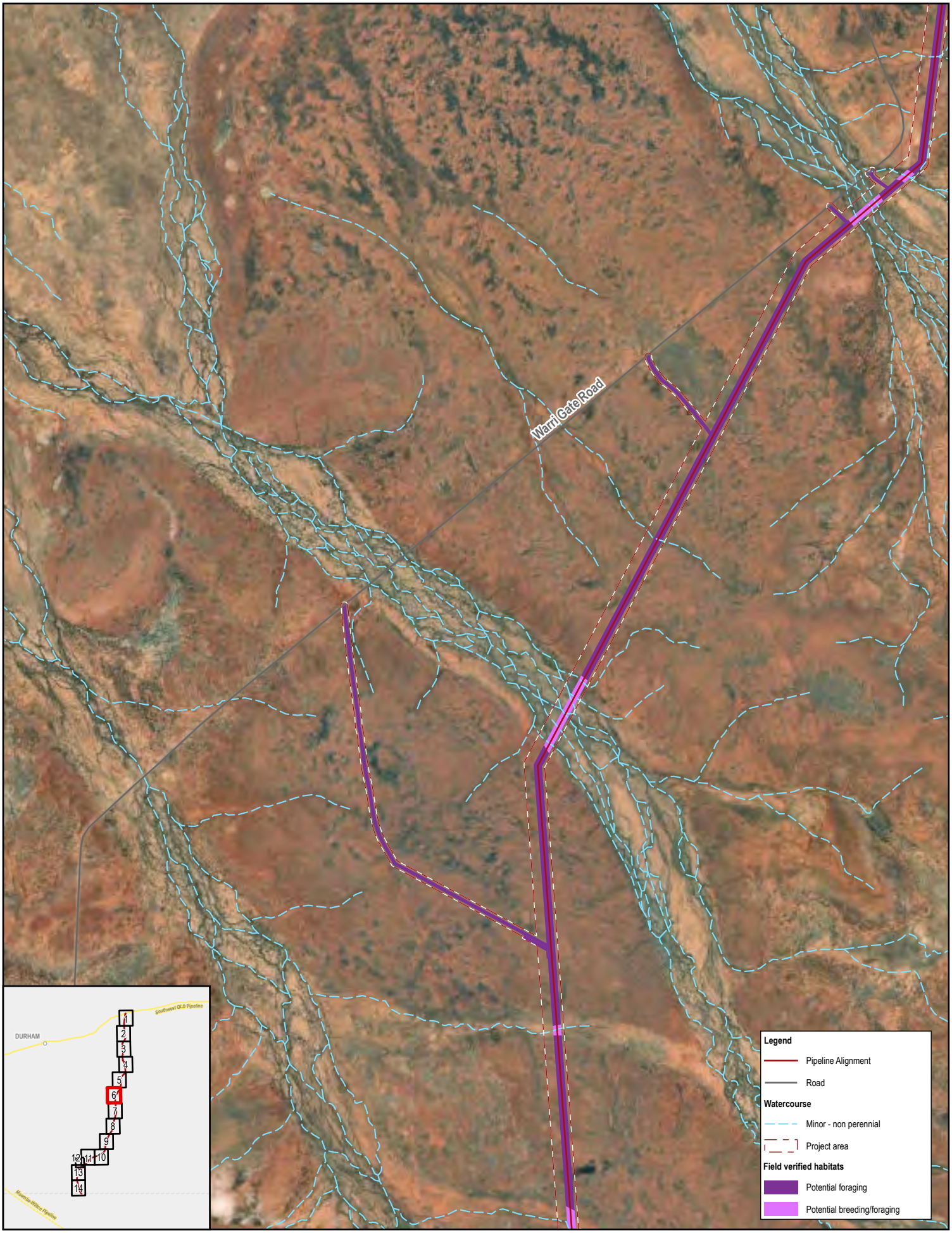
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Figure 4.11

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Kilometres

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

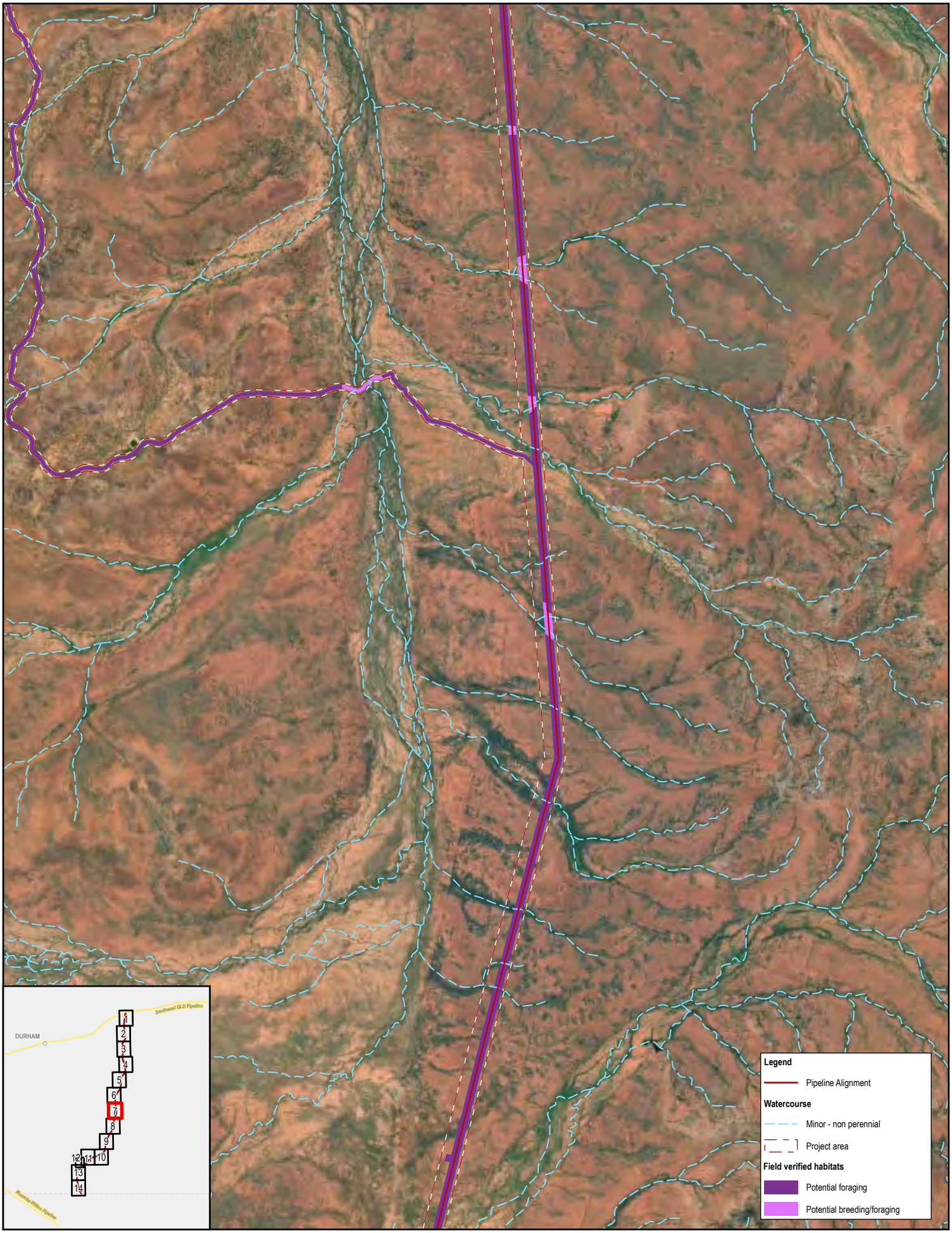
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Figure 4.11

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

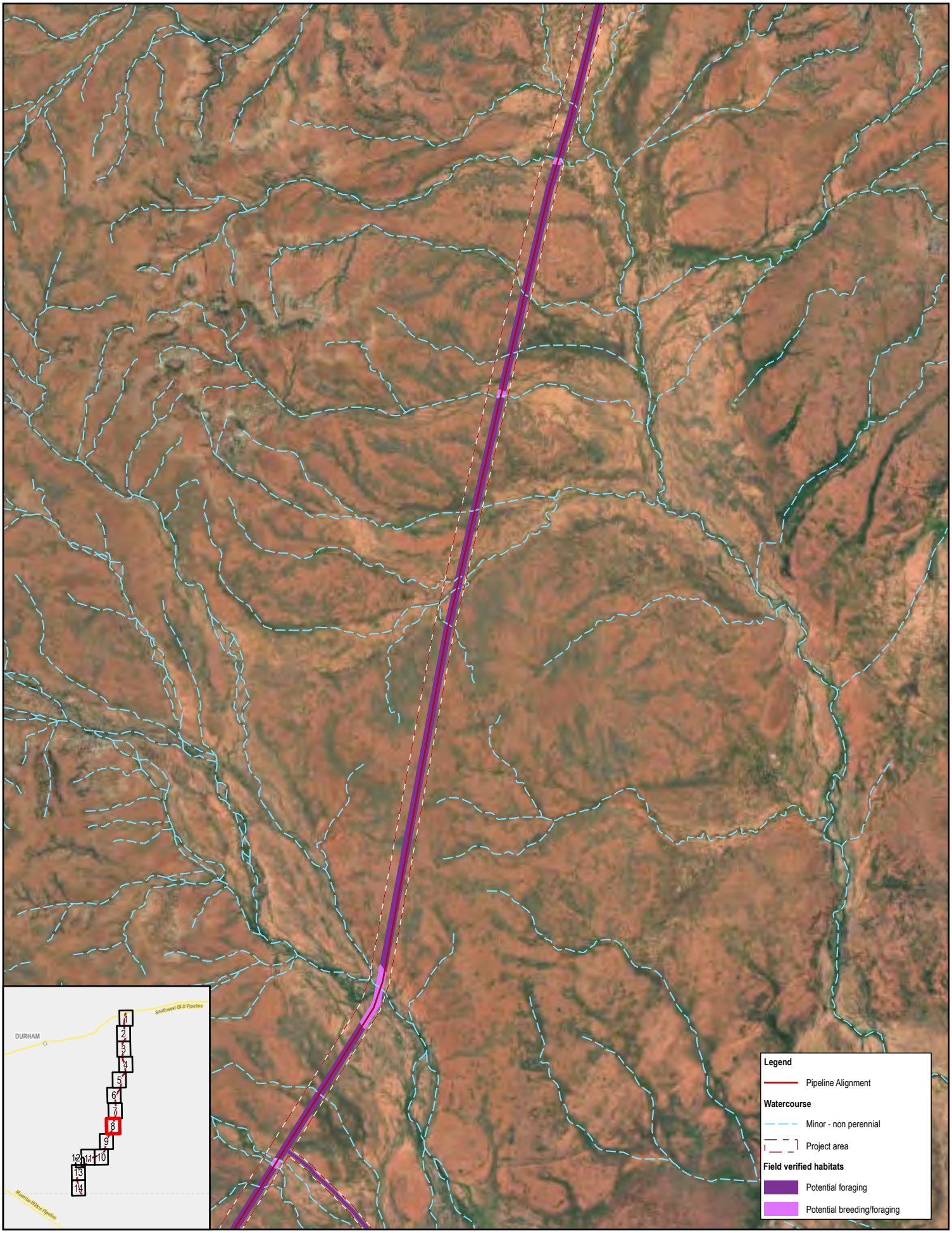
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

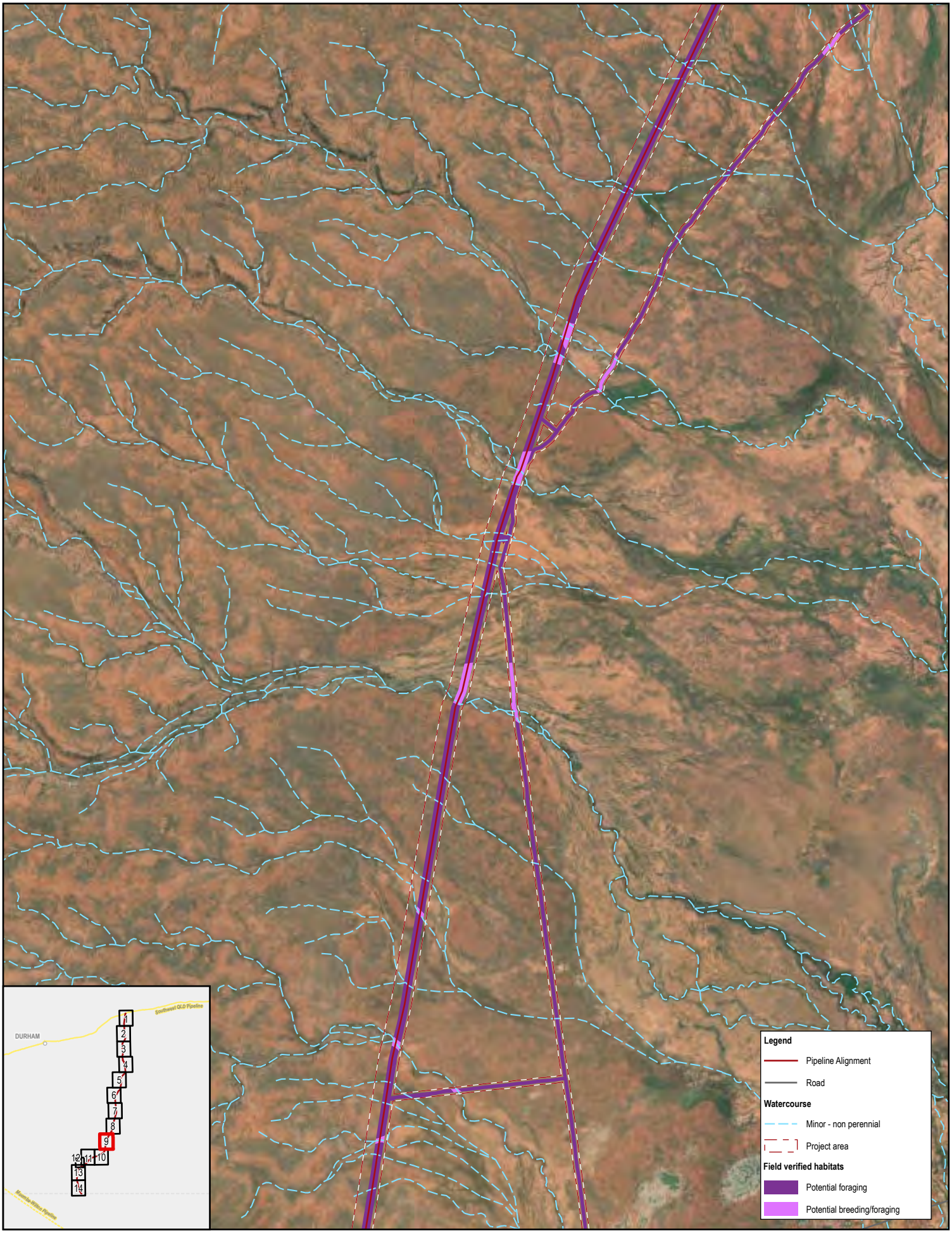
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Figure 4.11

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Grey falcon habitat distribution

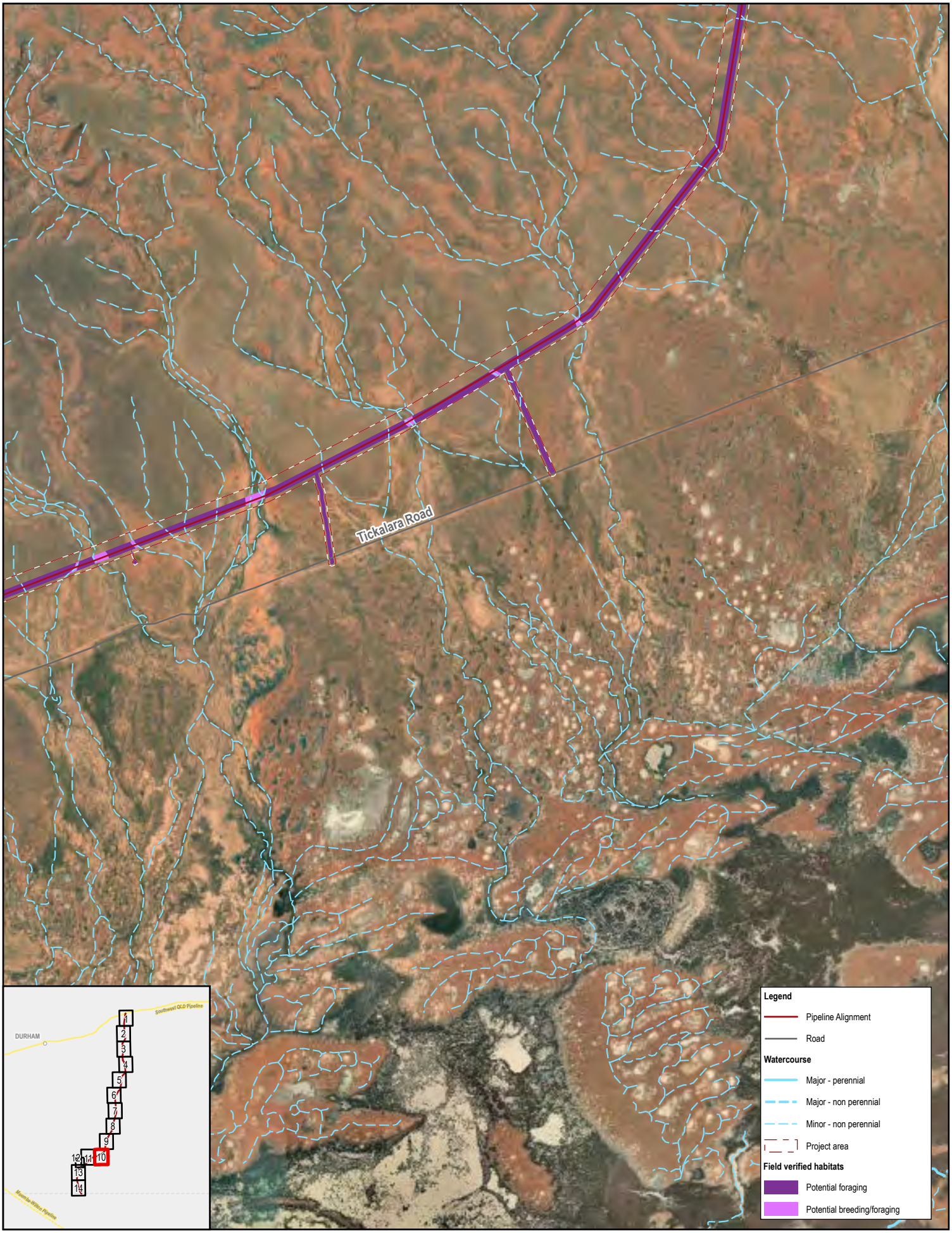
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Figure 4.11

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Kilometres

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Grey falcon habitat distribution

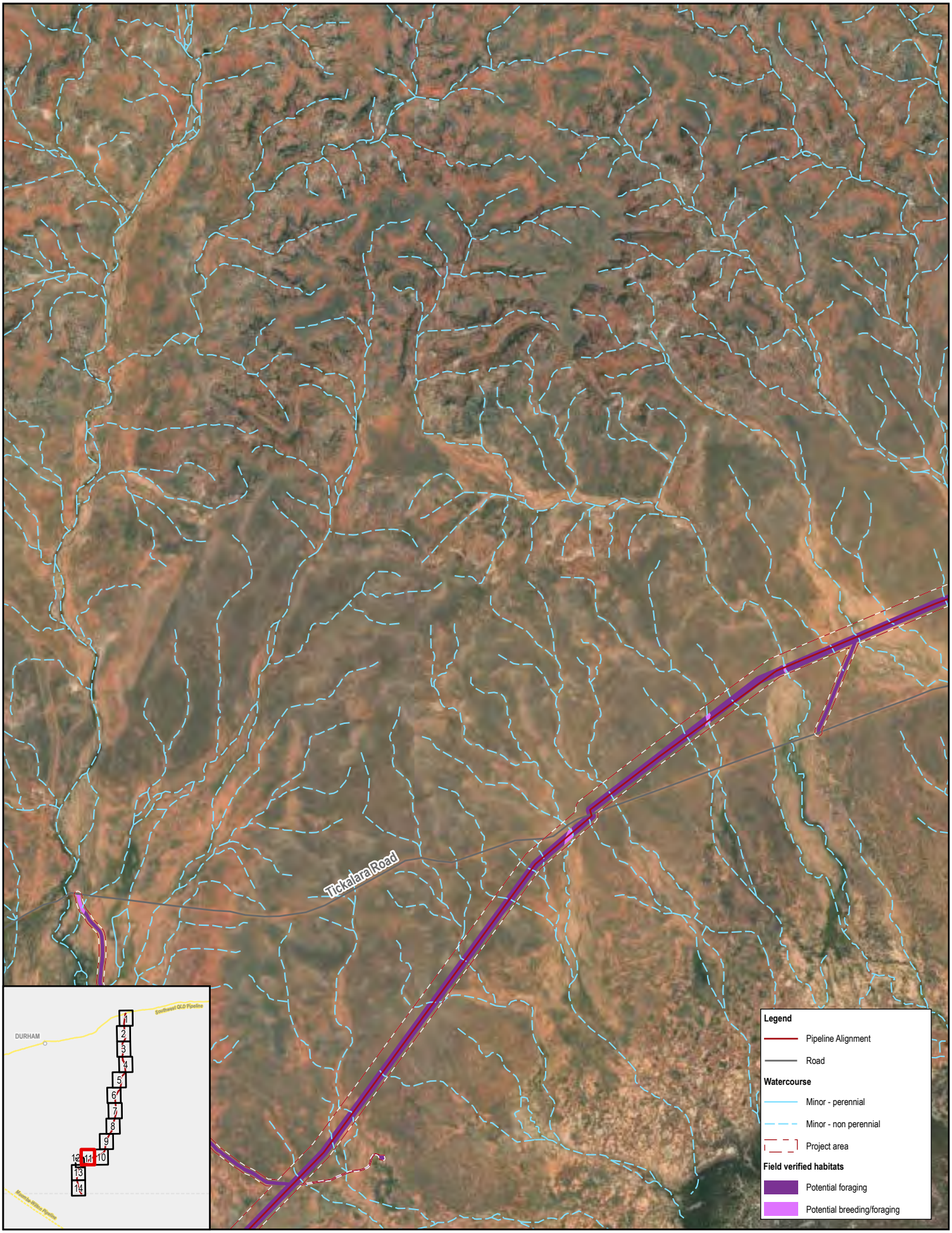
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Figure 4.11

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Kilometres

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

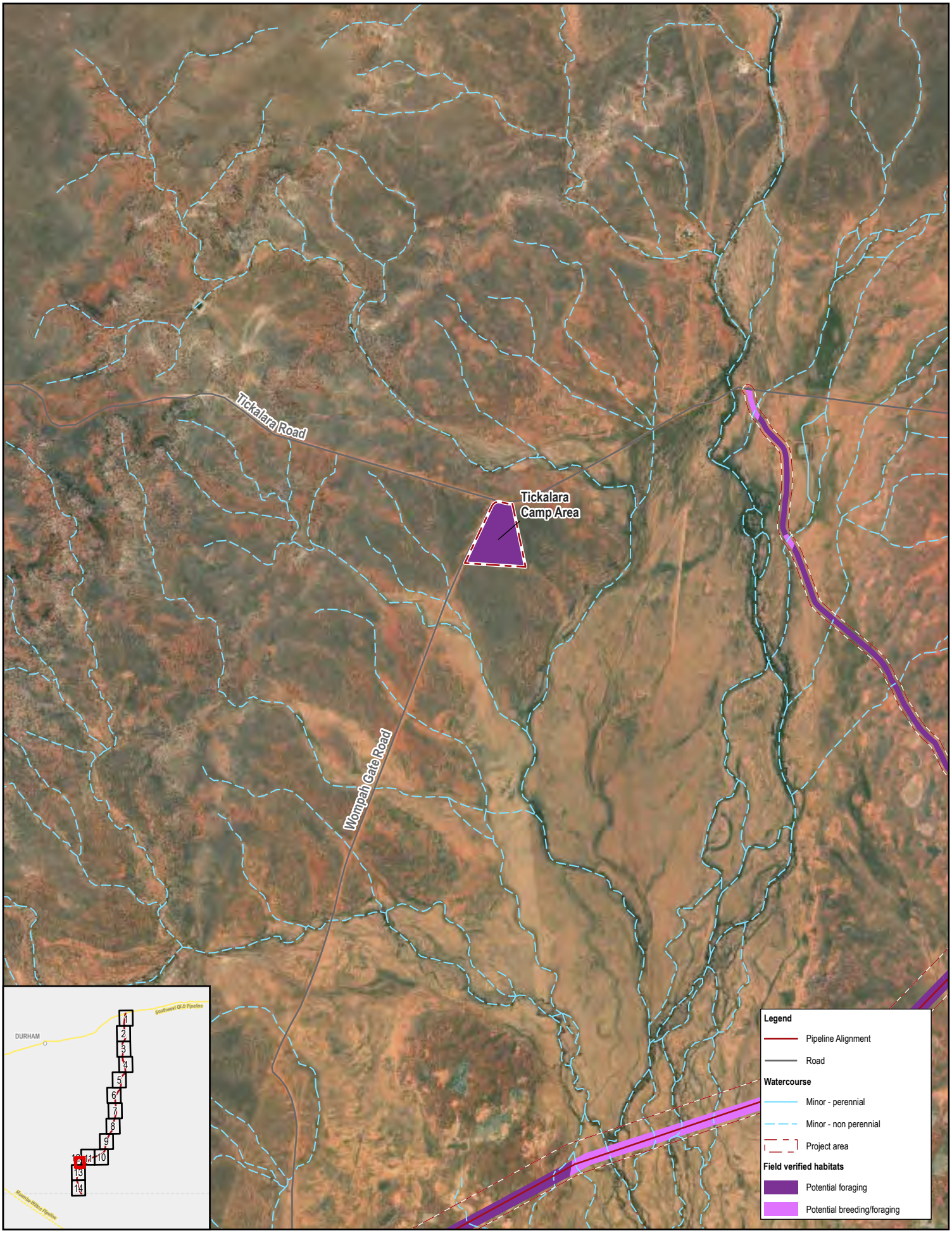
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Figure 4.11

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

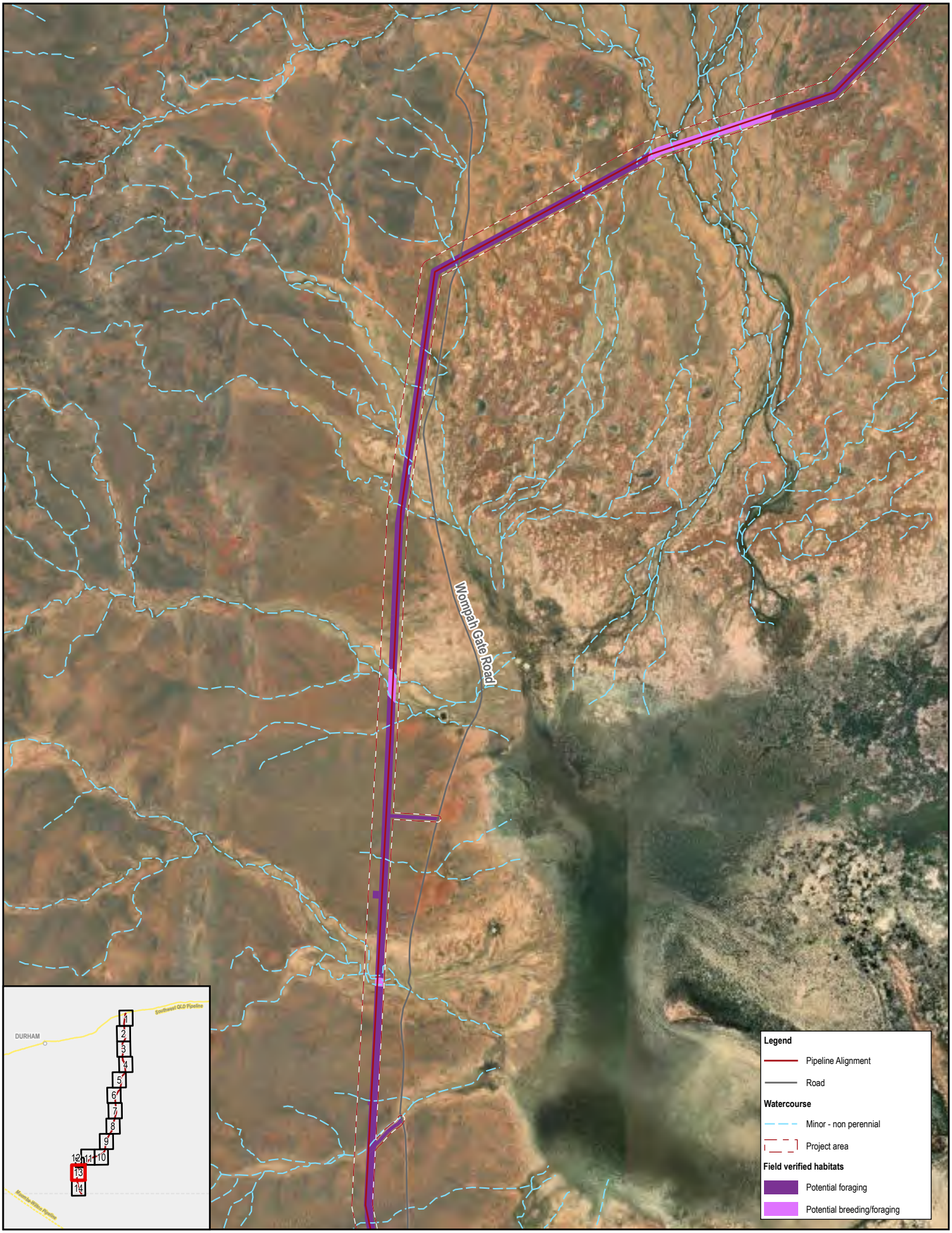
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Figure 4.11

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Paper Size ISO A4

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Kilometres

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Grey falcon habitat distribution

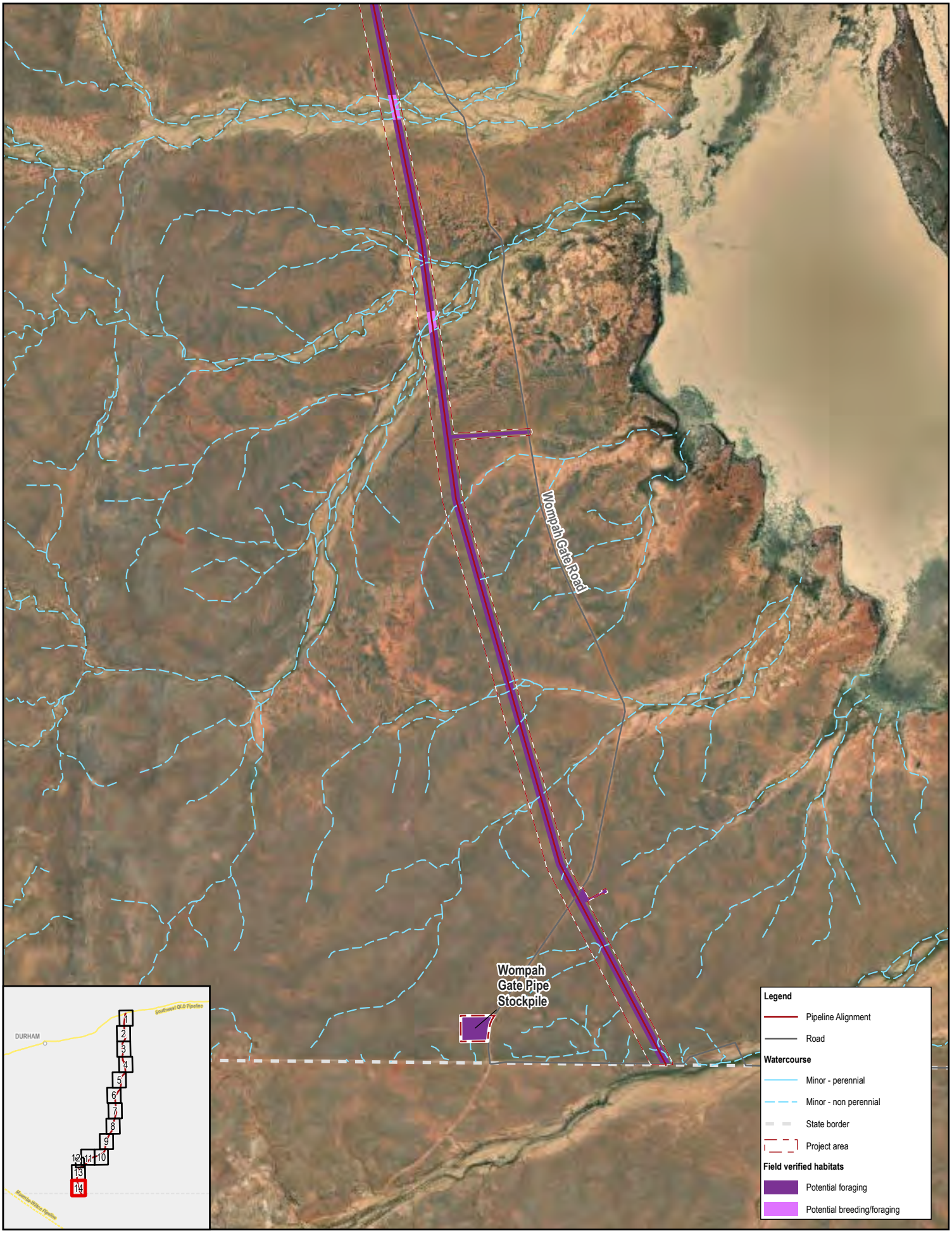
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Figure 4.11

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Kilometres

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Bulloo Interlink Pipeline

Grey falcon habitat distribution

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Figure 4.11

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Data source: Earthstar Geographics, Esri, HERE, GarminDNRMMRRD: Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Habitat (2025). Created by: calburo2

Plains rat

The plains rat, also known as the plains mouse, is listed as **vulnerable** under the NC Act and EPBC Act. It is a nocturnal, burrowing rodent adapted to arid environments, where populations undergo boom–bust dynamics depending on rainfall and resource availability (Breed & Head, 1991; Moseby, 2012). The species occupies cracking clay plains, gibber depressions, and run-on areas that support productive ground vegetation after rain (Brandle et al., 1999; Moseby, 2012). Burrow networks are typically constructed within cracking clays, providing refuge from predators and extreme temperatures, and are used for breeding (Moseby, 2012).

Historically widespread across inland Australia, the species has declined markedly since European settlement and is now considered extinct in NSW and Victoria, with contemporary populations persisting mainly in arid parts of South Australia, the Northern Territory, and within the south-west Queensland Channel Country (Lee, 1995; Dickman et al., 1993; Brandle et al., 1999). Due to the species cryptic nature, the species can persist undetected for long periods, with sudden population increases following favourable rainfall (Breed & Head, 1991).

Although previously inhabiting a range of habitats, the plains rat has been recently recorded from two main habitat types (Brandle et al., 1999; Brandle & Moseby, 1999):

– large open gypseous cracking clay areas associated with minor drainage features
– depressions within gibber stony plains.

These habitat types are the most productive patches in their respective environments because they form run-on areas, receiving water and nutrients even after relatively minor rainfall events (Brandle et al., 1999). Both habitat types are patchily distributed (DCCEEW 2012).

The gypseous cracking clay plains are characterised by deep cracks, extremely friable self-mulching clays and little perennial vegetation. These areas become extremely productive after significant rains (usually events more than 60 mm), supporting extensive ephemeral forb growth (Brandle et al., 1999). Such areas are considered important breeding sites during favourable seasons, providing pulses of dispersing individuals following significant rainfall events.

The other main habitat type comprises smaller gilgais and minor drainage lines with heavier clays and fewer, more structured cracks. These areas are recognisable as small patches of perennial vegetation on large open gibber plains and considered to be more widespread but supporting fewer individuals (Brandle & Moseby, 1999).

However, this habitat type is believed to be important in sustaining individuals during dry conditions due to the presence of perennial vegetation and the fact that the gilgais are surrounded by gibber flats allowing small rainfall events to stimulate vegetation production. This habitat type is more abundant and widespread throughout the stony plains in South Australia and Northern Territory and is considered important for maintaining genetic diversity and the broader distribution of the species.

The presence of cracking clay soils appears to be more critical than the type or structure of vegetation, as the plains rat has been recorded from a variety of vegetation communities (Brandle, 1998) as well as areas where vegetation is virtually absent during dry periods.

Brandle (1998) recorded the plains rat from four main vegetation communities including:

– *Eucalyptus coolabah* (coolibah) low woodland
– *Atriplex nummularia* (oldman saltbush) / *Abutilon halophilum* (plains lantern-bush) low very open shrubland
– *Maireana aphylla* (cottonbush) / *Eragrostis setifolia* (bristly love-grass)/*Astrebla pectinata* (barley Mitchell-grass)/*Atriplex vesicaria* (bladder saltbush) low very open shrubland
– *Sclerolaena divaricata* (tangled bindyi) / *Eragrostis setifolia* / *Atriplex vesicaria* low open shrubland.

The primary REs assigned as habitat for the plains rat within the project site were determined to be:

– **Breeding and foraging habitat:**
    - 5.3.21 – Variable sparse to open herbland, *Senna* spp. open shrubland and bare scalded areas on infrequently flooded alluvia of major rivers their distributaries, drainage channels and creeks
    - 5.5.1x2 – *Acacia cambagei* low open woodland on Quaternary sediments
    - 5.5.4x1 – *Aristida contorta* open tussock grassland with occasional scattered/groved *Acacia sibirica, A. aneura* and in places, isolated low trees of *Corymbia terminalis* occur

- 5.6.2 – *Acacia cambagei* low open woodland on interdune areas and clay plains at interface with dune fields
- 5.6.4 – *Atalaya hemiglauca* +/- *Acacia aneura* +/- *Acacia* spp. +/- *Corymbia terminalis* low open woodland on reticulate sand dunes
- 5.9.3 – *Astrebla* spp. +/- short grasses +/- forbs open tussock grassland to herbland.

Within the project site, these REs represent potential and locally suitable breeding or foraging habitat for the plains rat that may be used episodically during favourable climatic conditions.

The species was not detected during field surveys, and the nearest record lies approximately 54 km south of the Queensland–NSW border (Queensland Globe, 2025; ALA, 2025). Due to the cryptic nature and episodic abundance of this species, a precautionary approach is warranted when considering its potential to occur. Suitable habitat distribution within the project site is shown in Figure 4.12.

Fork-tailed swift

The fork-tailed swift is listed as **special least concern** under the NC Act **and migratory** under the EPBC Act. It is a non-breeding visitor to Australia, arriving in October and departing around May to return to breeding grounds in Asia (DCCEEW, 2025d). In Queensland, the species is most often recorded east of the Great Dividing Range from Cooktown to the NSW border, with scattered records in the Gulf Country and Cape York Peninsula, including Weipa and Iron Range (DoE, 2015b).

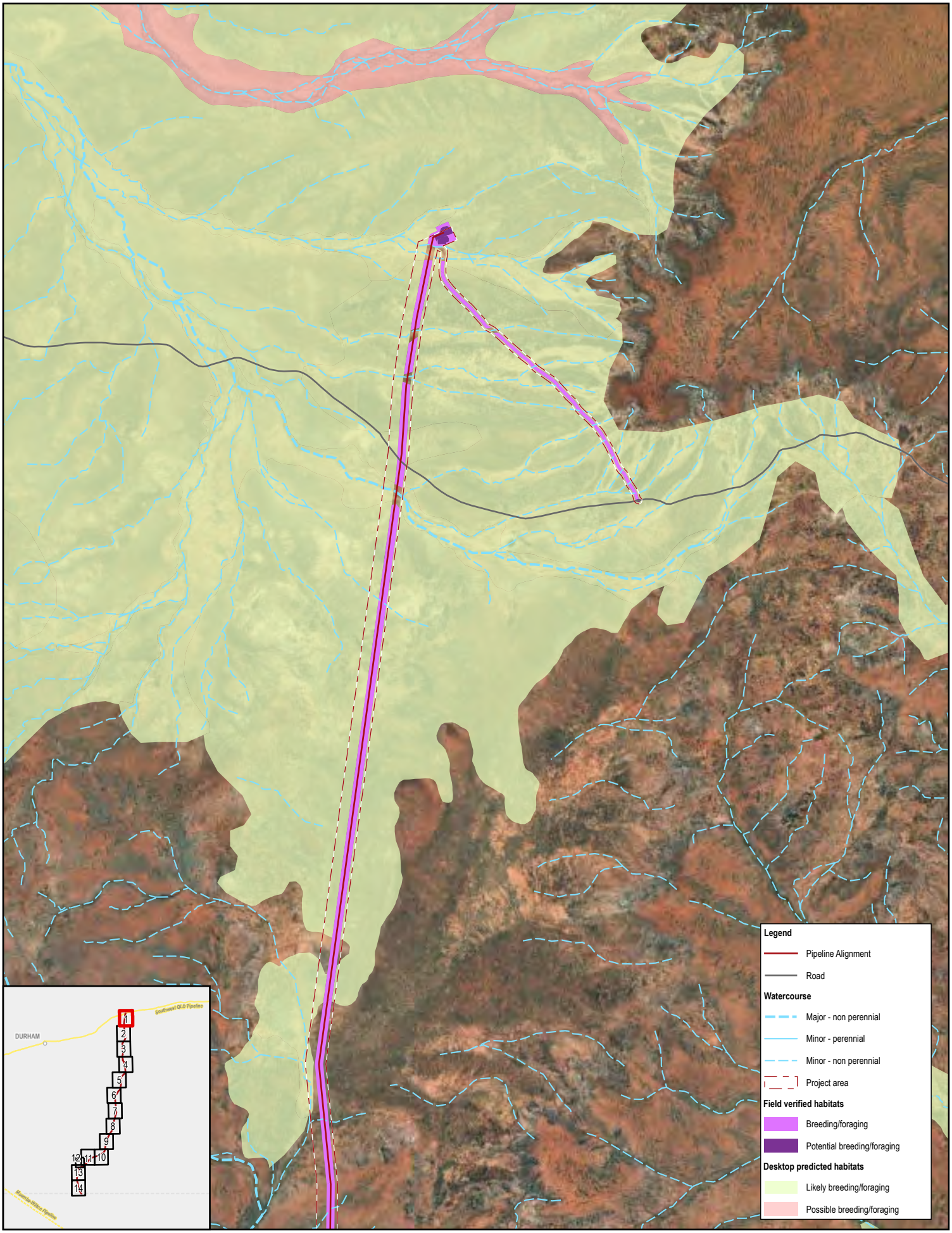
The species is almost entirely aerial, occurring between 1 m and 300 m above ground level, most frequently above dry and open habitats including riparian woodland, saltmarsh, grasslands, sand plains, and farmland (DCCEEW, 2025b). It is also occasionally recorded above wetter habitats such as rainforest, wet sclerophyll forest, and pine plantations (Higgins, 1999). Fork-tailed swifts typically forage while in flight, often using low-pressure systems to aid movement, and are sometimes observed at canopy level over open forest (Higgins, 1999). They are not dependent on terrestrial habitat within the project site.

The species was not detected during field surveys. However, regional records include observations from 2017 and 2010 approximately 4 km west of KP 84 (Queensland Globe, 2025; ALA, 2025). The fork-tailed swift is considered to have potential to occur in suitable foraging airspace above the entire survey area and project site. Suitable habitat distribution within the project site is shown in Figure 4.13.

Caspian tern

The Caspian tern is listed as **special least concern** under the NC Act and **migratory** under the EPBC Act. It is the world's largest tern, occurring across all continents except Antarctica, and is widespread but patchy in Australia, primarily along coastal regions, estuaries, large rivers, and inland lakes (Higgins & Davies, 1996; BirdLife Australia, 2021). The species typically forages over open water, taking fish by plunge-diving, and nests colonially on sandy or shelly islands, sandspits, or saltpans, often with other waterbirds (Pizzey & Knight, 2012).

Within the project site, suitable foraging habitat for Caspian terns may occur locally within larger river channels, floodplain waterholes, and reservoir systems, particularly where open water is present. Breeding habitat (sandspits and islands) is not expected to occur within the project site. A 2017 record exists 4 km south-west of KP 84, with no other nearby and recent records. Floodplain and ephemeral channels across the project area serve as suitable seasonal habitat for this species, with perennial channels providing additional habitat where water persists year-round. Suitable habitat distribution within the project site is shown in Figure 4.10.



Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

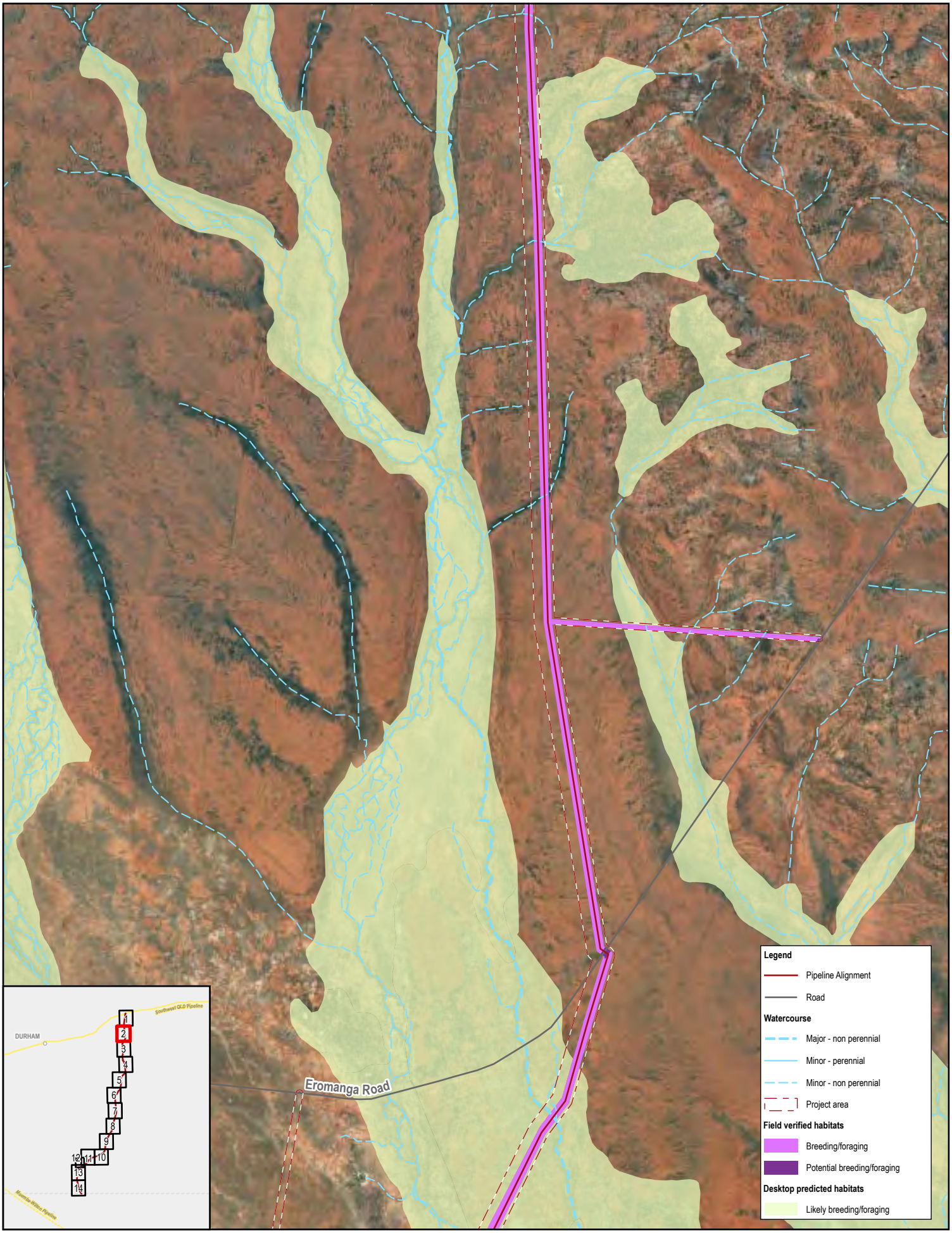
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Figure 4.12

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Paper Size ISO A4

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Kilometres

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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

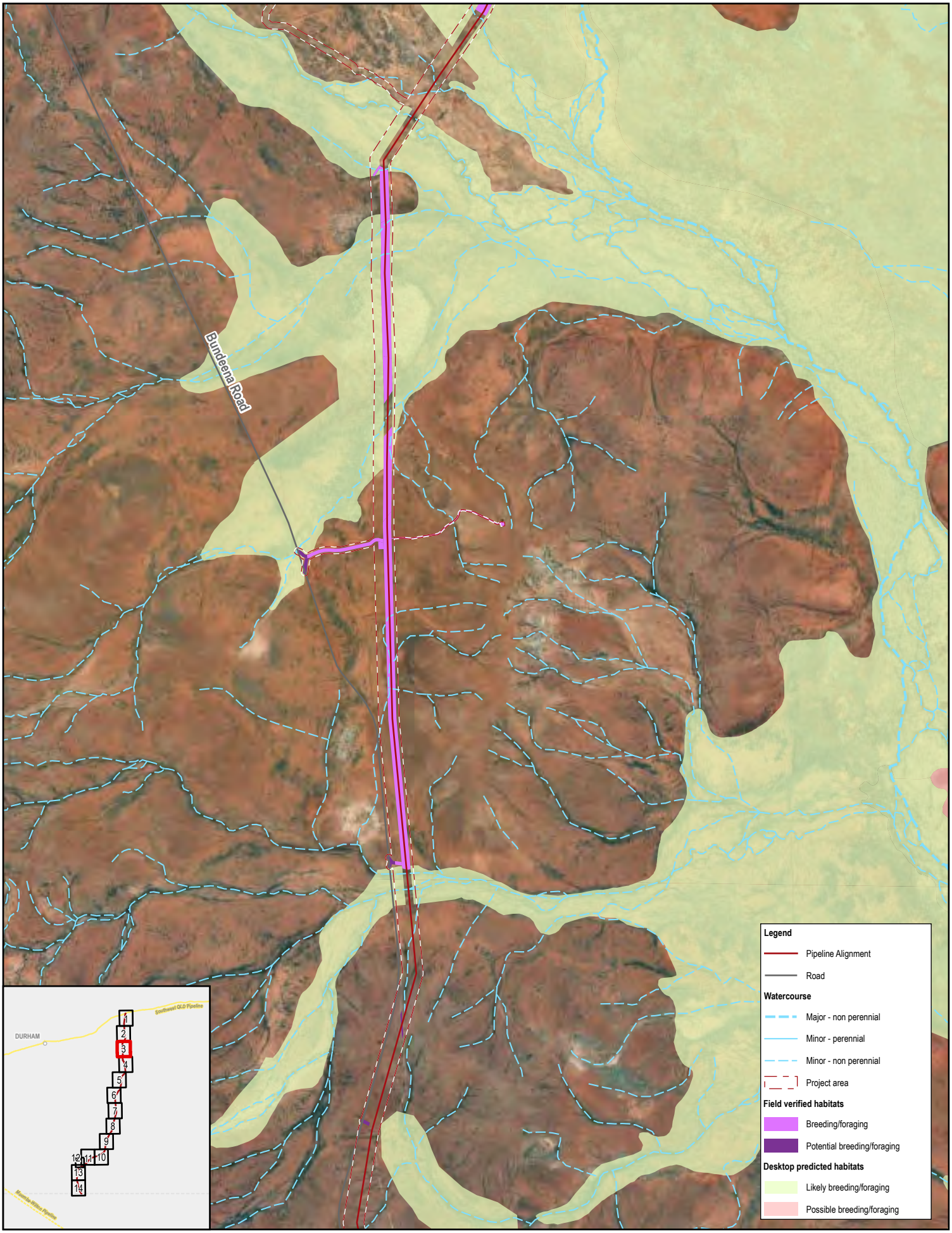
Project No. 12661648
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Date 09/07/2026

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Figure 4.12

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

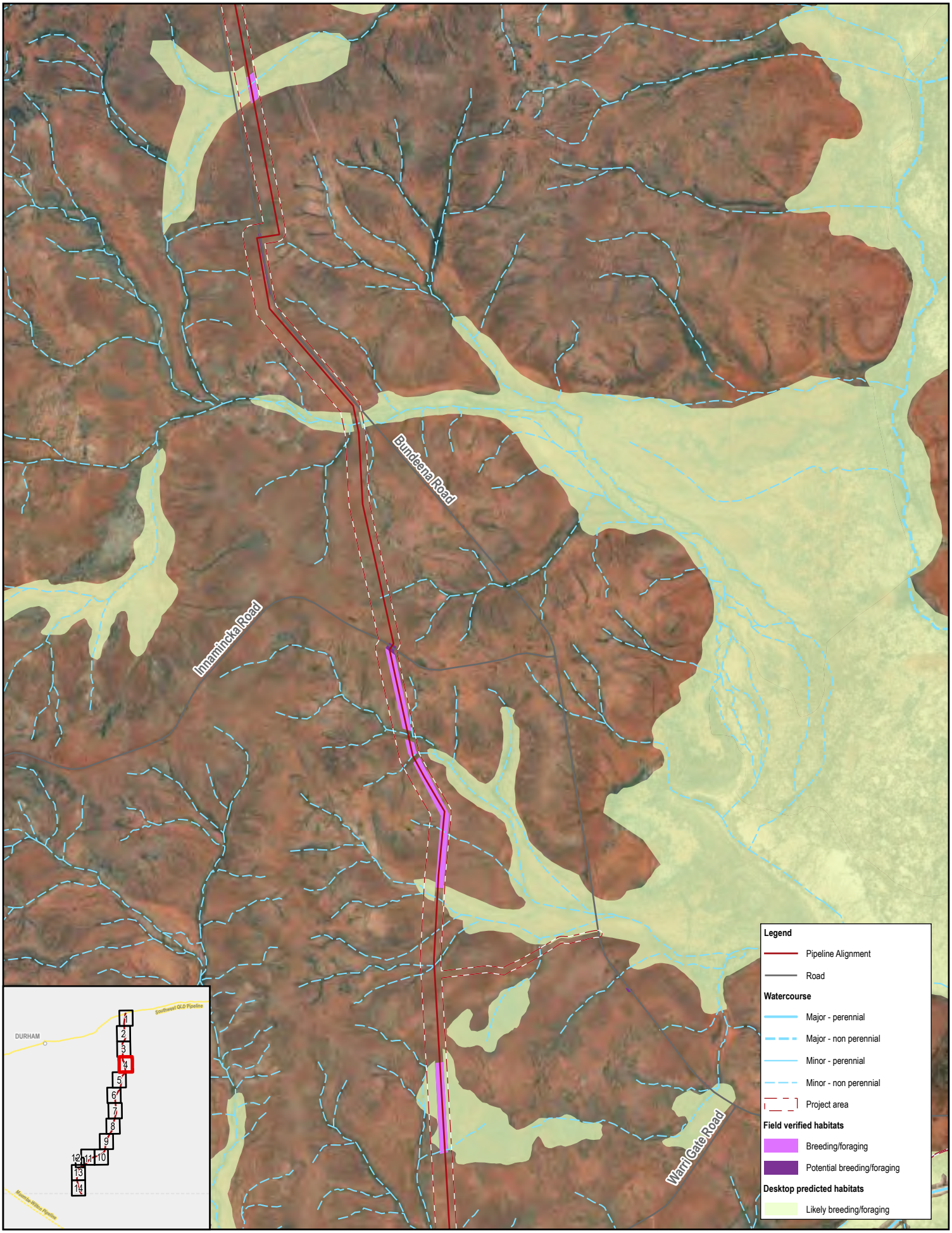
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Figure 4.12

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Kilometres

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Bulloo Interlink Pipeline

Plains rat habitat distribution

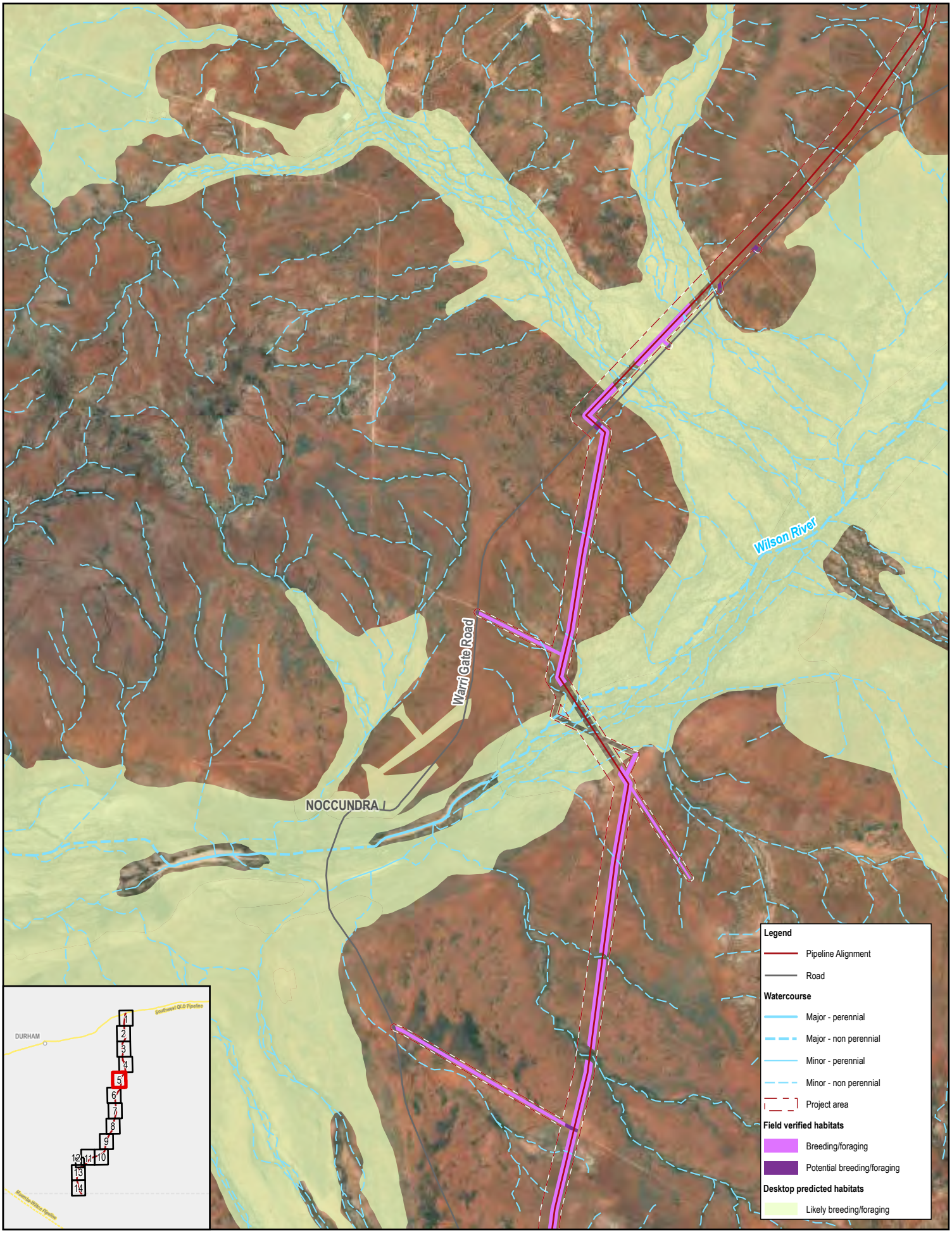
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Revision No. **0**
Date **09/07/2026**

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Figure 4.12

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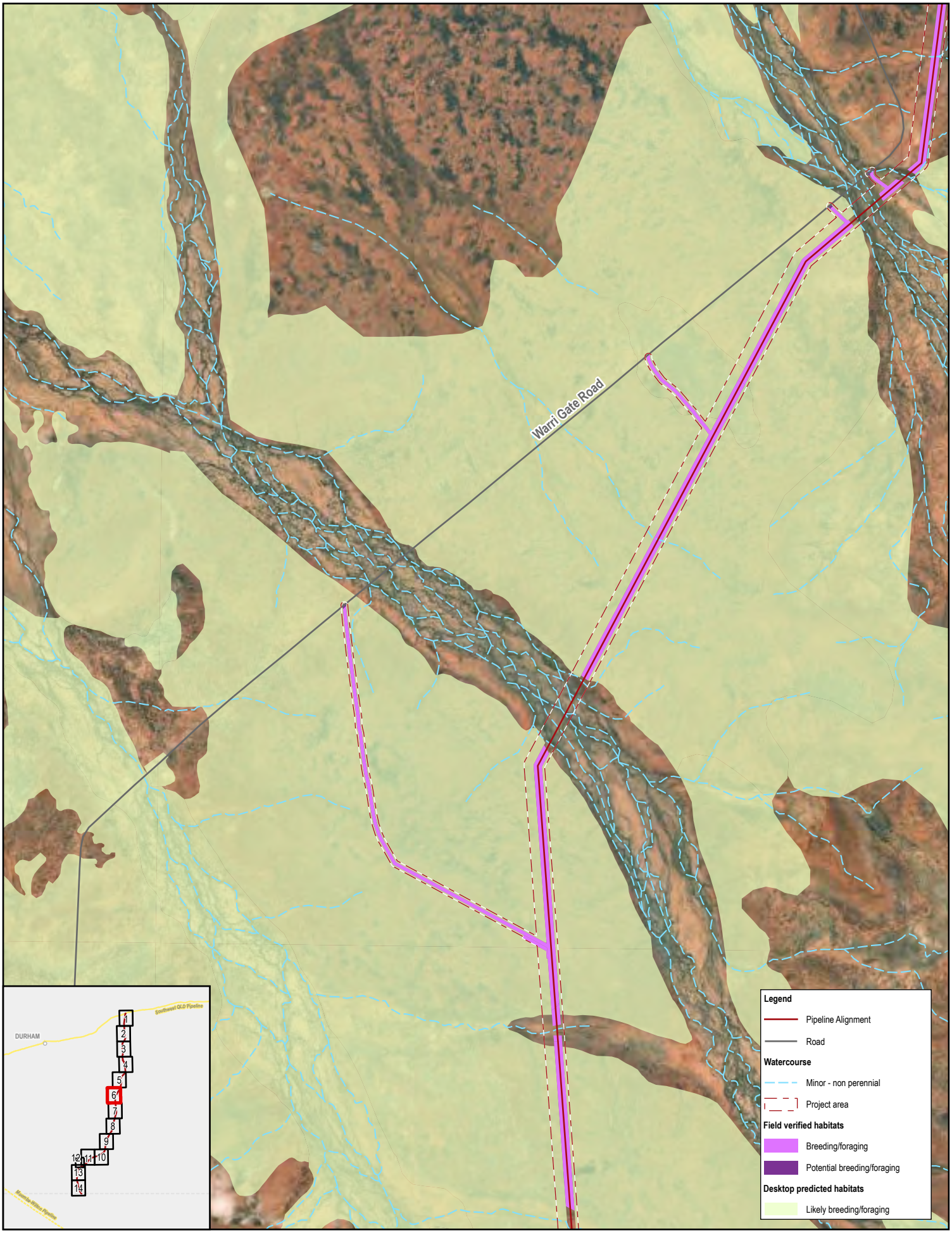
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Figure 4.12

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Plains rat habitat distribution

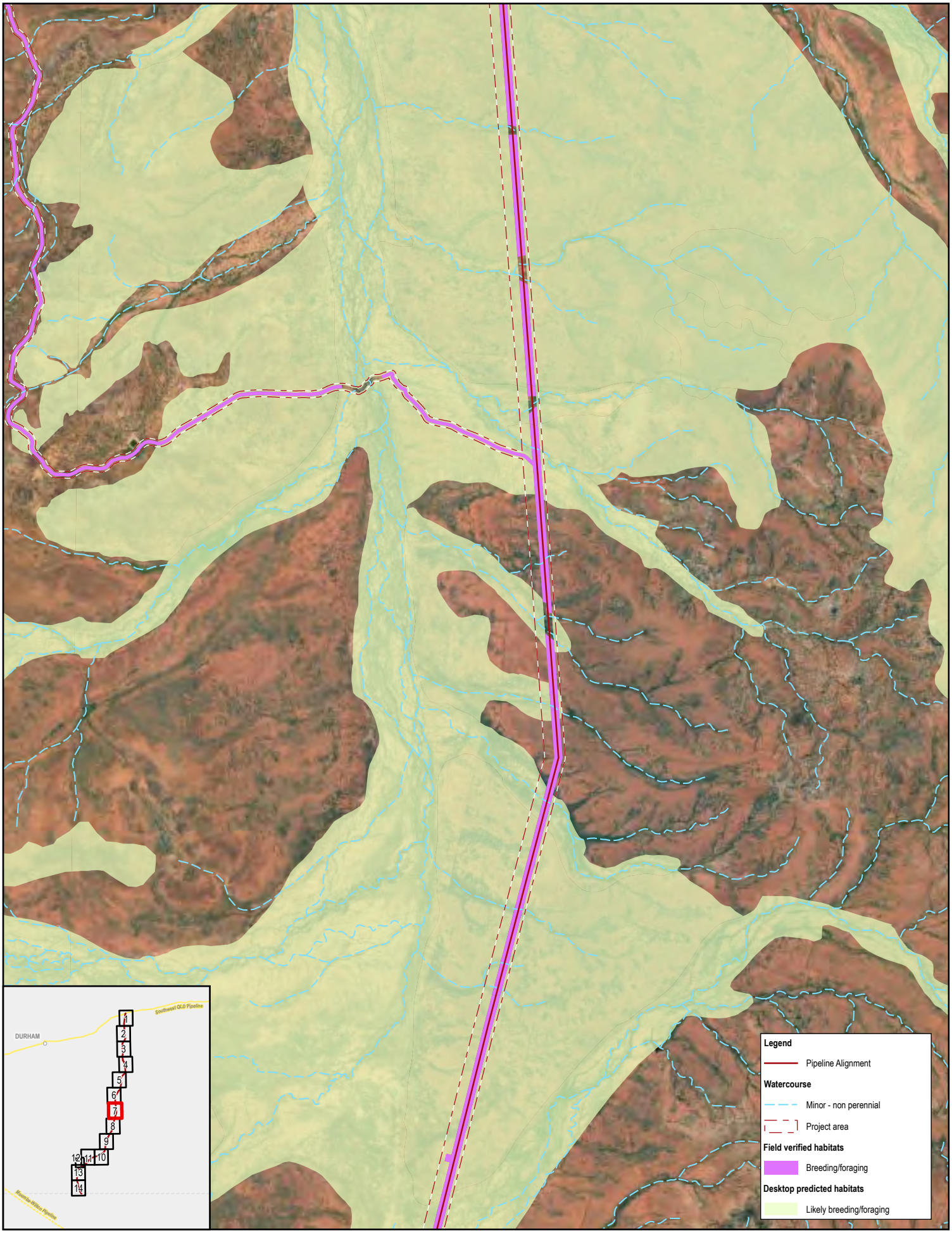
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Figure 4.12

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

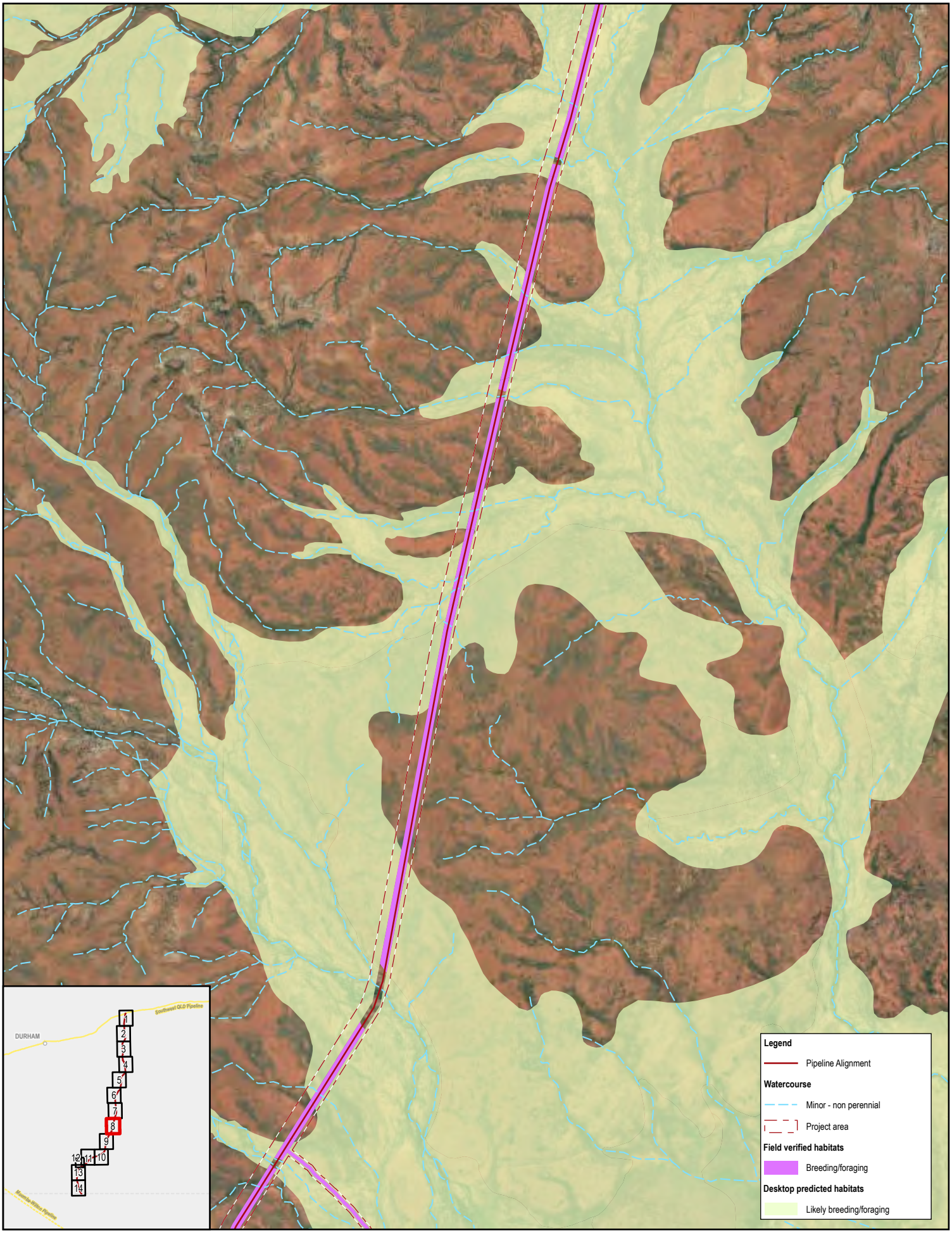
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Revision No. 0
Date 09/07/2026

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Figure 4.12

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

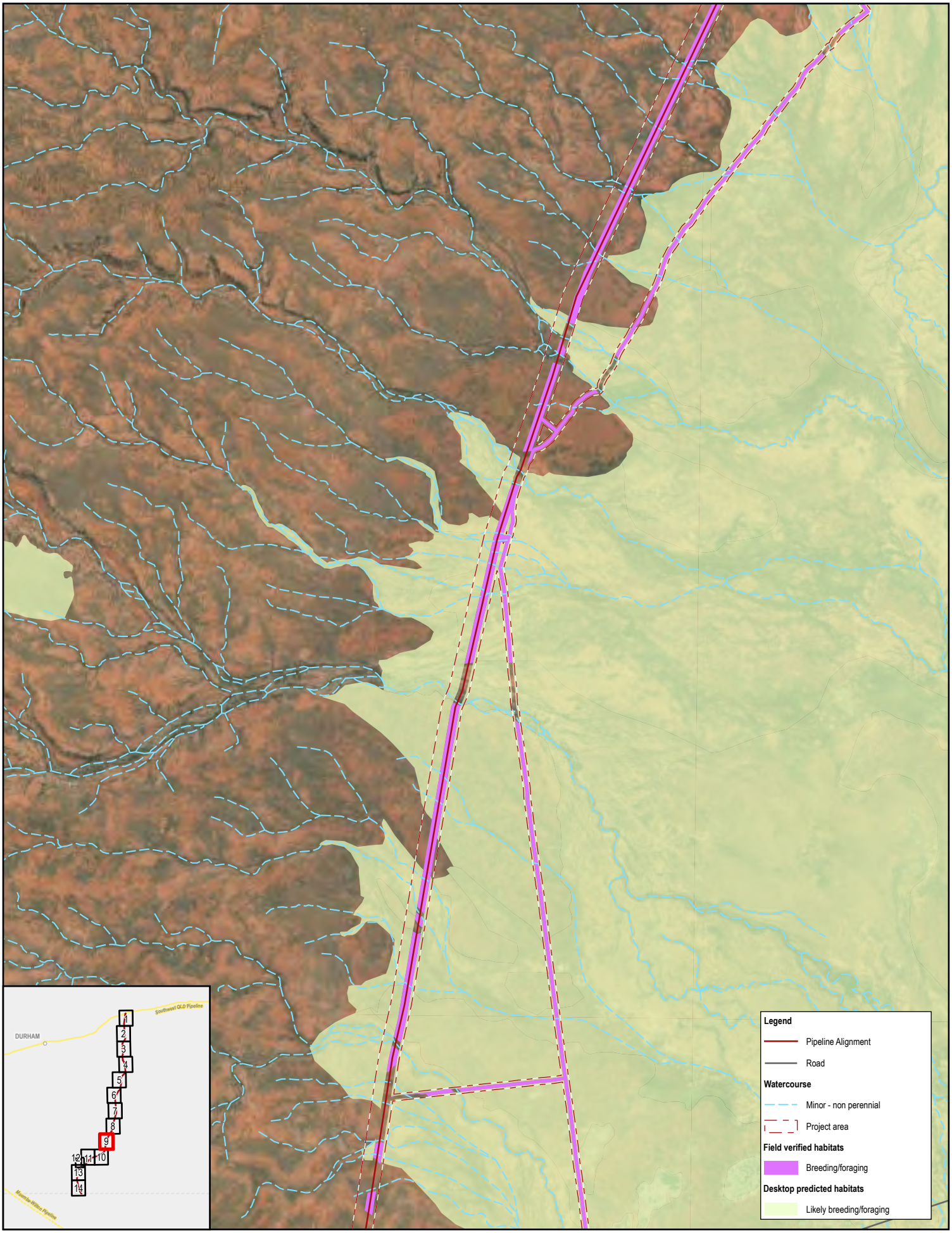
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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

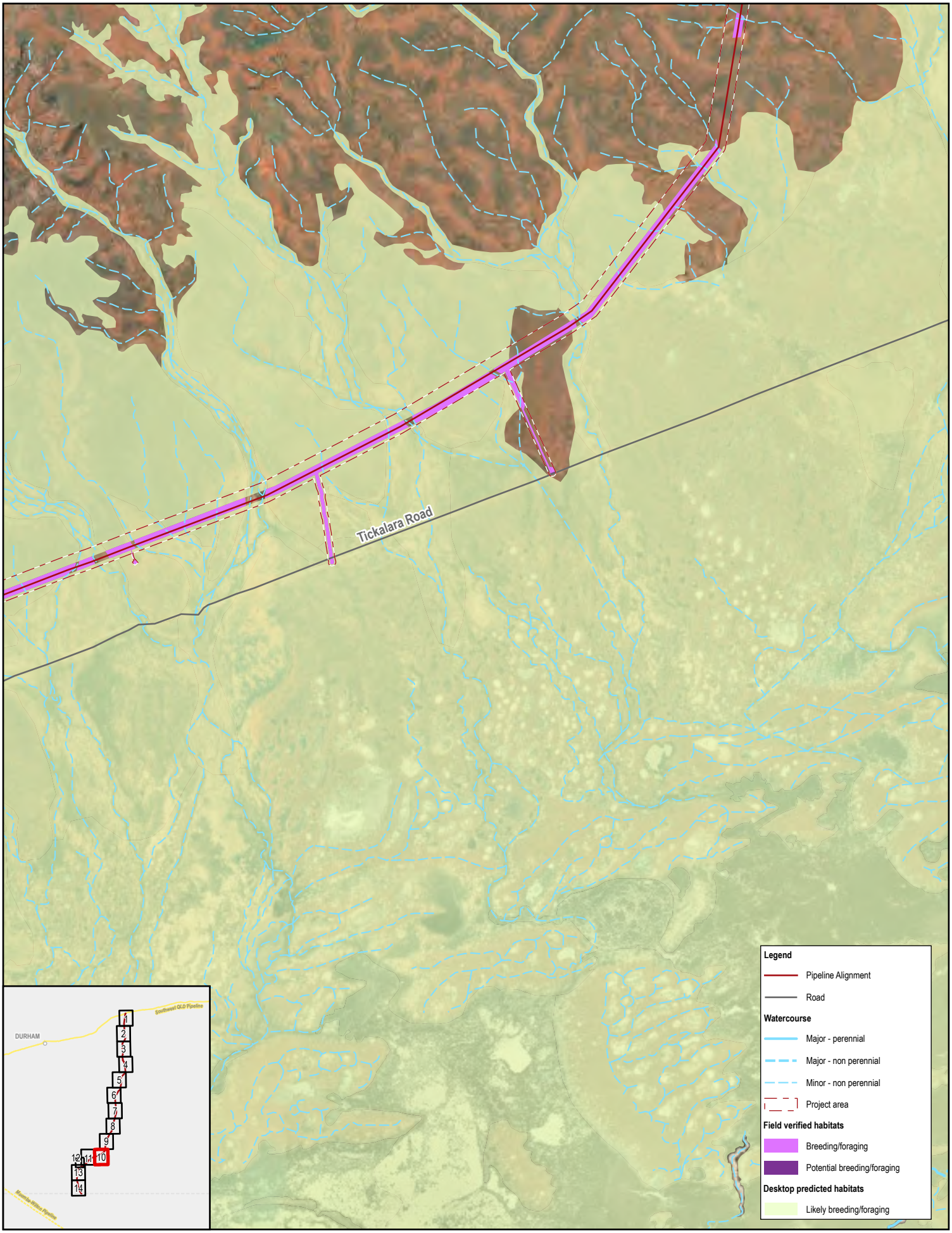
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Figure 4.12

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Kilometres

Map Projection: Transverse Mercator
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Bulloo Interlink Pipeline

Plains rat habitat distribution

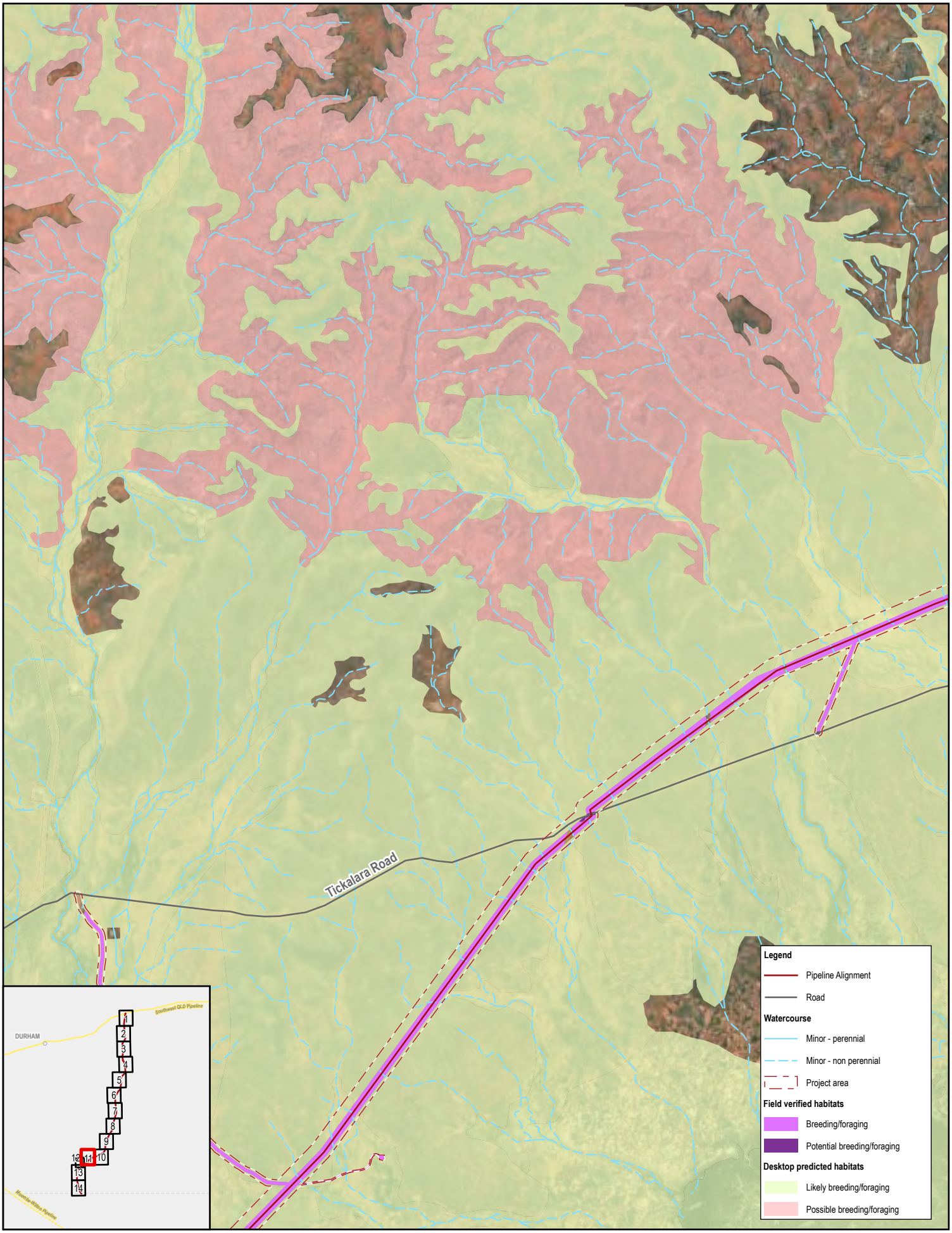
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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

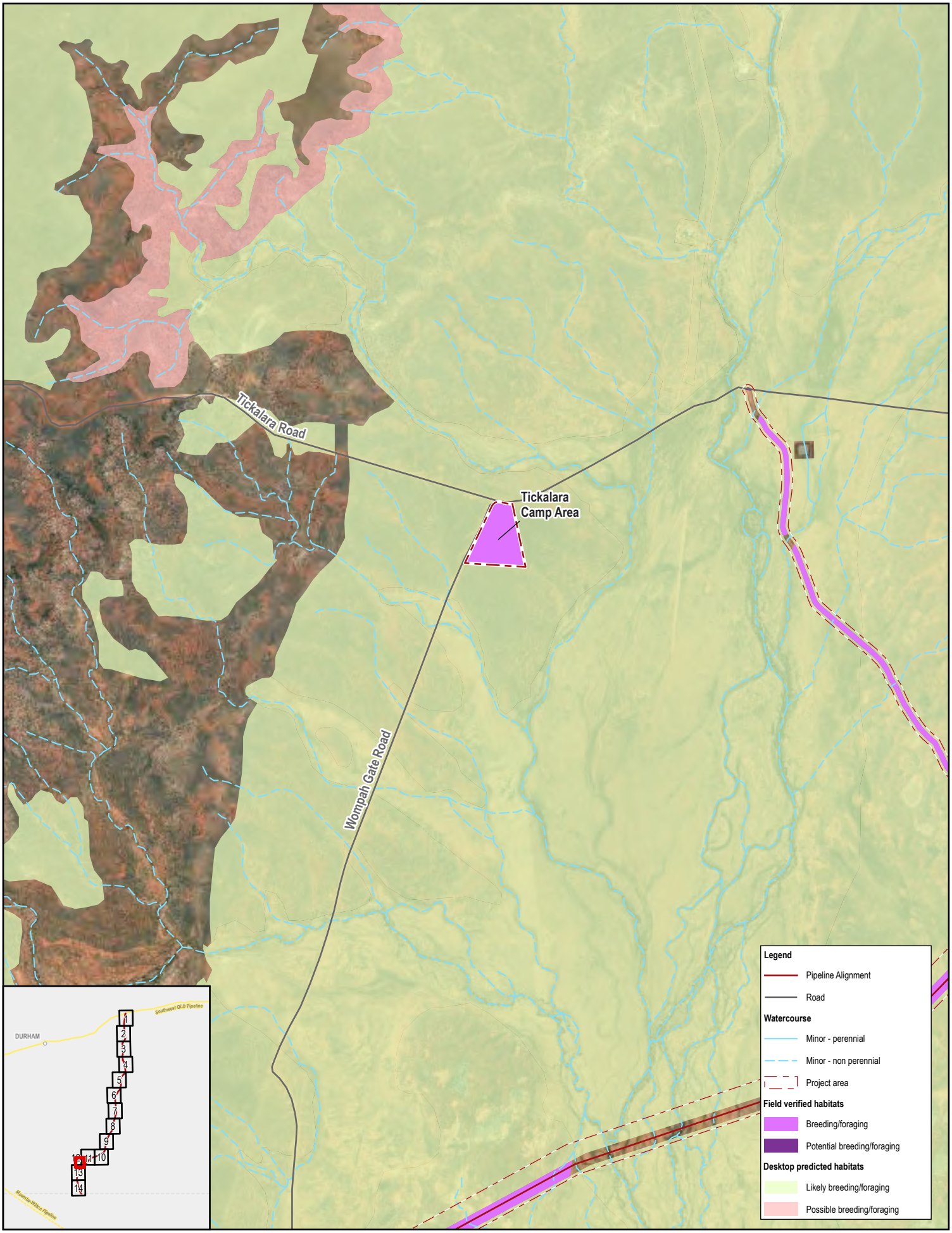
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Kilometres

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

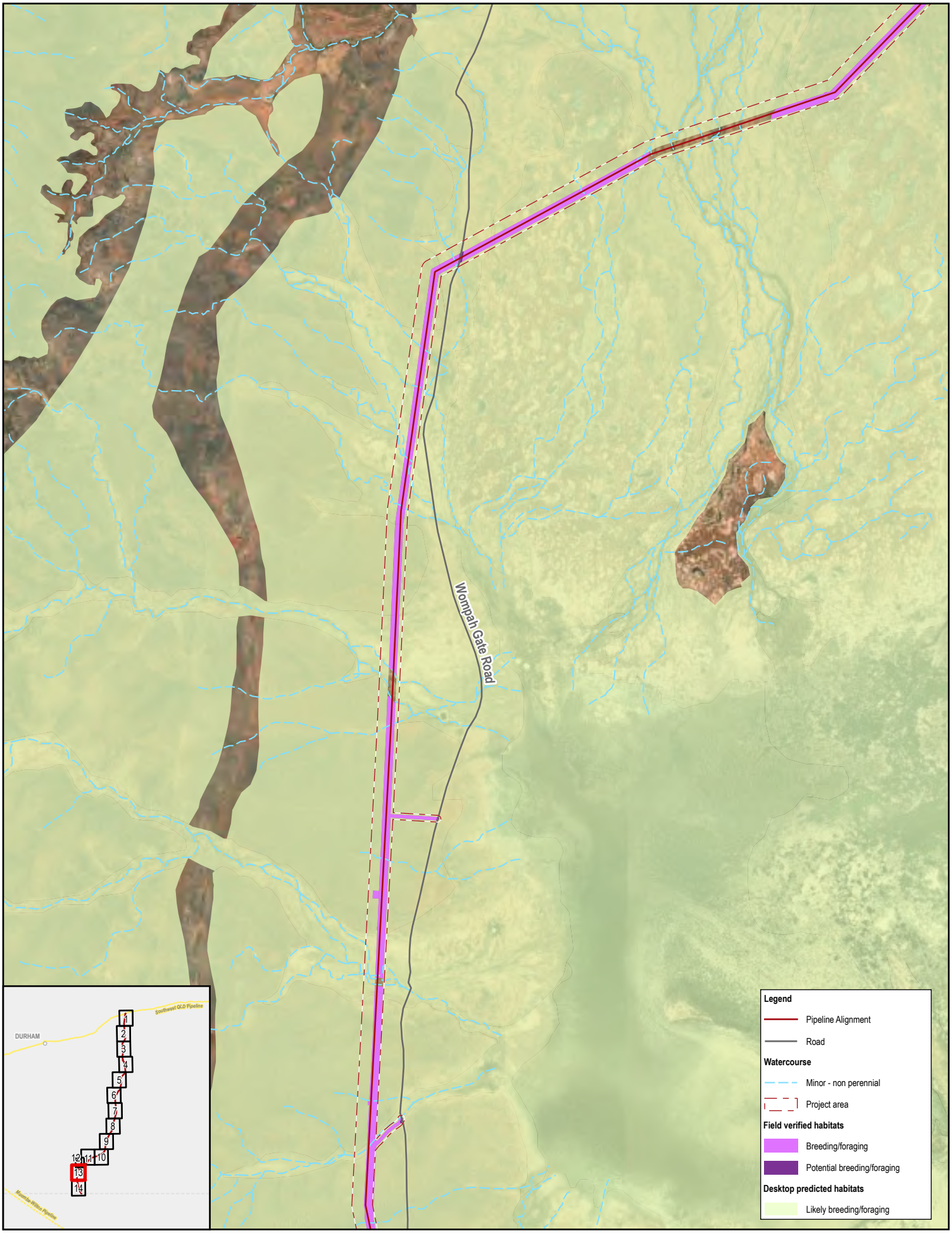
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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

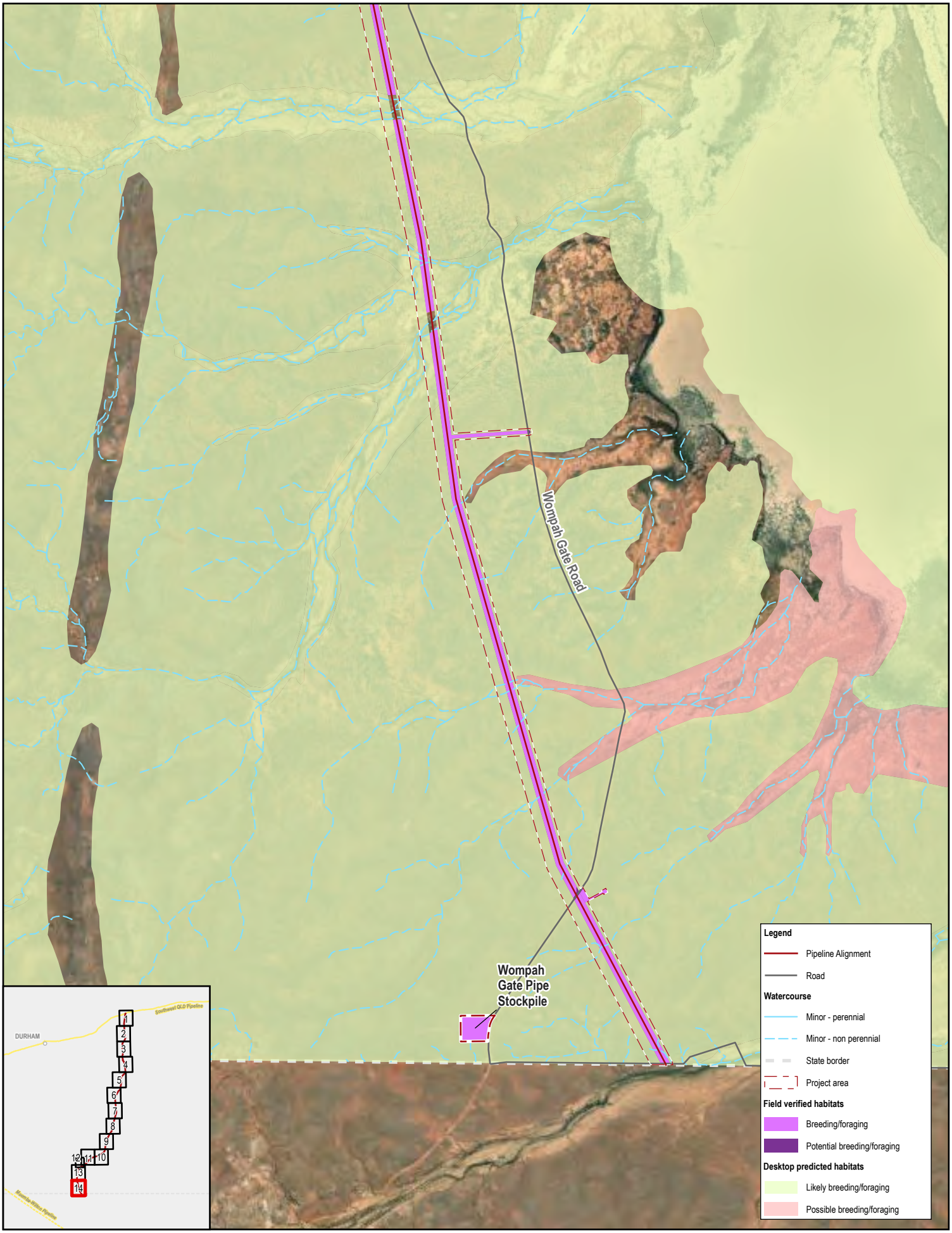
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Date **09/07/2026**

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Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Plains rat habitat distribution

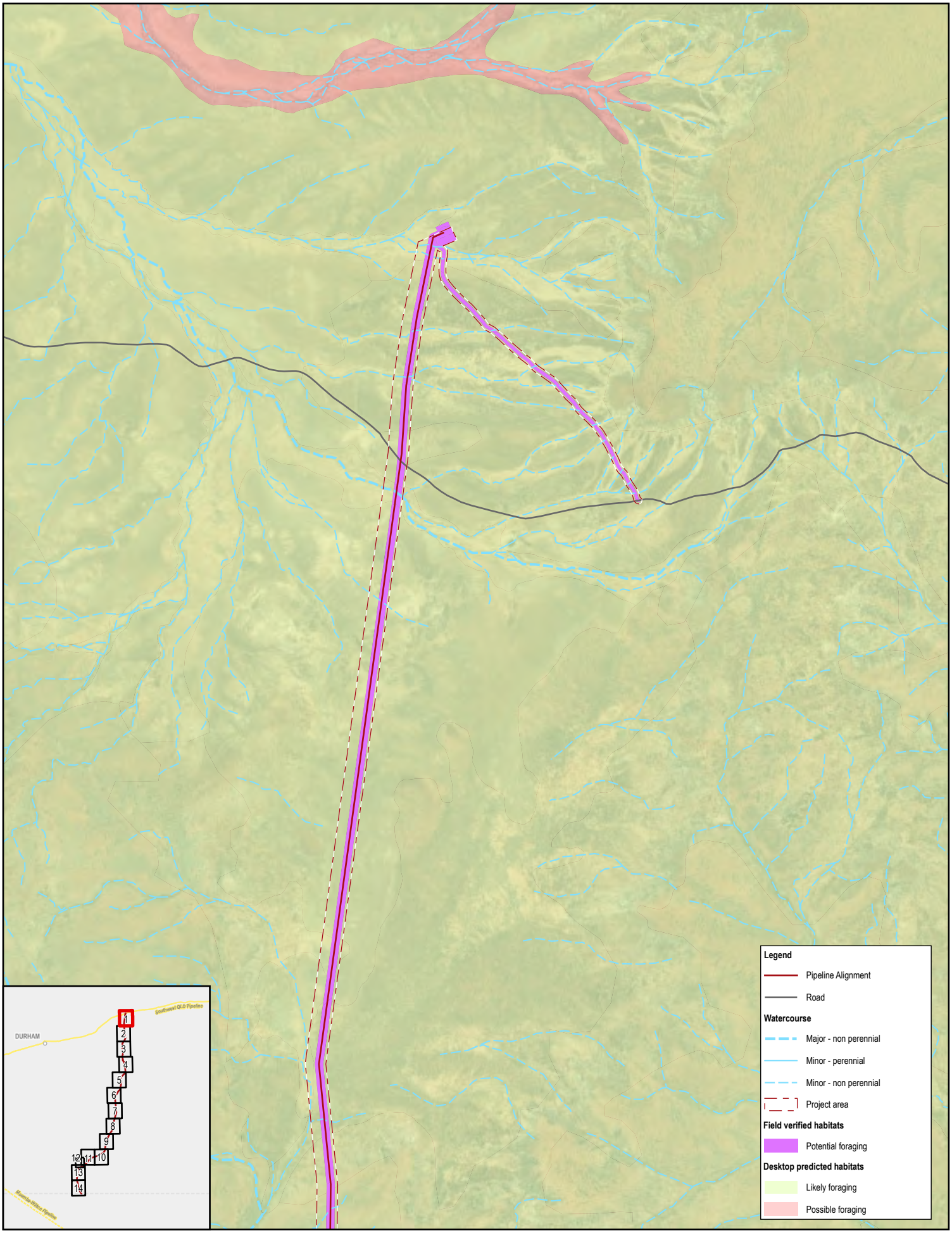
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Kilometres

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APA GHD

APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

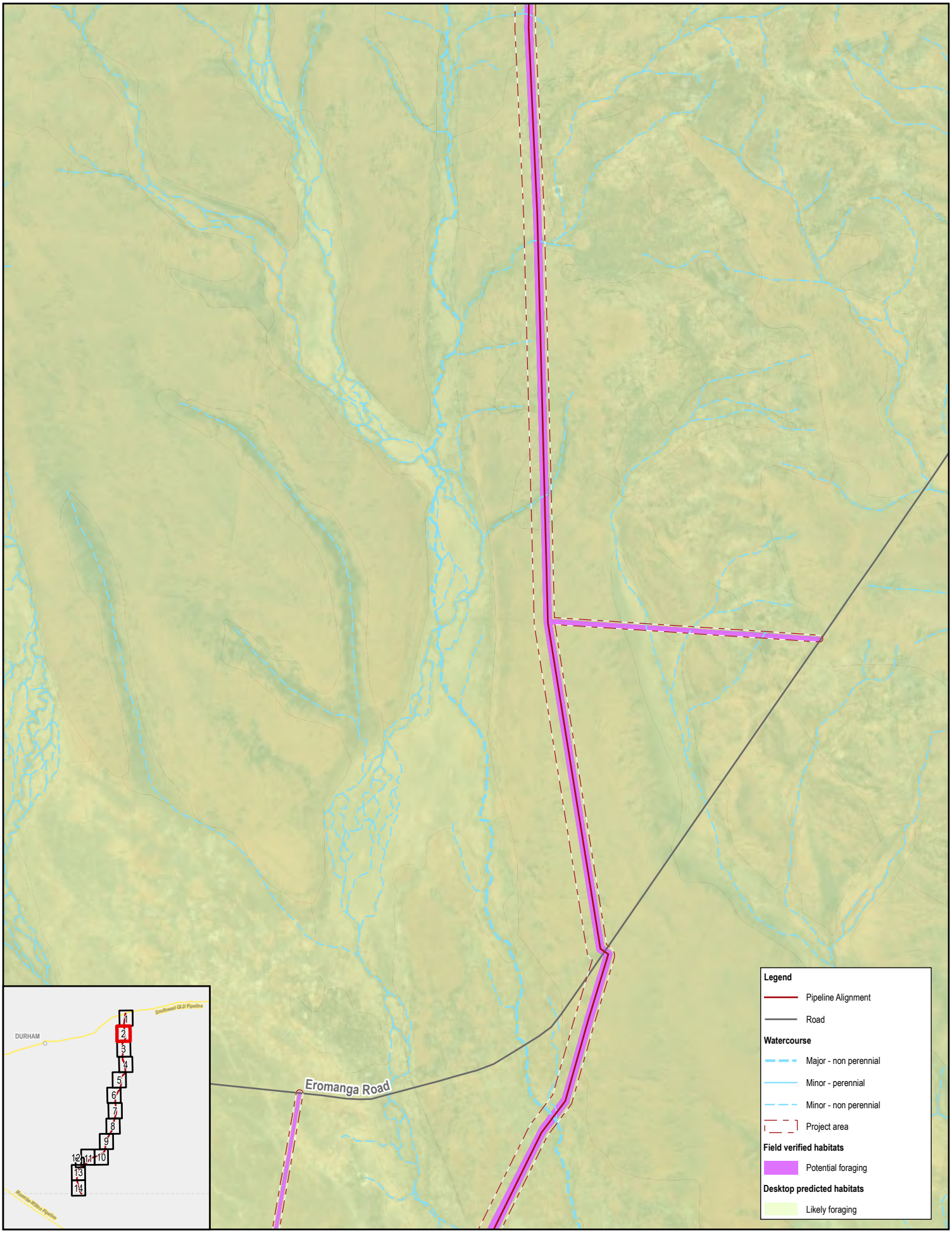
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Kilometres

Map Projection: Transverse Mercator
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Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

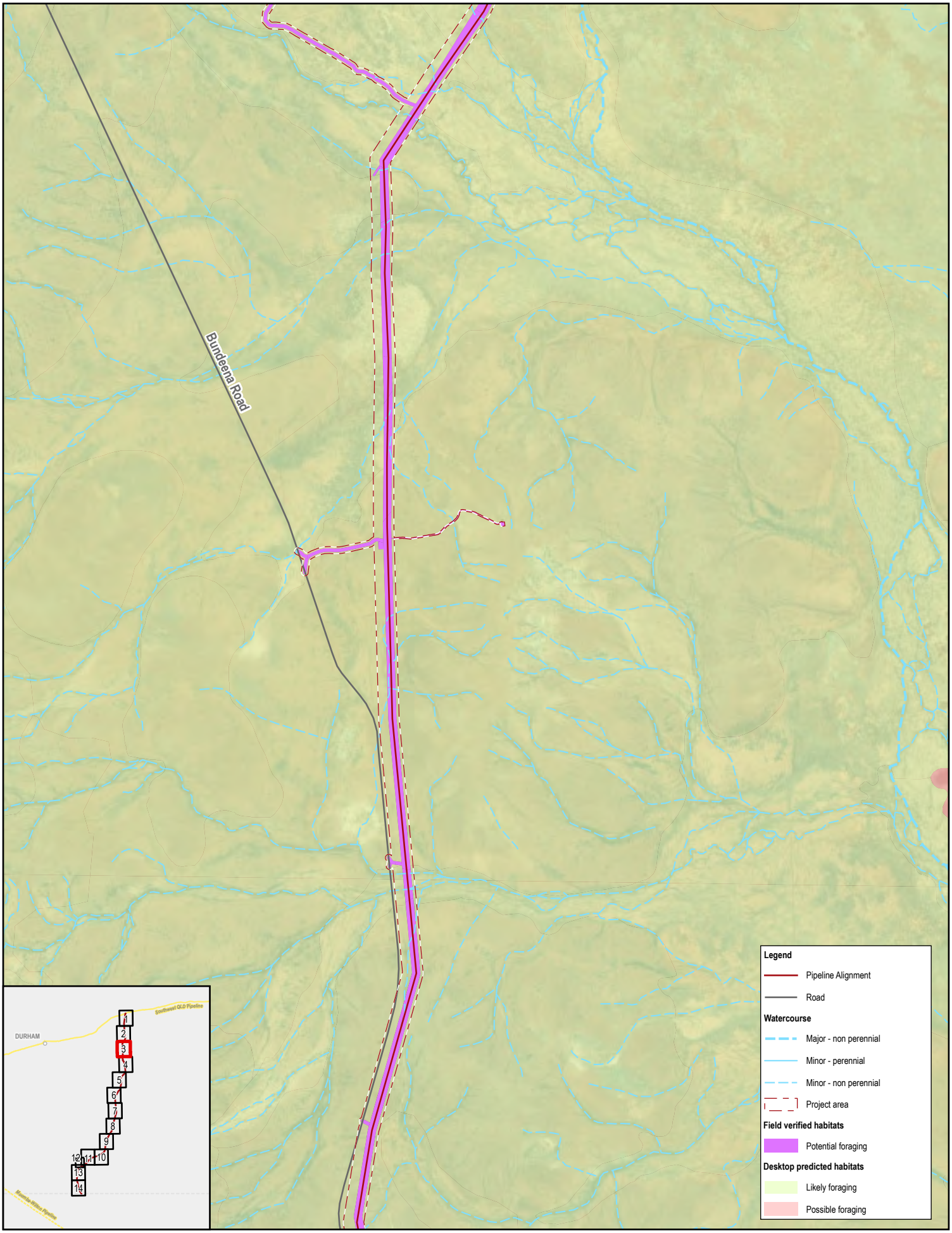
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Kilometres

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APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

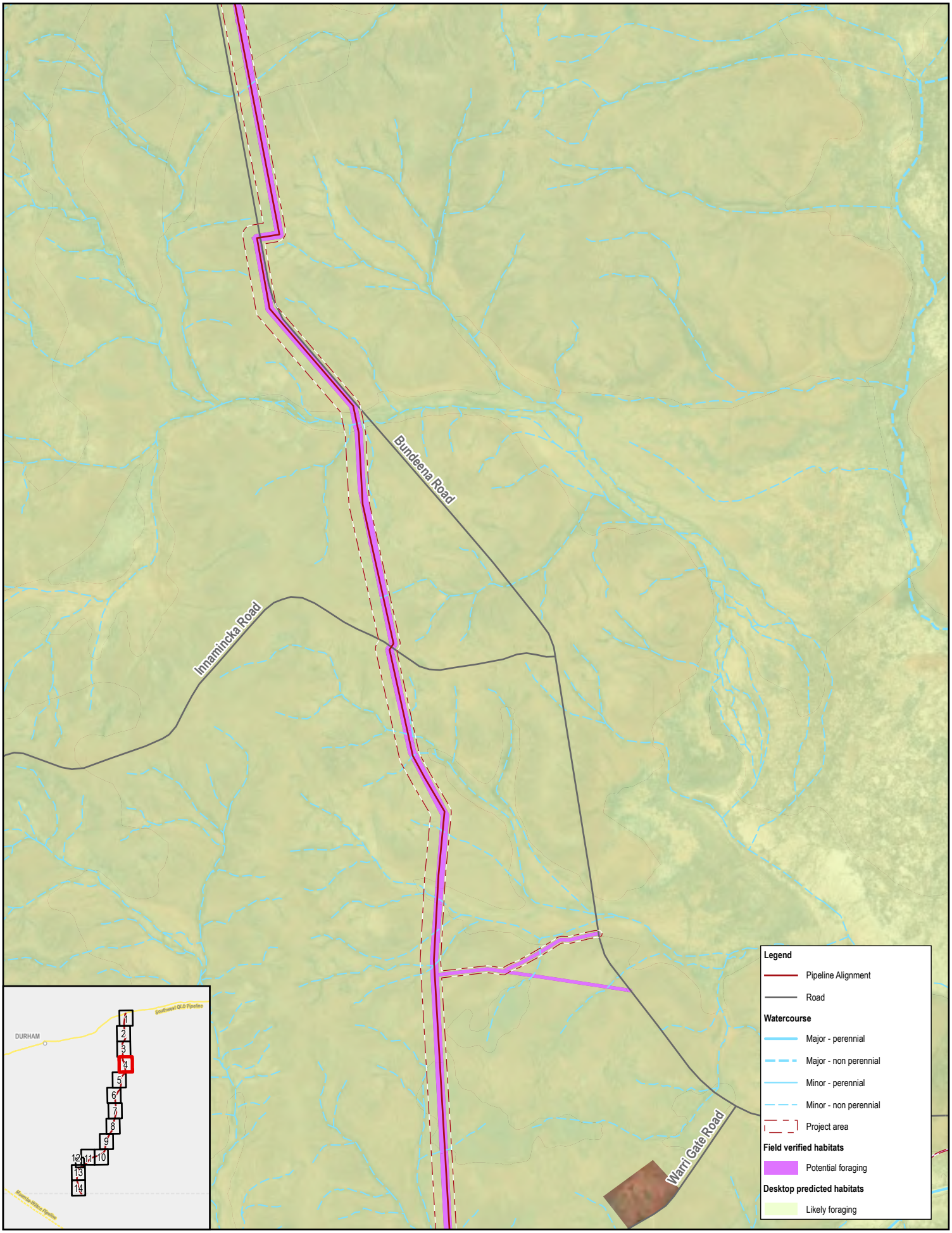
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Fork-tailed swift habitat distribution

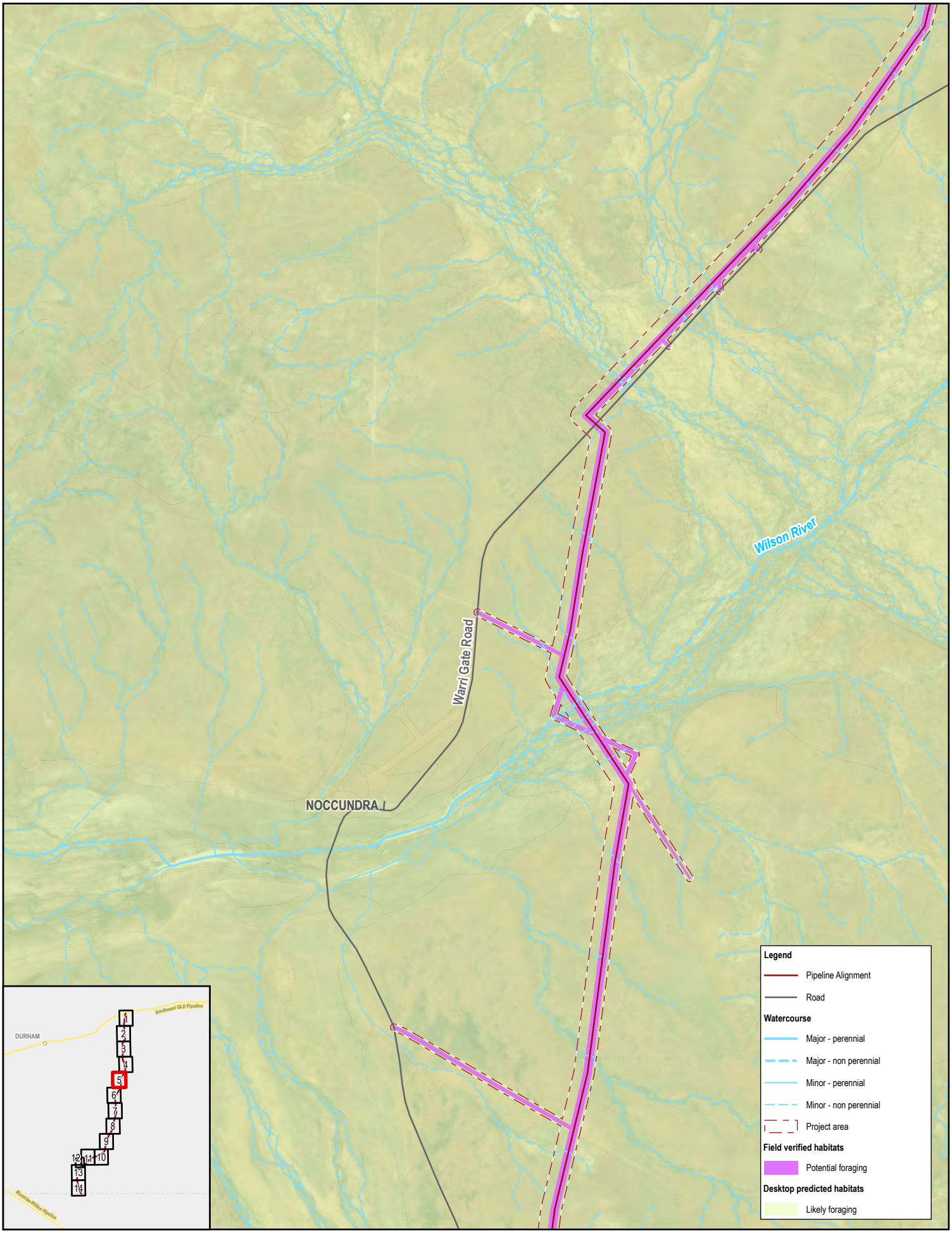
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Fork-tailed swift habitat distribution

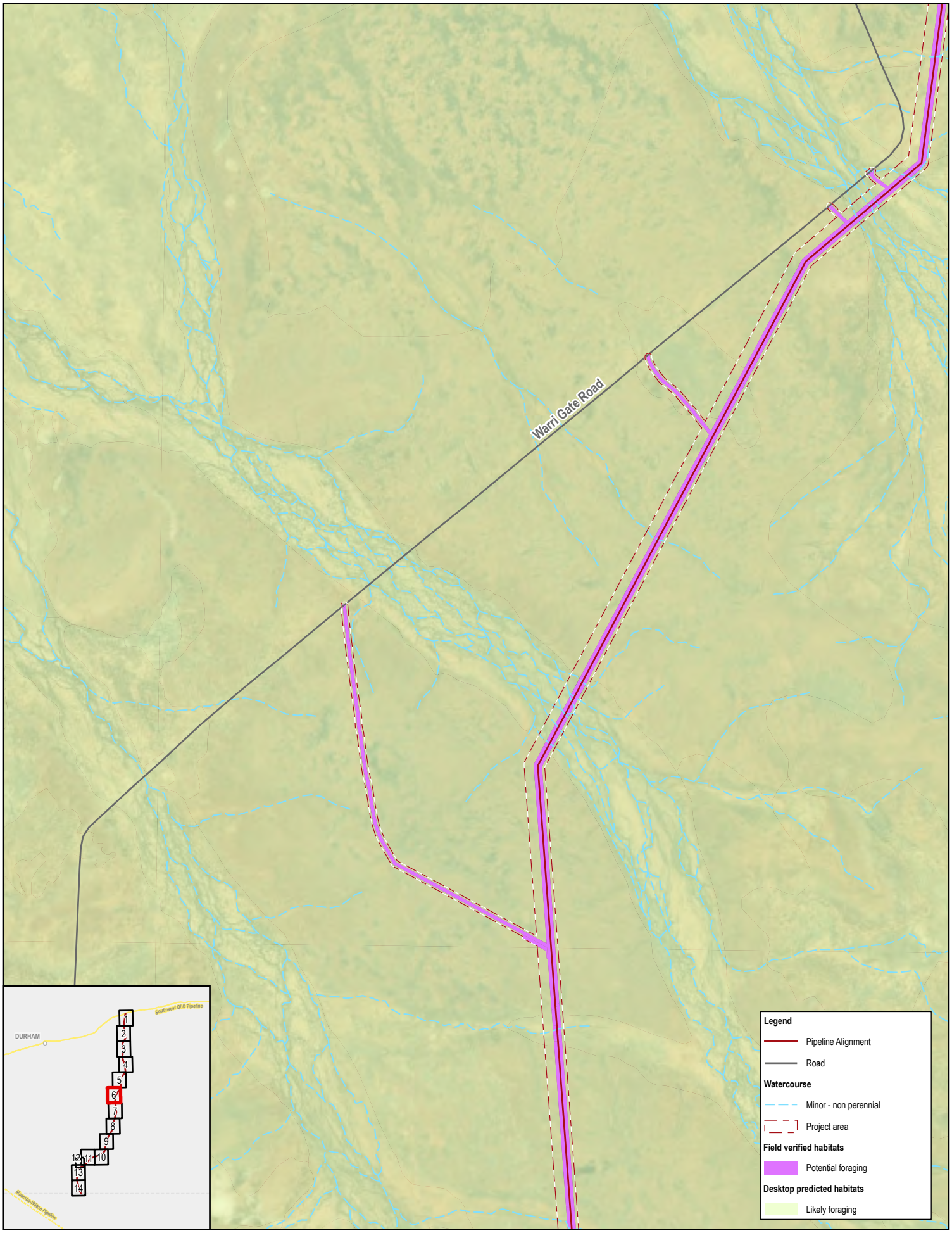
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Fork-tailed swift habitat distribution

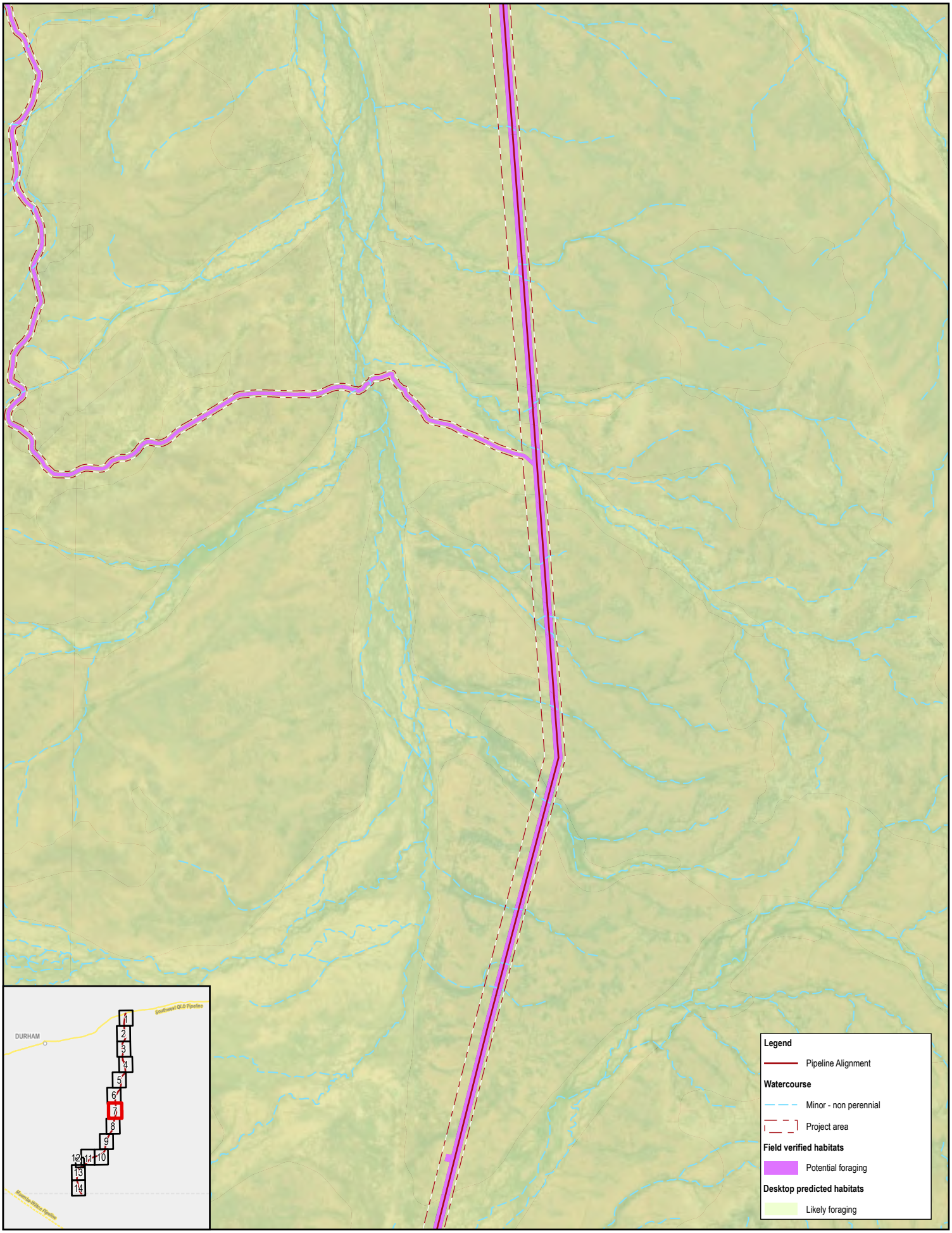
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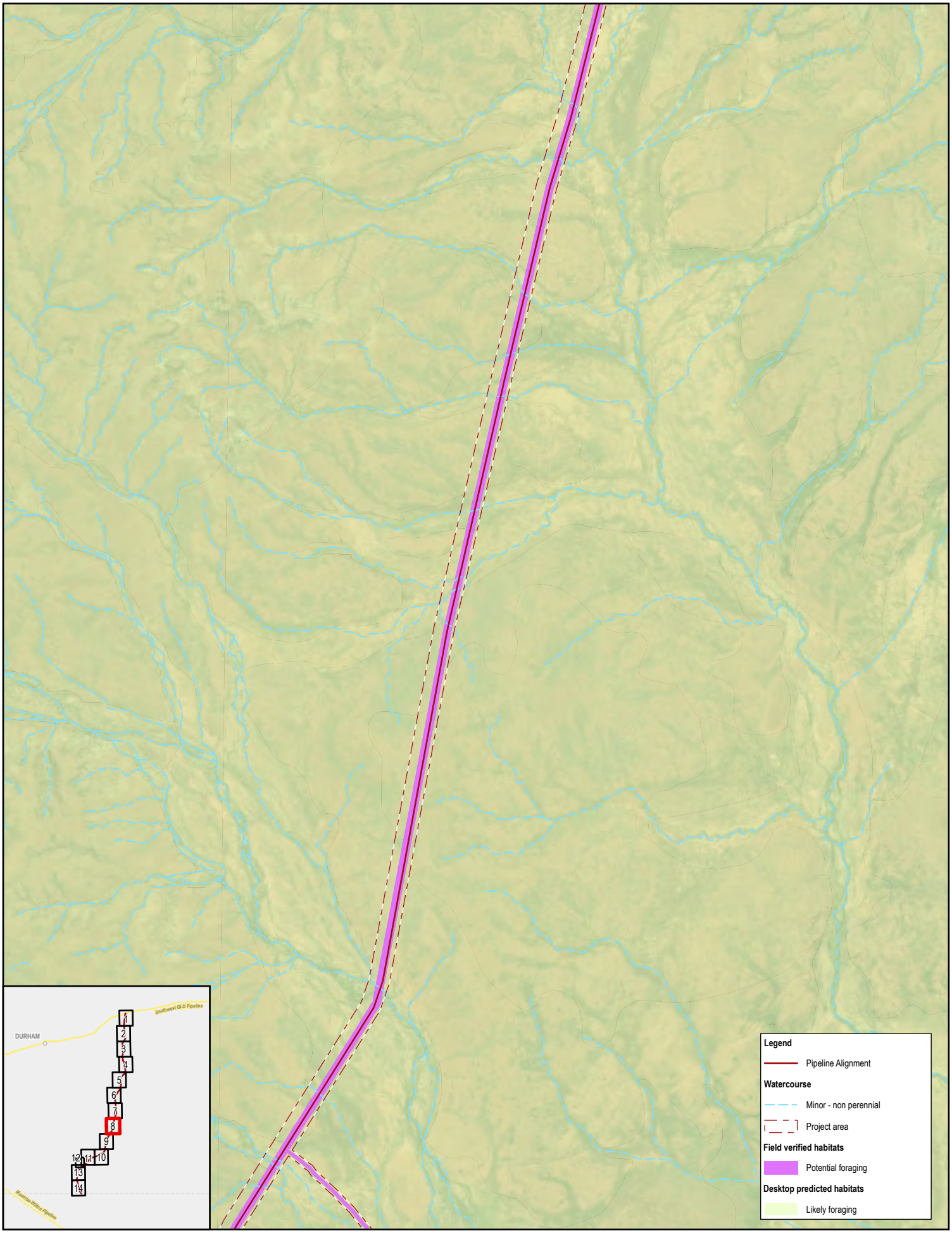
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Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

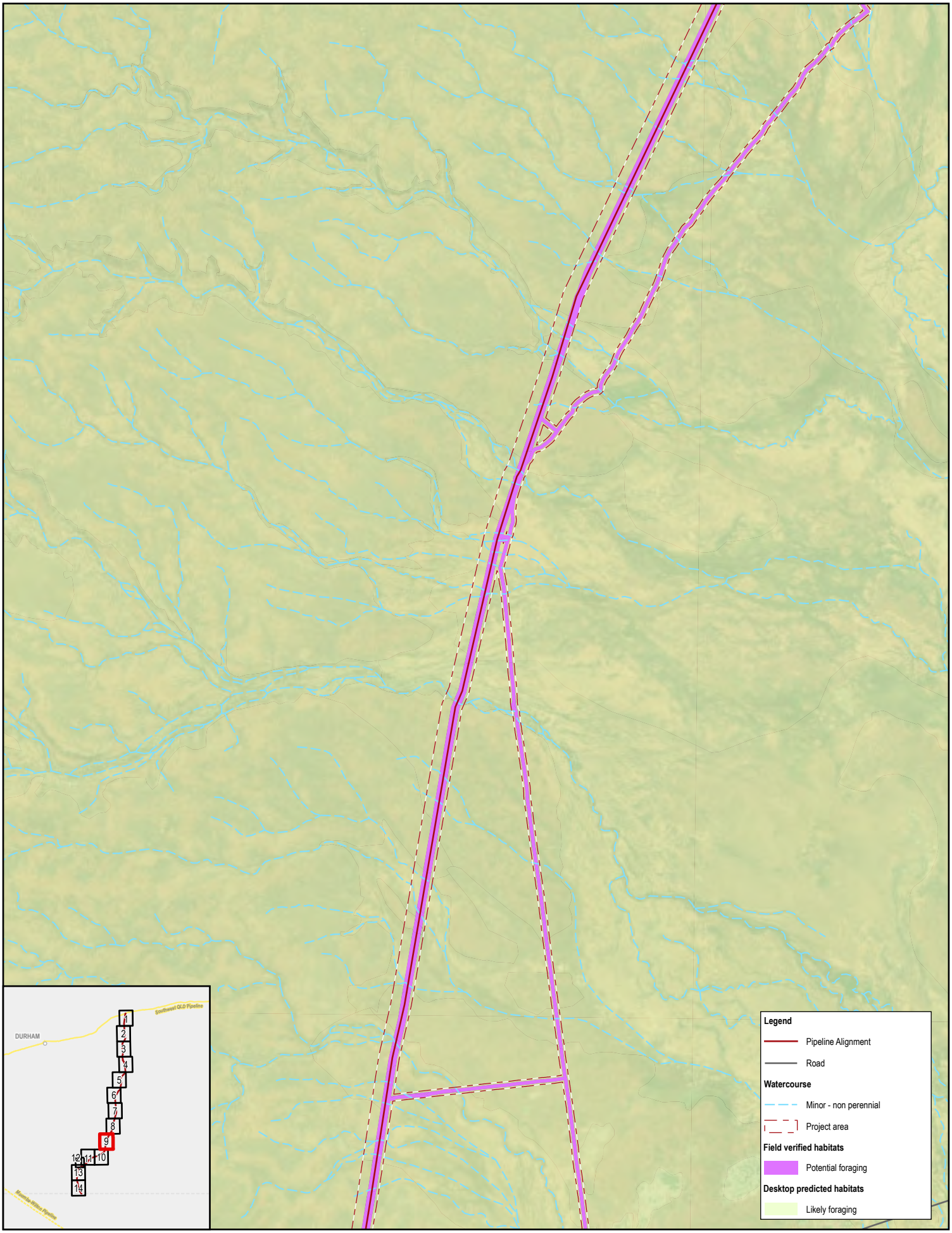
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Figure 4.13

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

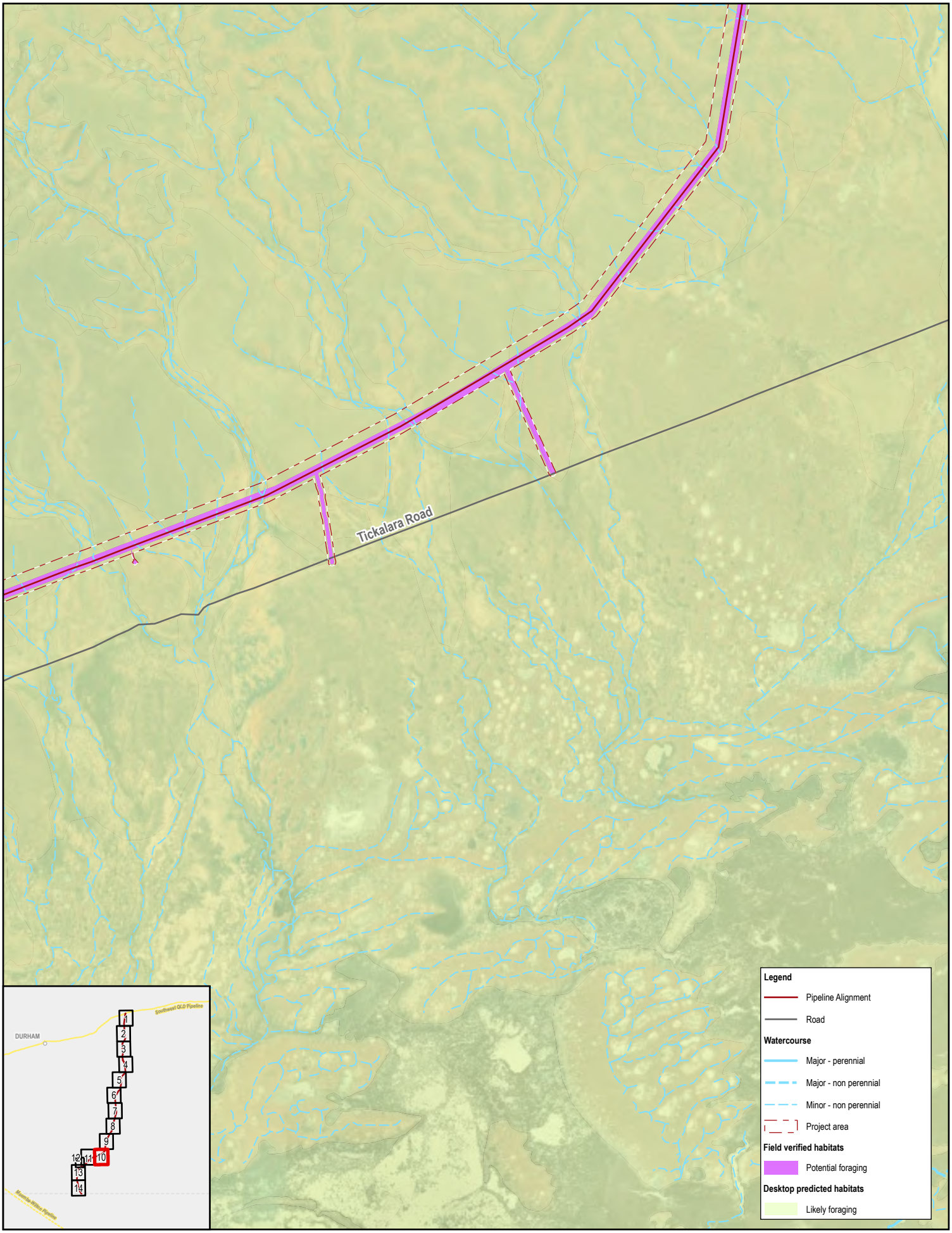
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Figure 4.13

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

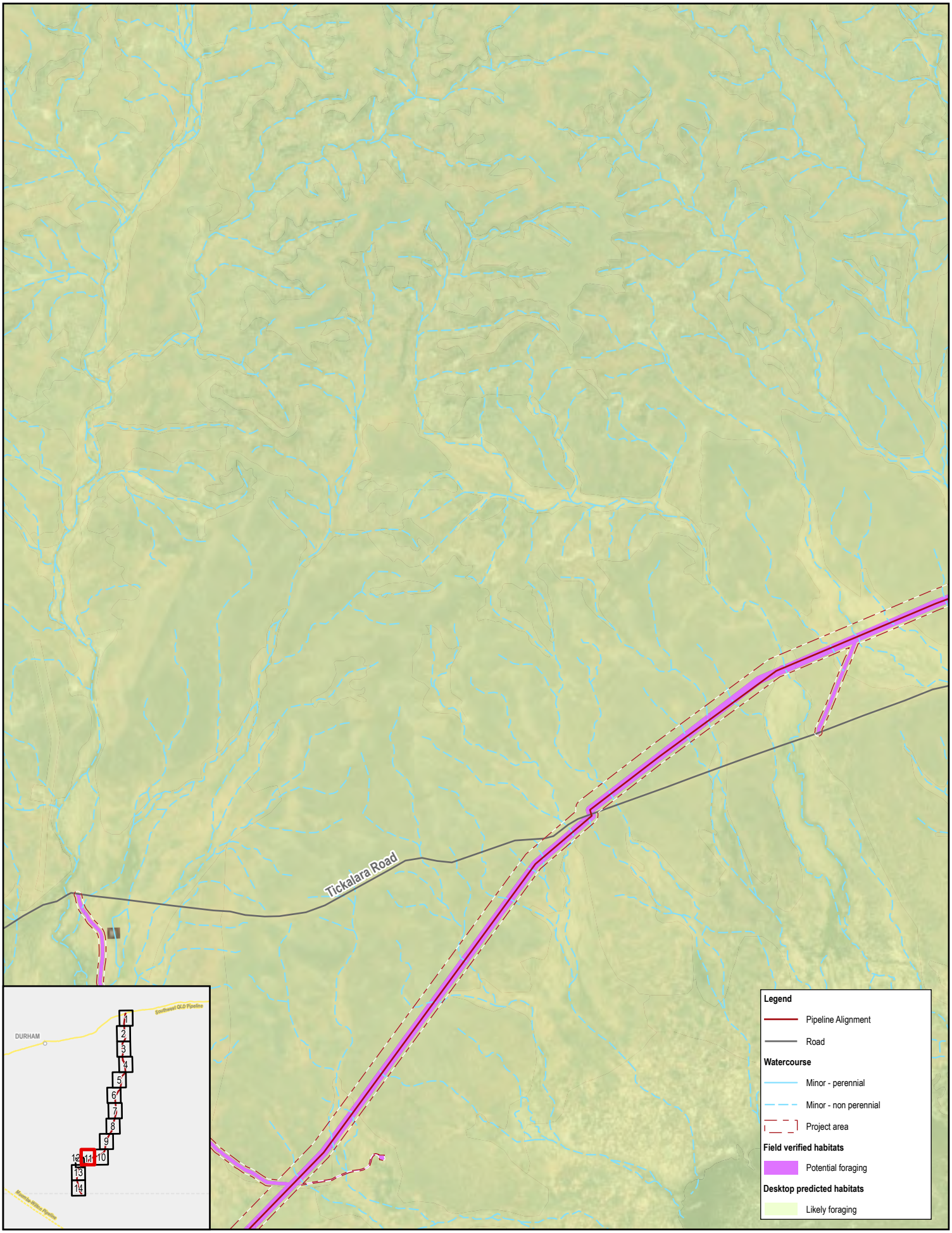
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Figure 4.13

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Kilometres

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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

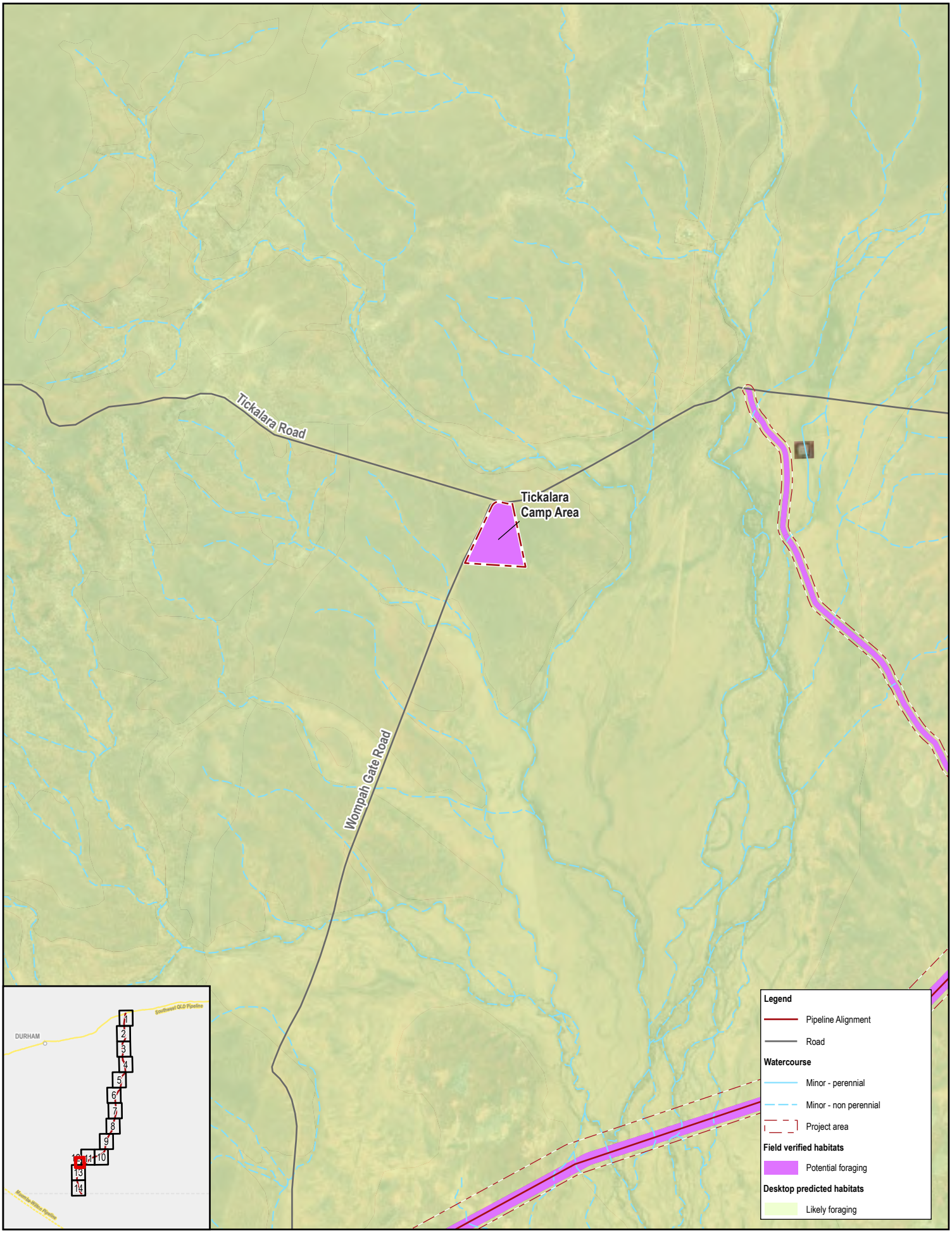
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Figure 4.13

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

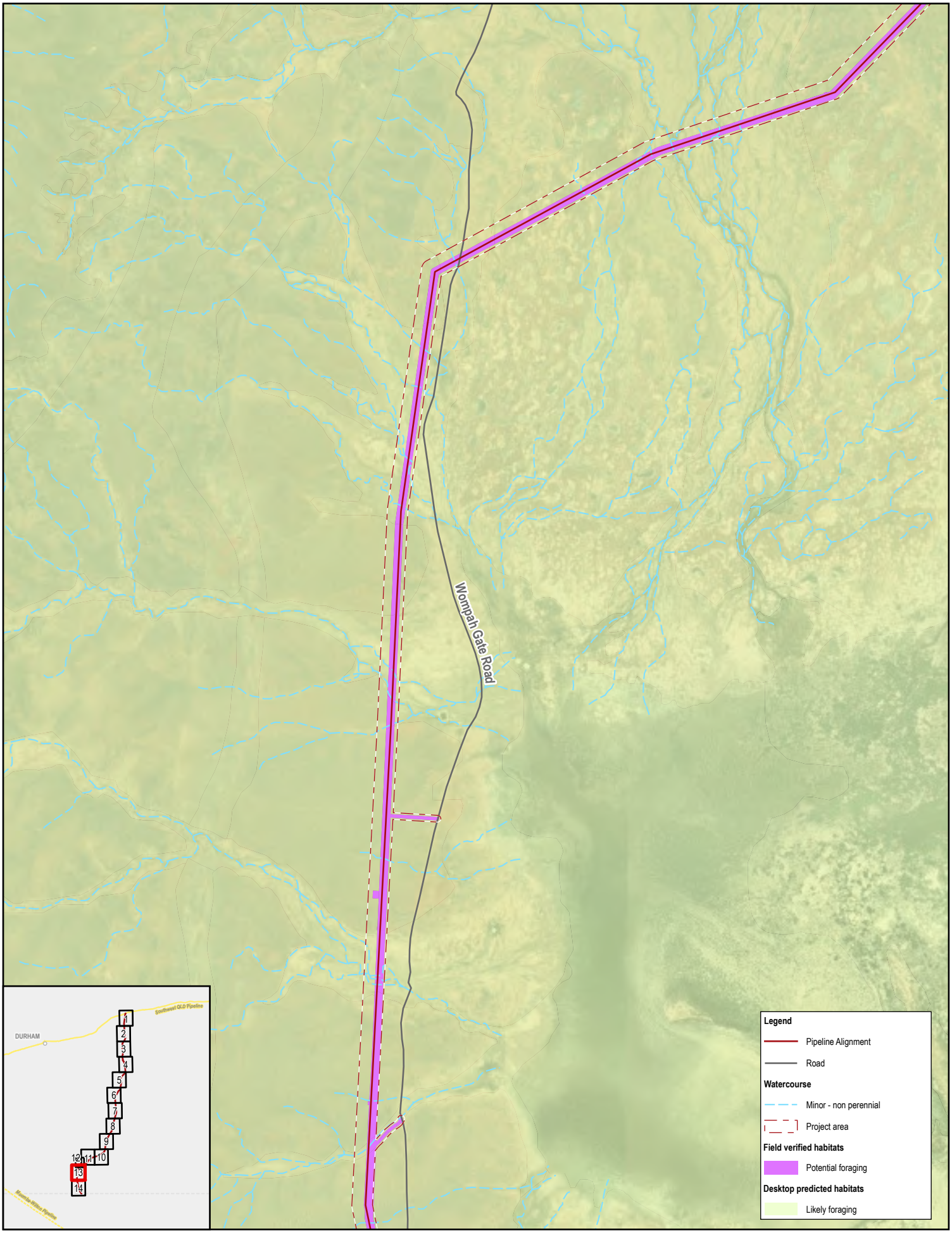
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Kilometres

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Fork-tailed swift habitat distribution

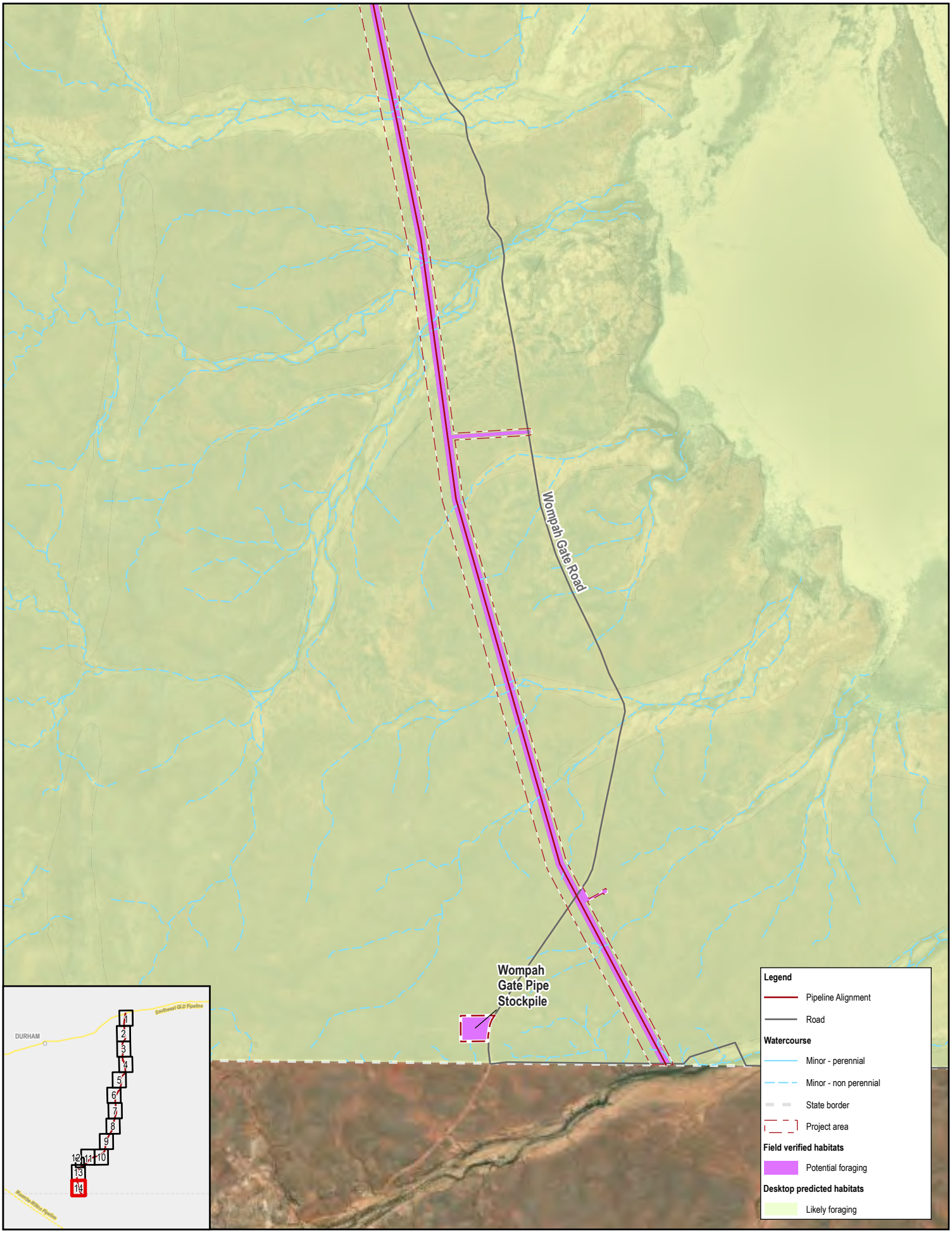
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Figure 4.13

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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

APA GHD

APA Group
Bulloo Interlink Pipeline

Fork-tailed swift habitat distribution

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Figure 4.13

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Data source: Earthstar Geographics, Esri, HERE, GarminDNRMMRRD: Roads, Watercourse, State border (2023); APA: Pipeline alignment, Project area (2026); GHD: Habitat (2025). Created by: calburo2

Glossy ibis

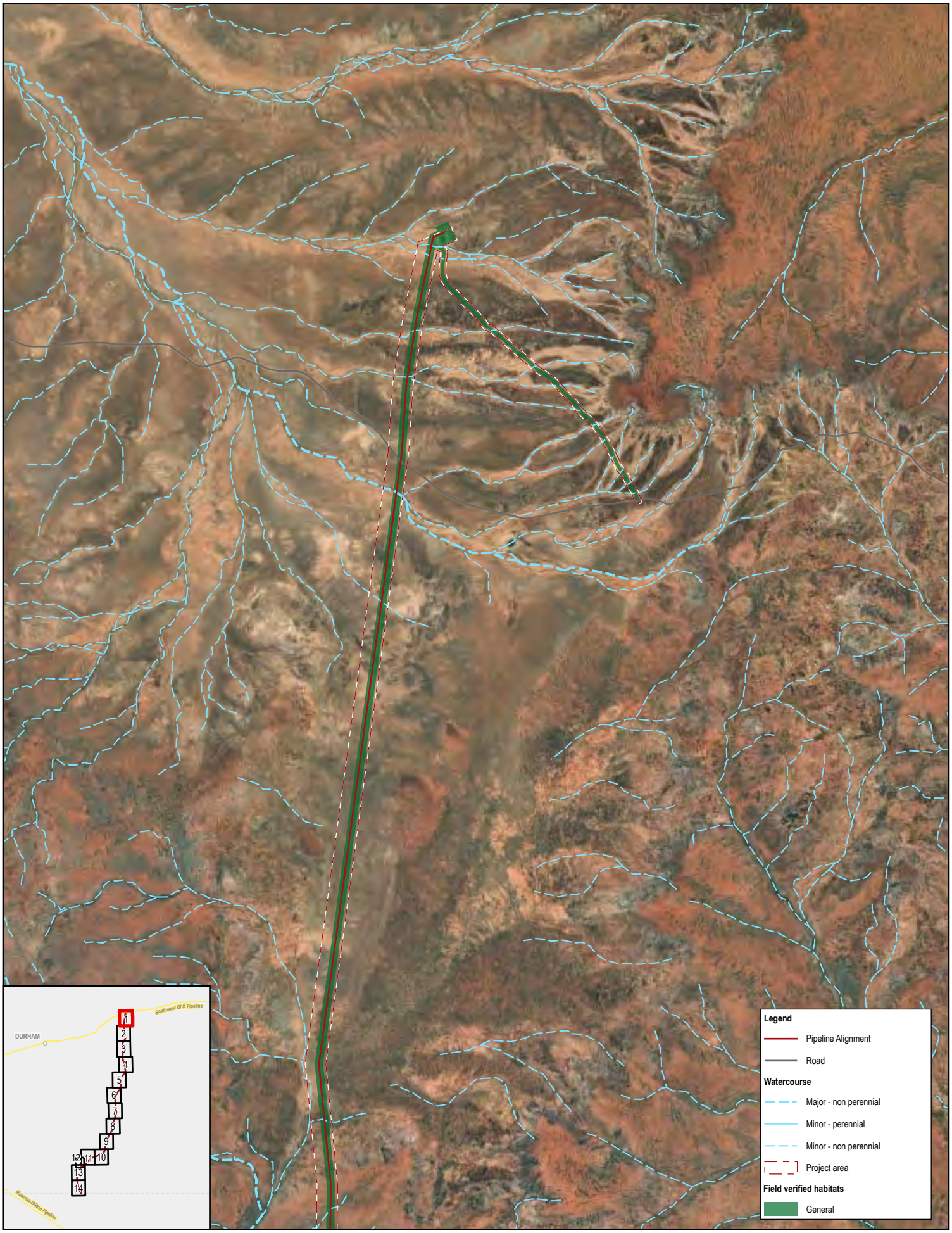
The glossy ibis is listed as **special least concern** under the NC Act **and migratory** under the EPBC Act. It is a highly nomadic wetland species distributed widely across Australia where conditions are suitable (Marchant & Higgins, 1990; BirdLife Australia, 2021). The species forages in shallow wetlands, floodplains, irrigated pastures, sewage ponds, and brackish marshes, probing soft substrates for invertebrates, frogs, and small fish. Breeding typically occurs colonially in reedbeds, lignum, or trees and shrubs overhanging water (Pizzey & Knight, 2012).

Within the project site, glossy ibis may occur opportunistically in inundated channels and floodplain wetlands following rainfall or flooding. Habitat suitability is highly dynamic and influenced by seasonal water availability. Records include a 2012 sighting 10 km east of KP 236, and multiple records (from 2011, 2012, and 2023) approximately 5 km south-west of KP 84. Floodplain and ephemeral channels across the project area serve as suitable seasonal habitat for this species, with perennial channels providing habitat throughout the year. Suitable habitat distribution within the project site is shown in Figure 4.10.

Short-beaked echidna

The short-beaked echidna is listed as **special least concern** under the NC Act. It is one of Australia's most widespread native mammals, occurring across all states and territories in habitats ranging from arid deserts through to closed forest, rainforest, woodland, heath, agricultural land, and peri-urban environments (Augee, 1998). Echidna forage primarily on ants and termites and are capable of occupying a wide variety of landscapes wherever these prey resources are available (Augee, 1998). Echidnas shelter in hollow logs, soil burrows, or dense vegetation but do not maintain permanent nesting sites, except when females create specialised nursery burrows for rearing young (Augee, 1998).

Within the project site, suitable habitat for the short-beaked echidna occurs widely across all vegetation communities, including open woodland and regrowth habitats that support termite mounds and ant colonies. The species was not recorded during field surveys; however, numerous records exist in the region, which include a 2011 record 15 km west of KP 6, a 2012 record 12 km east of KP 6, and the nearest record approximately 160 m from the southern-most extent of the pipeline alignment in Queensland (KP 236) (ALA 2025). Suitable habitat distribution within the project site is shown in Figure 4.14.



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Kilometres

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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

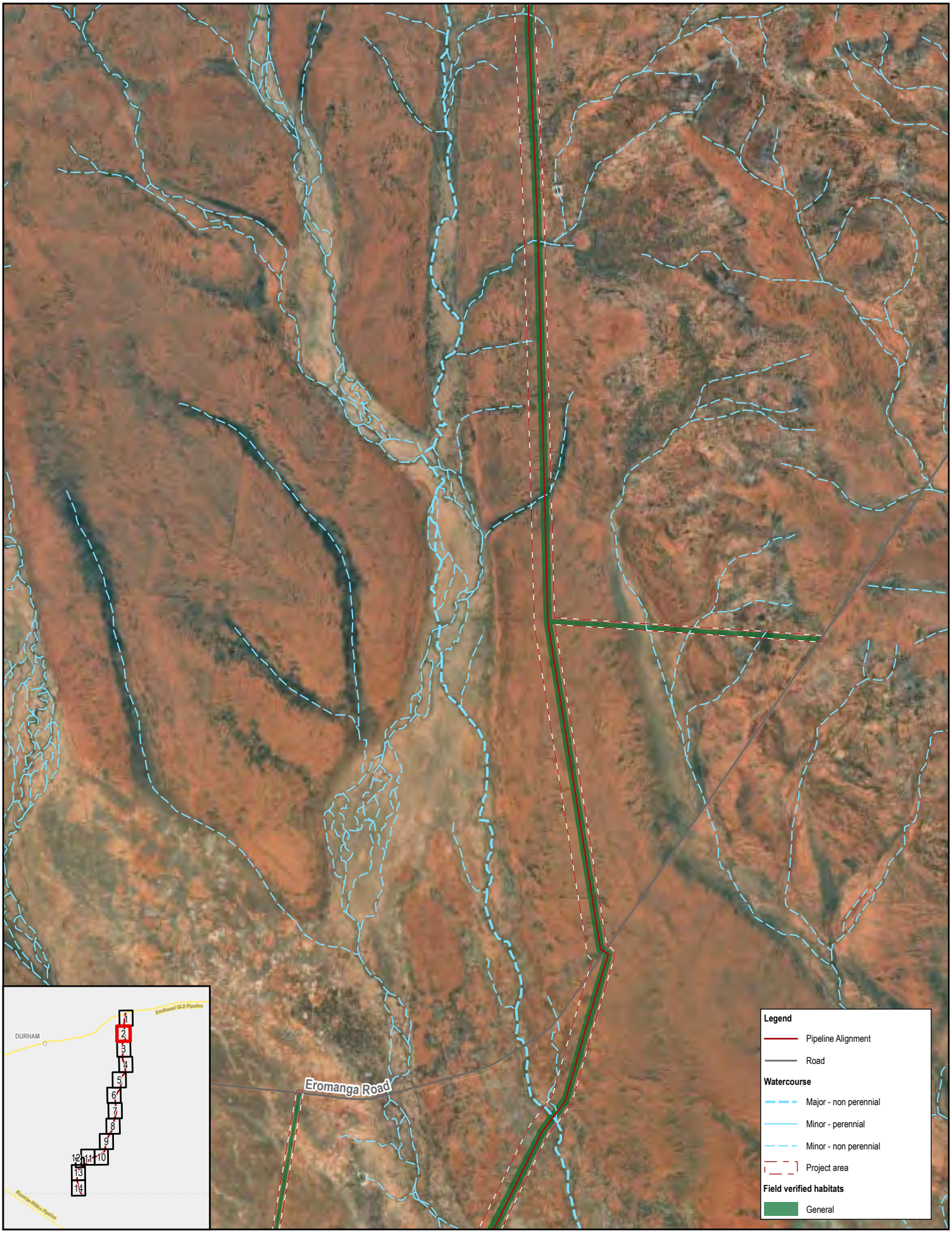
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Figure 4.14

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Paper Size ISO A4

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Kilometres

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

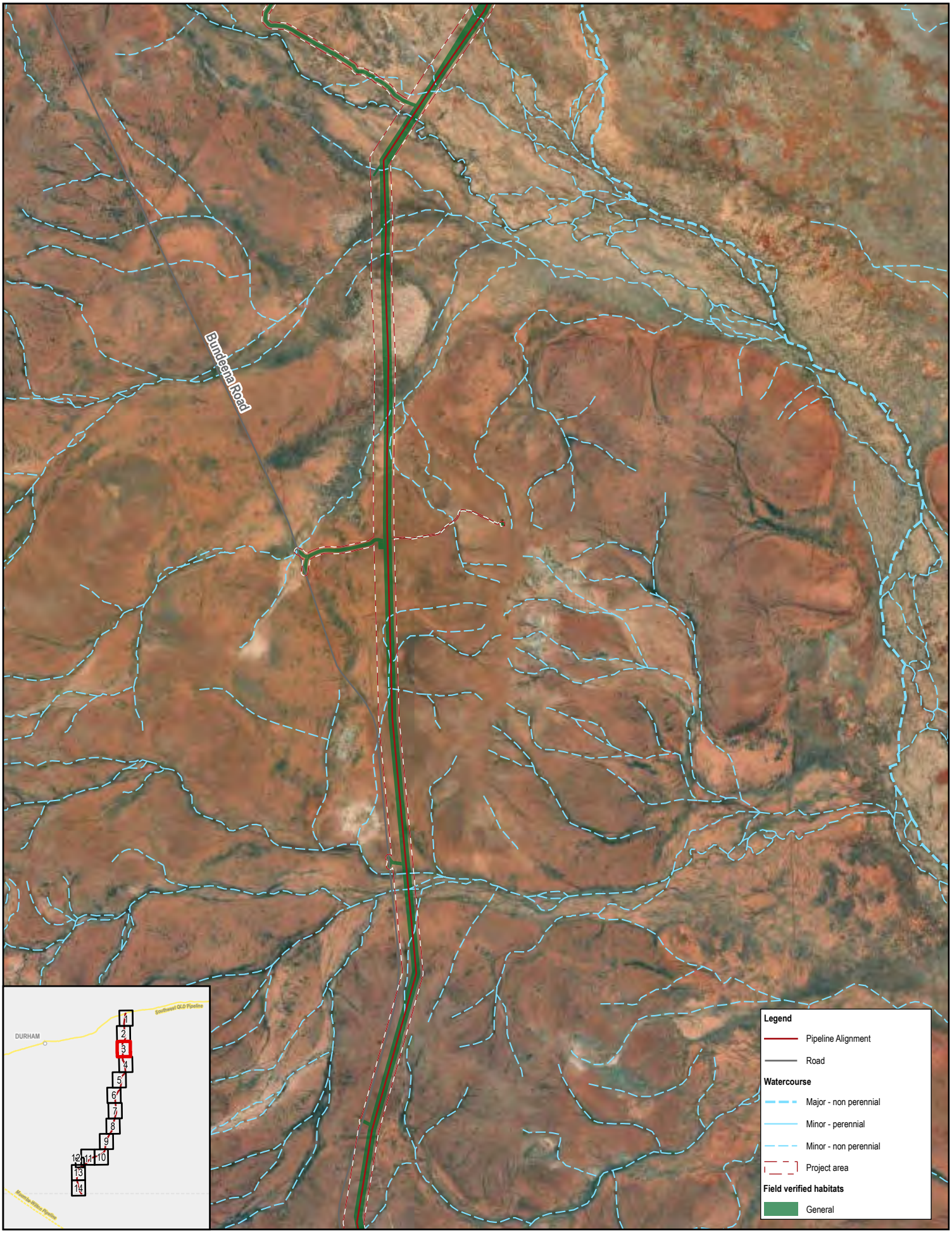
Project No. 12661648
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Date 08/07/2026

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Figure 4.14

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Paper Size ISO A4

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Kilometres

Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

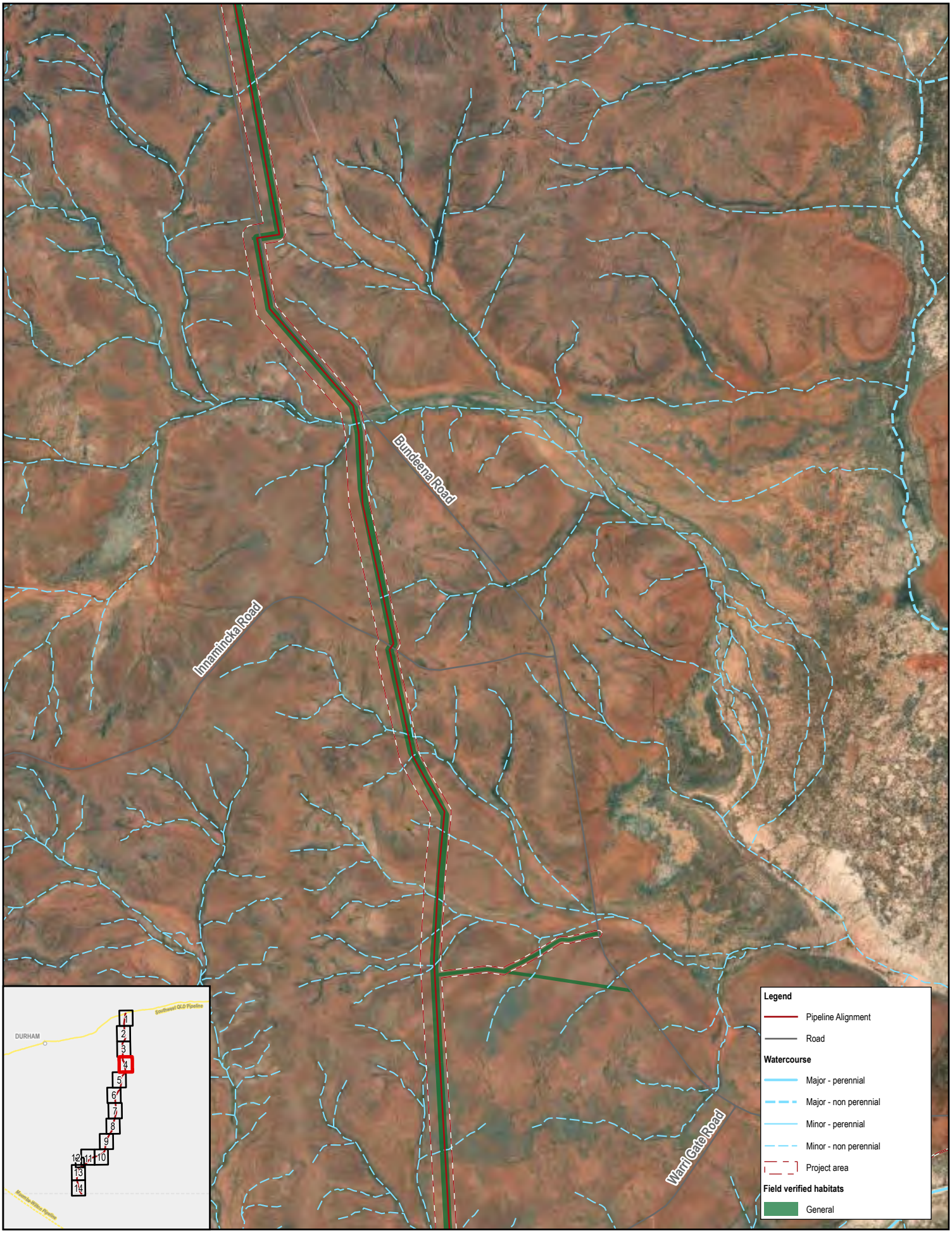
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Figure 4.14

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Paper Size ISO A4

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

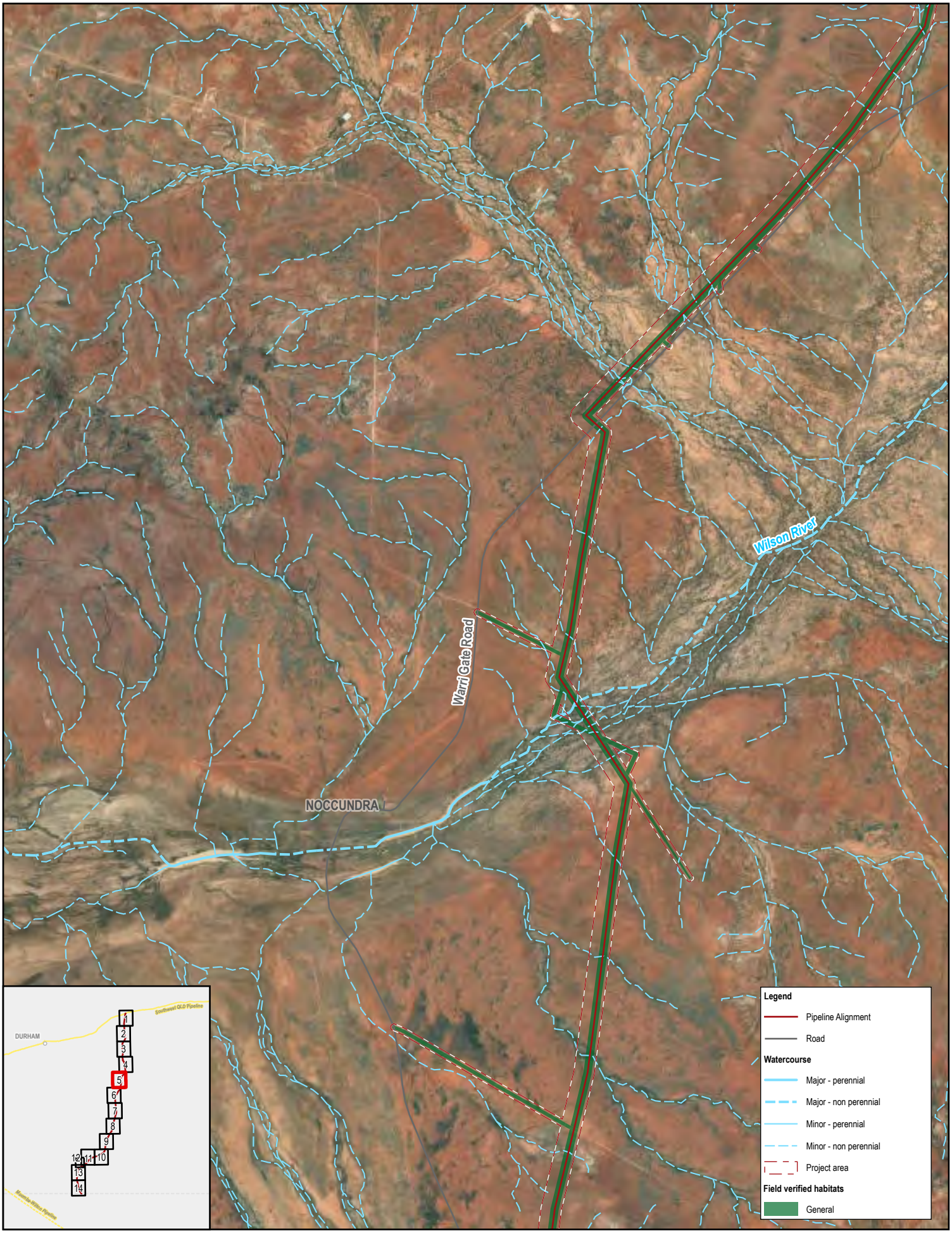
Project No. 12661648
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Figure 4.14

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Kilometres

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

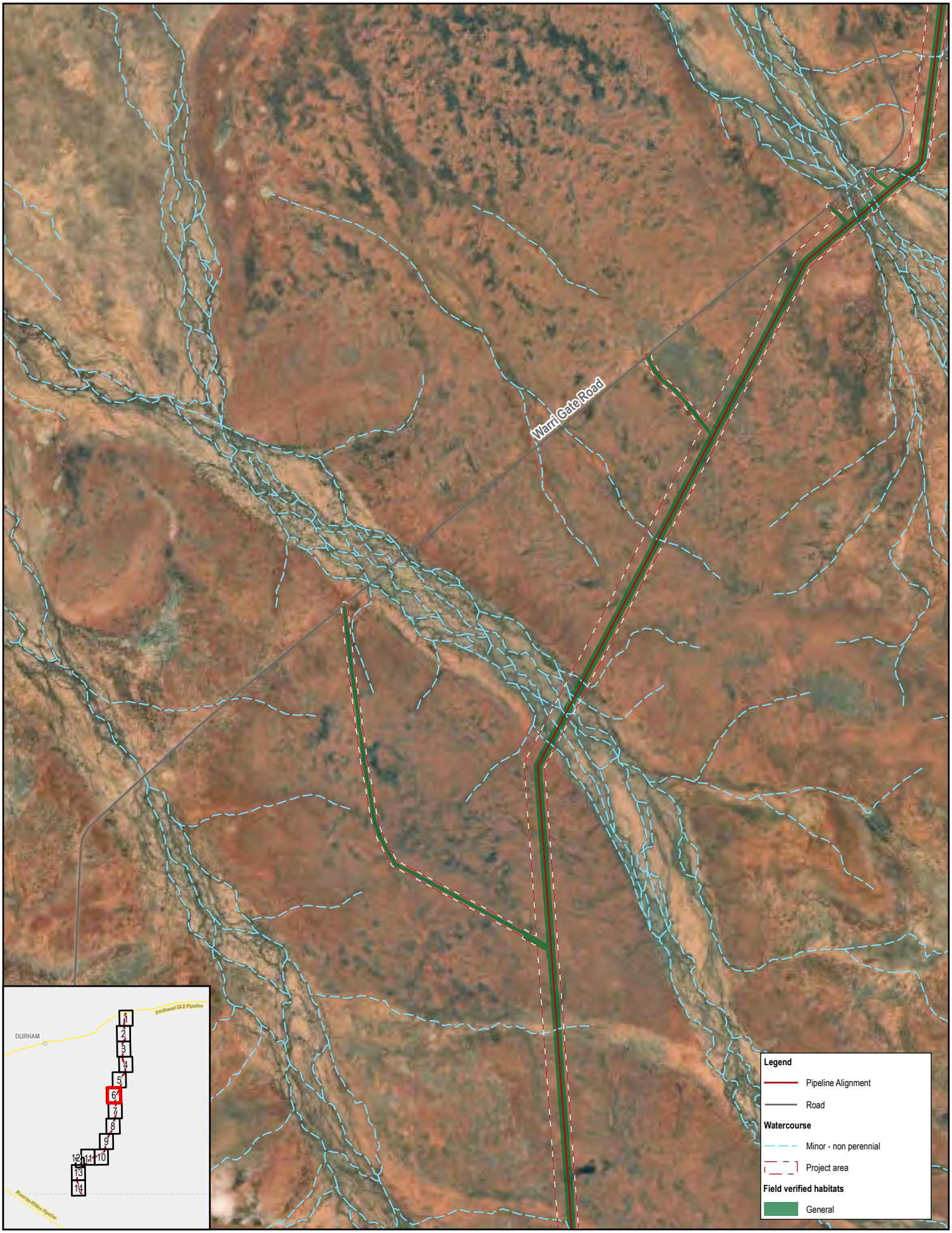
Project No. **12661648**
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Figure 4.14

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Kilometres

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Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

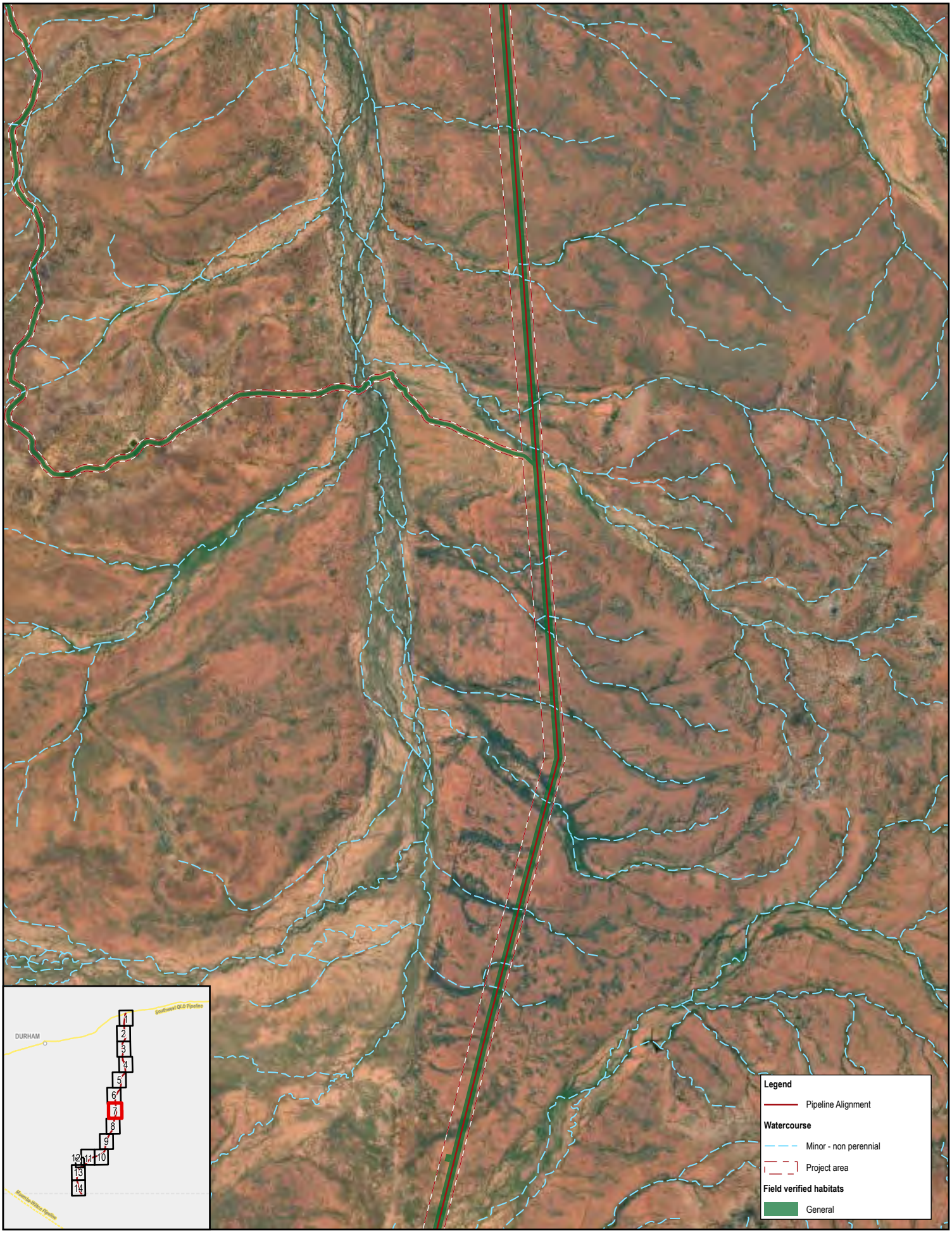
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Figure 4.14

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Kilometres

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

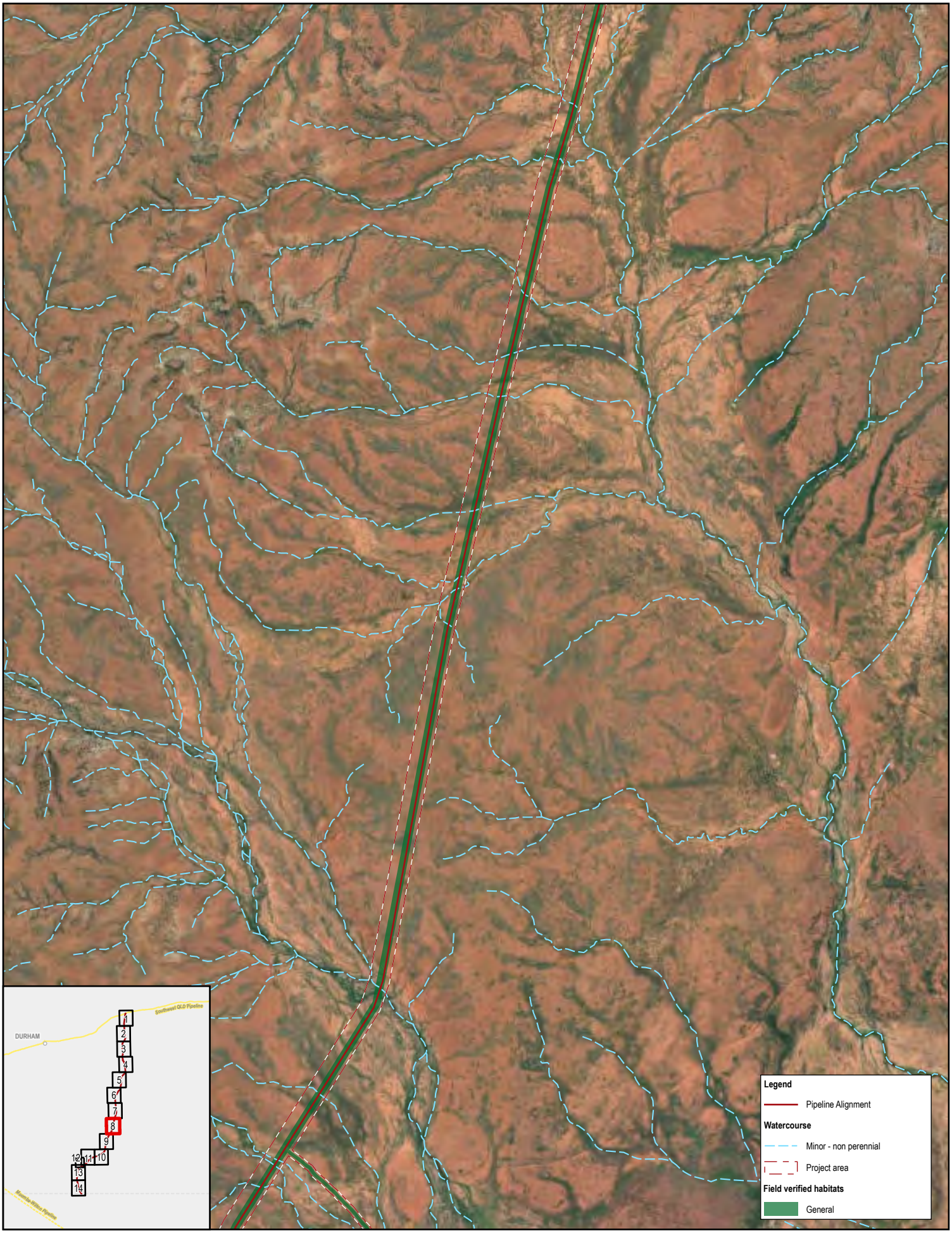
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Figure 4.14

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Short beaked echidna habitat distribution

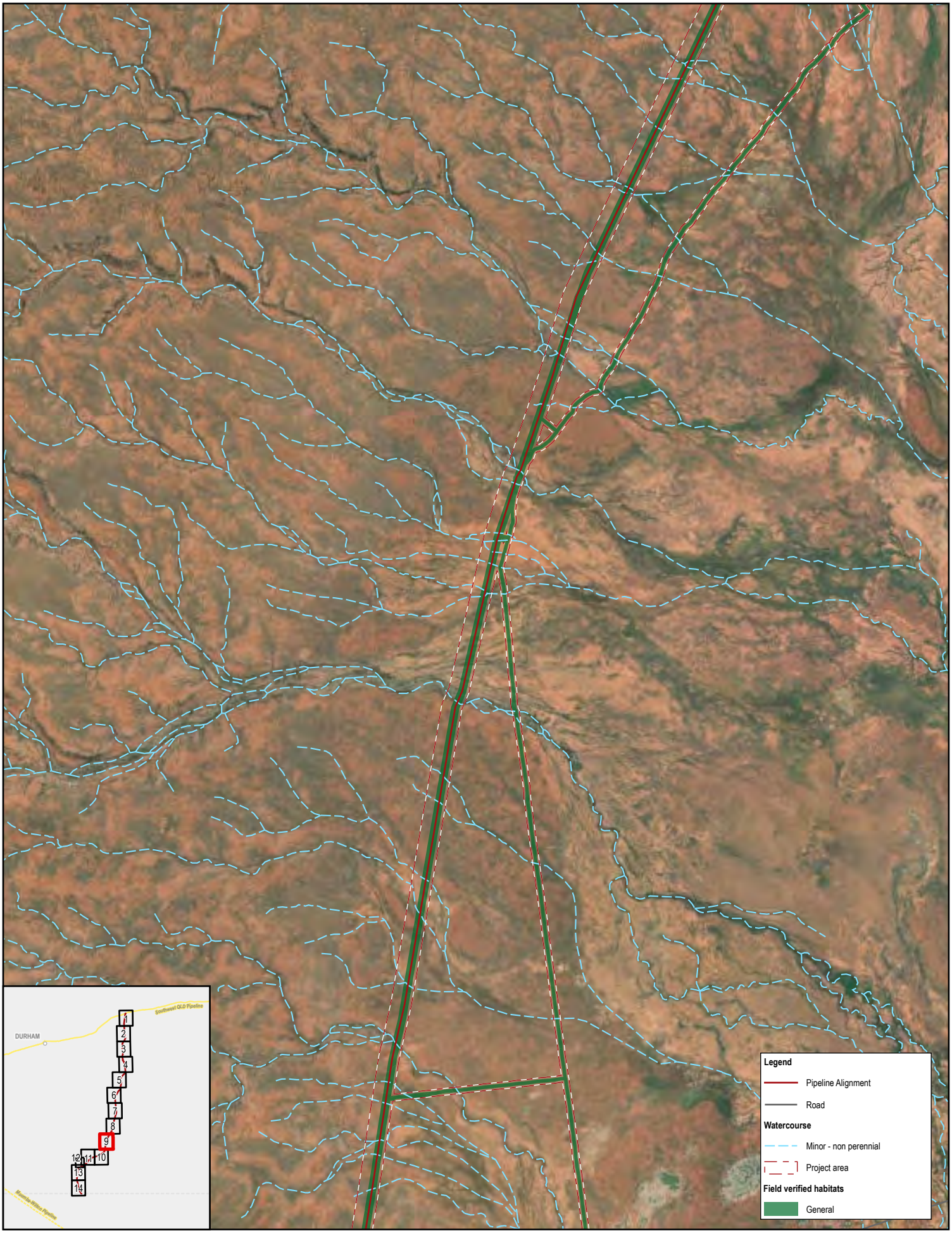
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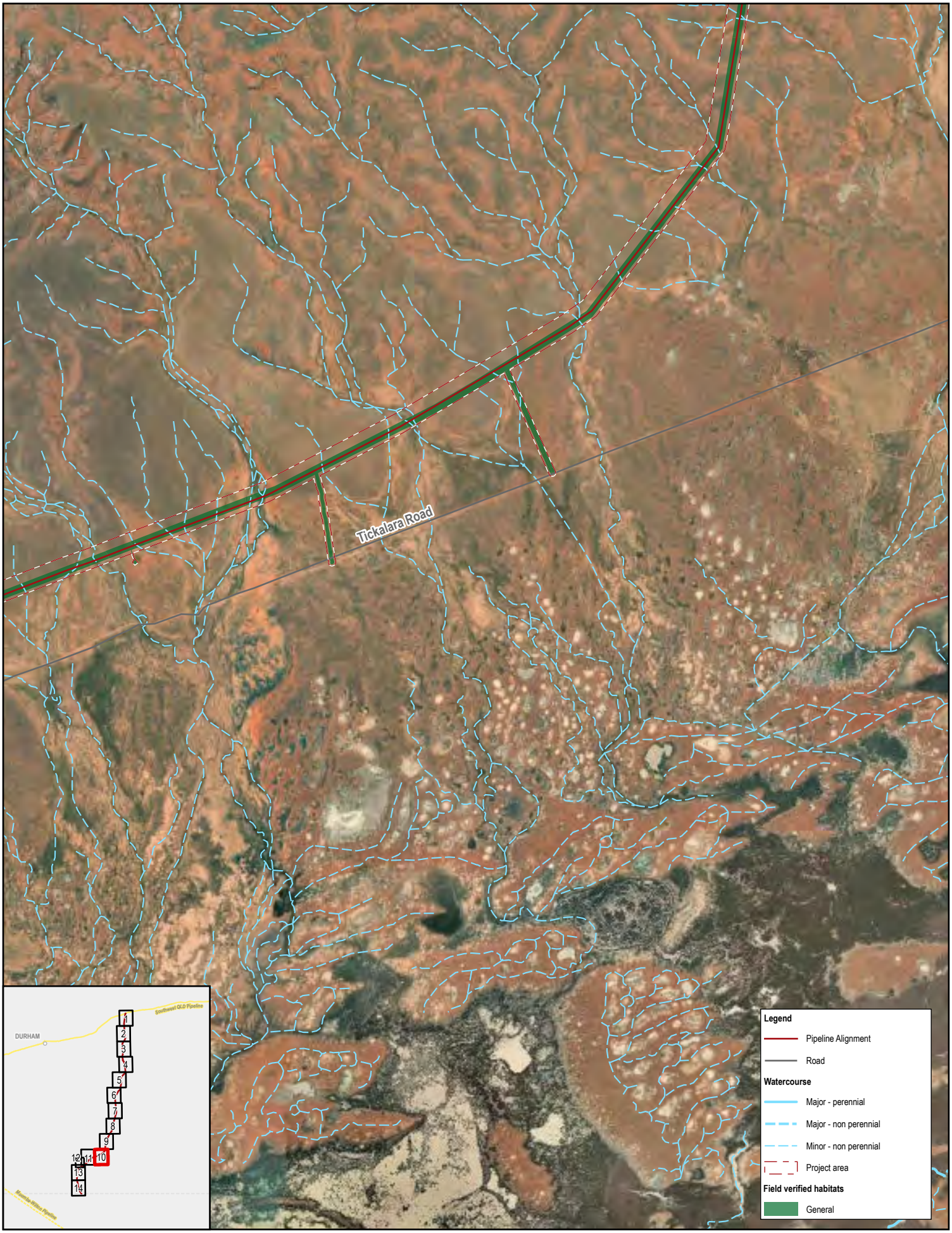
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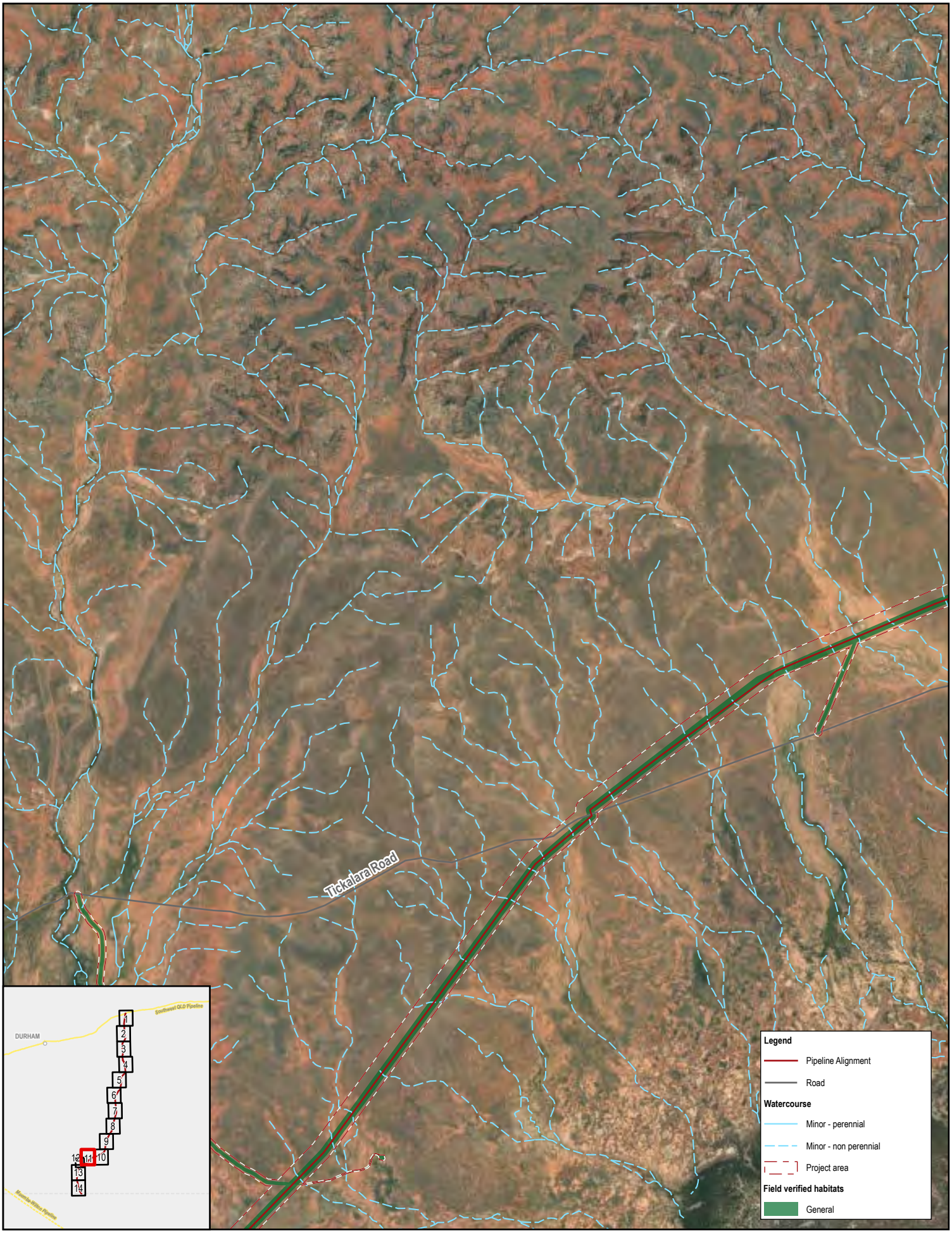
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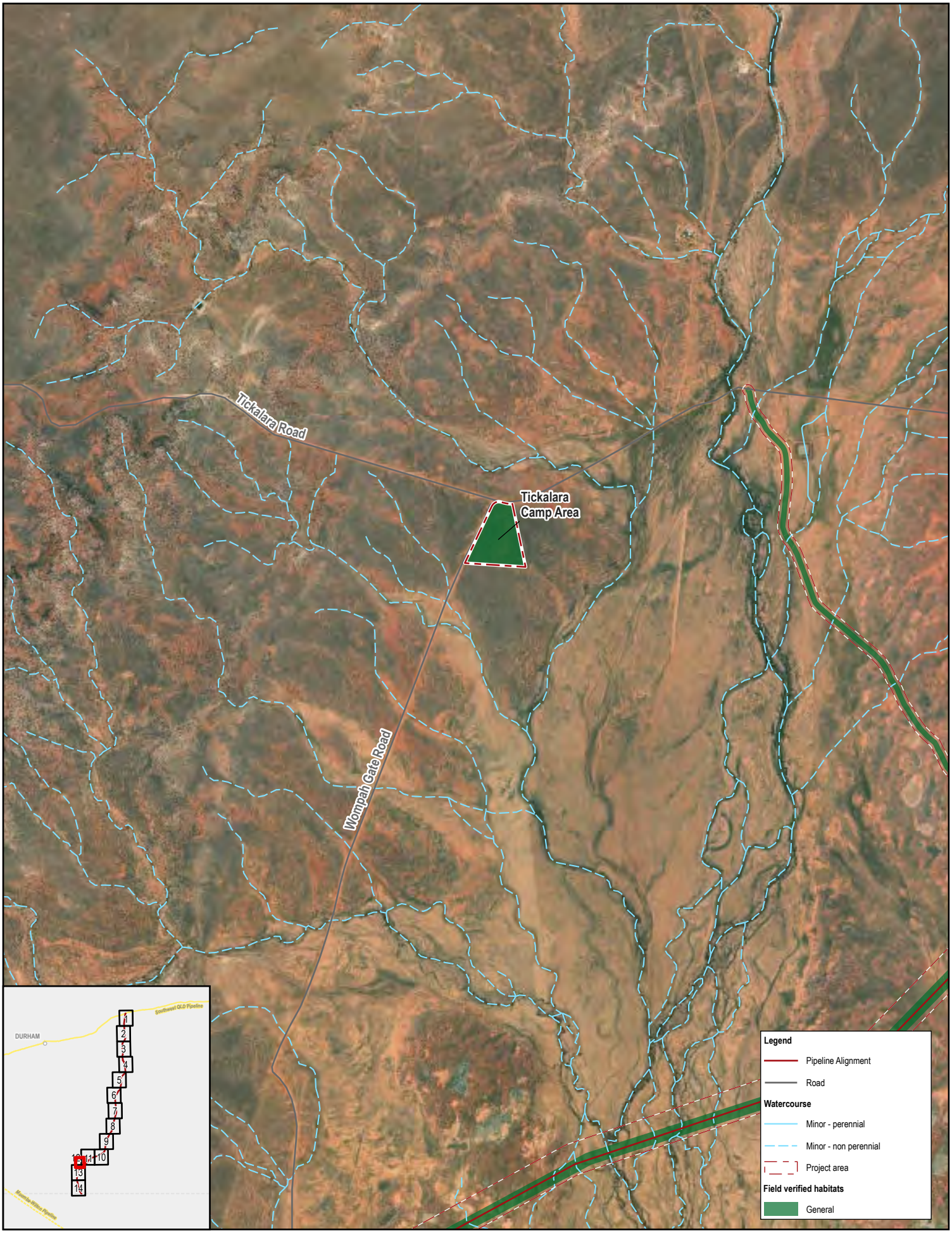
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Short beaked echidna habitat distribution

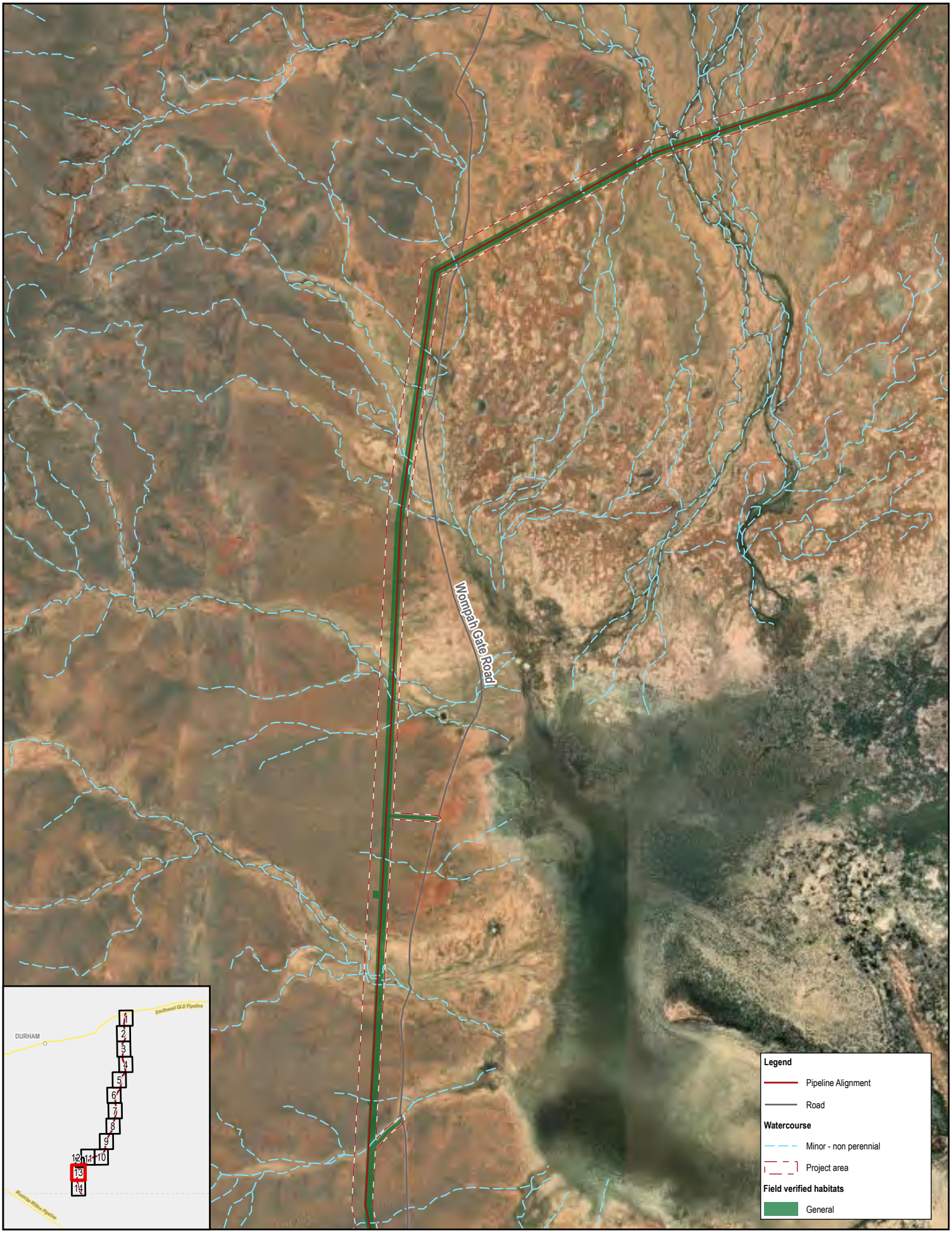
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Figure 4.14

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Data source: Source: Esri, Vantor, Earthstar Geographics, and the GIS User Community, Esri, HERE, Garmin\DNRM\MRRD: Roads, Watercourse, State border (2023); DSETI: Wildnet records (2025). APA: Pipeline alignment, Project area (2026); GHD: Habitat (2025). Created by: calburo2



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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

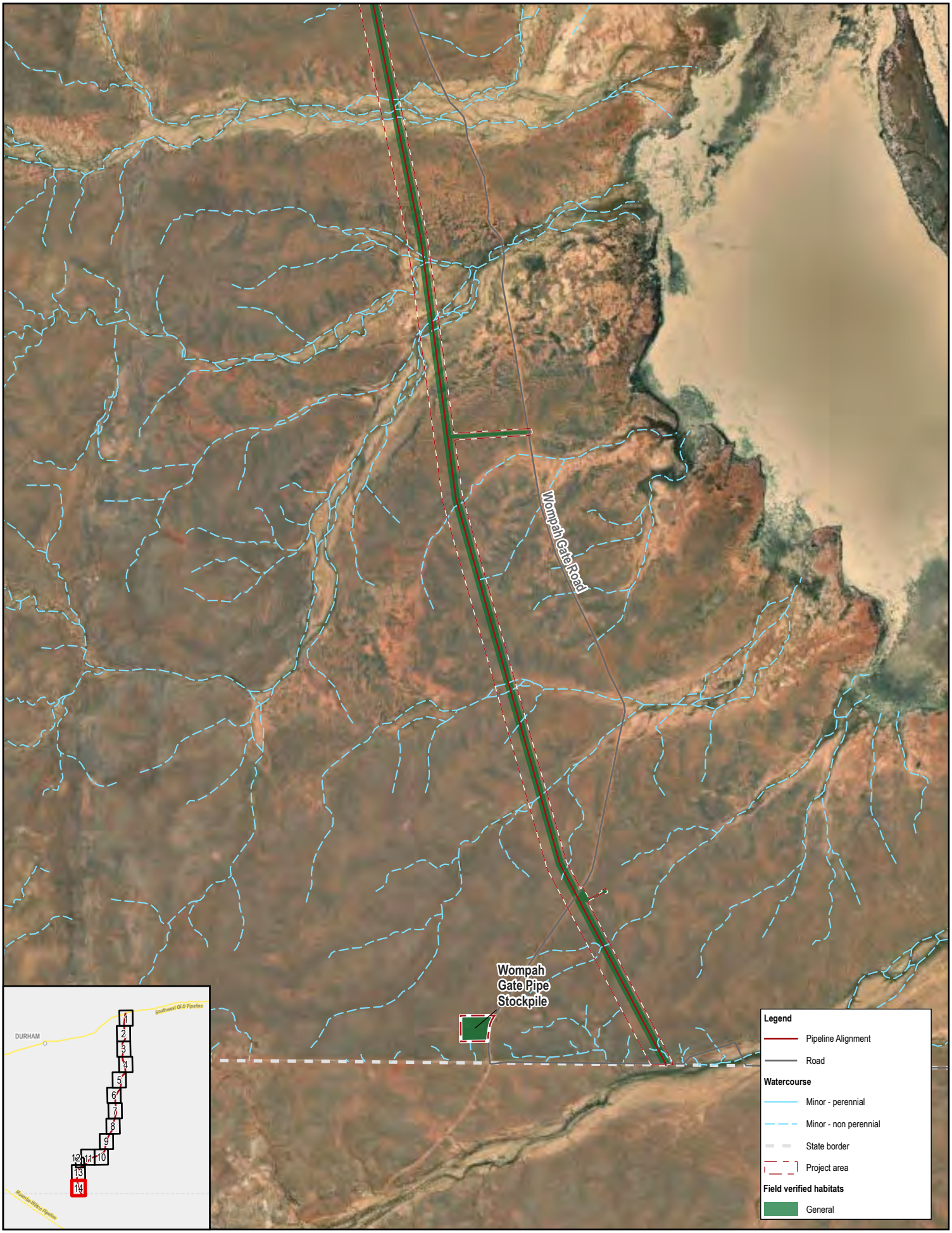
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Figure 4.14

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Map Projection: Transverse Mercator
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Grid: GDA2020 MGA Zone 54

APA Group
Bulloo Interlink Pipeline

Short beaked echidna habitat distribution

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Figure 4.14

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4.3 Environmentally sensitive areas

When drafting an EA application for a resource activity in Queensland, the presence of ESAs must be assessed. The application must demonstrate how potential impacts on ESAs will be avoided or mitigated.

Category A and Category B ESA's are defined in Schedule 19 of the EP Regulation. Category C ESAs are defined as per the Guideline – Application requirements for petroleum activities ESR/2016/2357 Version 4.01.

As presented in Table 4.6 and shown in Figure 4.15, ESAs present within the project site include Category C ESAs:

– of concern REs 5.5.1 and 5.5.1x2.

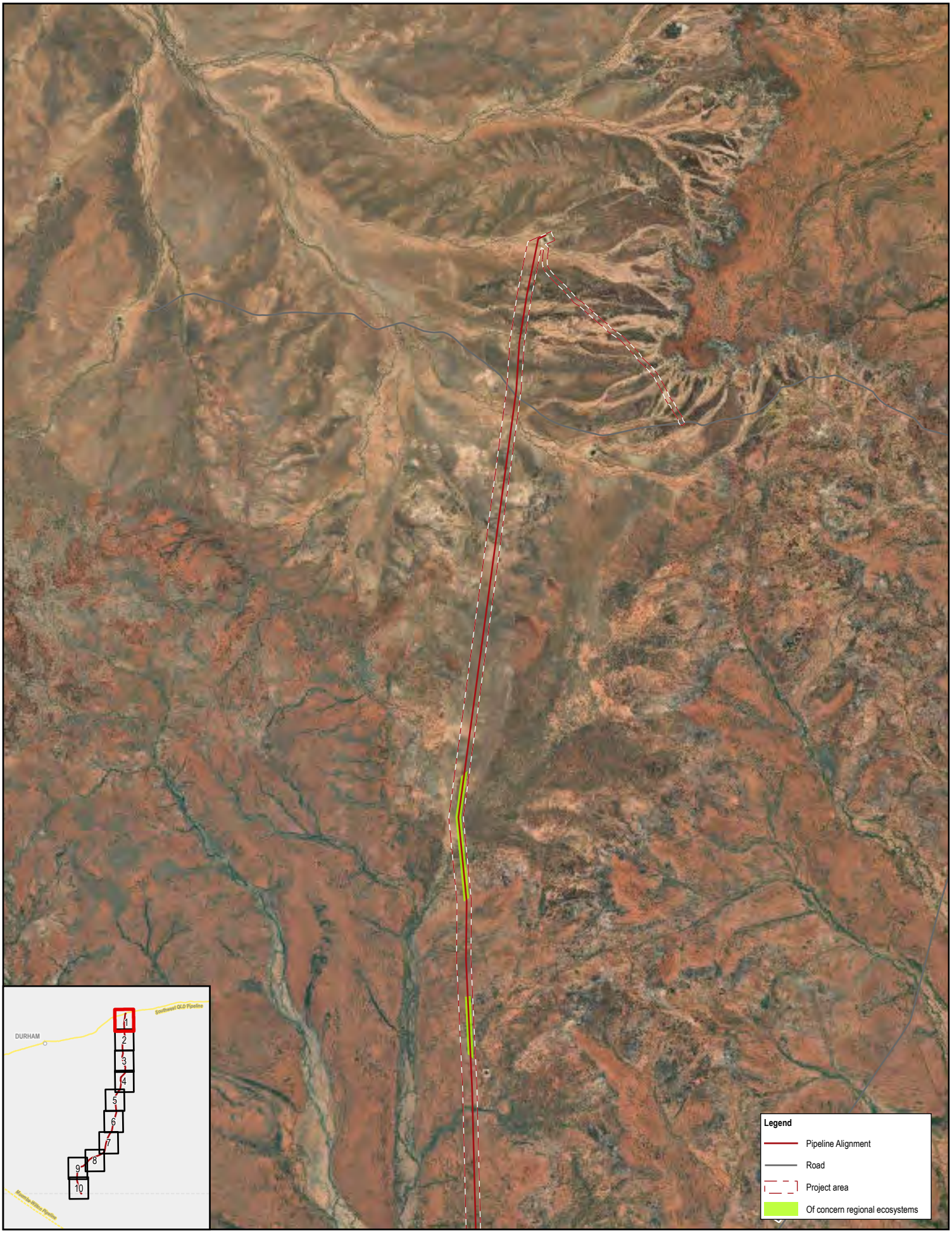
No Category A or Category B EASs are present within the project area.

An assessment of impacts on ESAs is provided in section 7.1.

Table 4.6 ESAs and their relevance to the project

ESA	Relevance to project
Category A	
Any of the following areas under the NC Act:	
– National park (scientific)	Not present within the project site
– National park	Not present within the project site. The closest mapped national park in Queensland is Lake Bindegolly National Park approximately 165 km south-east of the project area.
– National park (Aboriginal land)	Not present within the project site.
– National park (Torres Strait Islander land)	Not present within the project site.
– National park (Cape York Peninsula Aboriginal land)	Not present within the project site.
– Conservation park	Not present within the project site.
– Special wildlife reserve	Not present within the project site.
The wet tropics area under the *Wet Tropics World Heritage Protection and Management Act 1993* (Qld)	Not present within the project site.
The Great Barrier Reef Region under the *Great Barrier Reef Marine Park Act 1975* (Cth)	Not present within the project site.
A marine park under the *Marine Parks Act 2004* (Qld), other than a part of the park that is a general use zone under that Act	Not present within the project site.
Category B	
Any of the following areas under the NC Act:	
– A coordinated conservation area	Not present within the project site.
– An area of critical habitat or major interest identified under a conservation plan	Not present within the project site.
– An area subject to an interim conservation order	Not present within the project site.
An area subject to the following conventions to which Australia is a signatory:	
– The 'Convention on the Conservation of Migratory Species of Wild Animals' (Bonn, 23 June 1979) – The 'Convention on Wetlands of International Importance, especially as Waterfowl Habitat' (Ramsar, Iran, 2 February 1971) – The 'Convention Concerning the Protection of the World Cultural and Natural Heritage' (Paris, 23 November 1972)	Not present within the project site.

ESA	Relevance to project
A zone of a marine park under the *Marine Parks Act 2004* (Qld) that is within a general use zone of the marine park under that Act	Not present within the project site.
An area to the seaward side of the highest astronomical tide	Not present within the project site
The following under the *Heritage Act 1992* (Qld):	
– A place of cultural heritage significance	Not present within the project site.
– A Queensland heritage place, unless there is an exemption certificate issued under that Act	Not present within the project site
An area recorded in the Aboriginal Cultural Heritage Register established under the *Aboriginal Cultural Heritage Act 2003* (Qld), section 46, other than the area known as the 'Stanbroke Pastoral Development Holding', leased under the Land Act 1994 by lease number PH 13/5398	Not present within the project site.
A feature protection area, State forest park or scientific area under the *Forestry Act 1959* (Qld)	Not present within the project site.
A declared fish habitat area under the *Fisheries Act 1994* (Qld)	Not present within the project site.
A place in which a marine plant under the *Fisheries Act 1994* (Qld) is situated	Not present within the project site.
An endangered RE identified in the database known as the 'Regional ecosystem description database' published on the department's website.	Not present within the project site. REs are described in section 4.1.1.
Category C	
Nature refuges as defined in the conservation agreement for that refuge under the NC Act	Not present within the project site. Bulloo Downs Nature Refuge occurs south of an east-west section of the pipeline alignment between KP 187 (1 km south) and KP 174 (2 km), before moving northward.
Koala Habitat Areas as defined under the Nature Conservation (Koala) Conservation Plan 2006	Not present within the project site.
State forests or timber reserves as defined under the *Forestry Act 1959* (Qld)	Not present within the project site.
Declared catchment areas under the Water Act	Not present within the project site.
Resources reserves under the NC Act	Not present within the project site.
An area validated as Essential Habitat or Essential Regrowth Habitat from ground- truthing surveys in accordance with the VM Act for a species of wildlife listed as endangered, vulnerable, rare or near threatened under the NC Act	Not present within the project site. Under s20AC of the VM Act, the essential habitat map is a map certified by the chief executive as the essential habitat map for the State and showing, for the State, areas the chief executive reasonably believes are areas of essential habitat for protected wildlife.
Of concern REs identified in the database called 'RE description database' containing RE numbers and descriptions	Of concern REs (5.5.1 and RE 5.5.1x2) are present within the project site as discussed in section 4.1.1.
Threshold REs as defined and listed in Appendix 6 of the Queensland Biodiversity Offsets Policy.	Not present within the project site.
Critically limited REs as defined and listed in Appendix 5 of the Queensland Biodiversity Offsets Policy	Not present within the project site.



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Kilometres

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Grid: GDA2020 MGA Zone 54

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APA Group
Bulloo Interlink Pipeline

ESAs within the project site

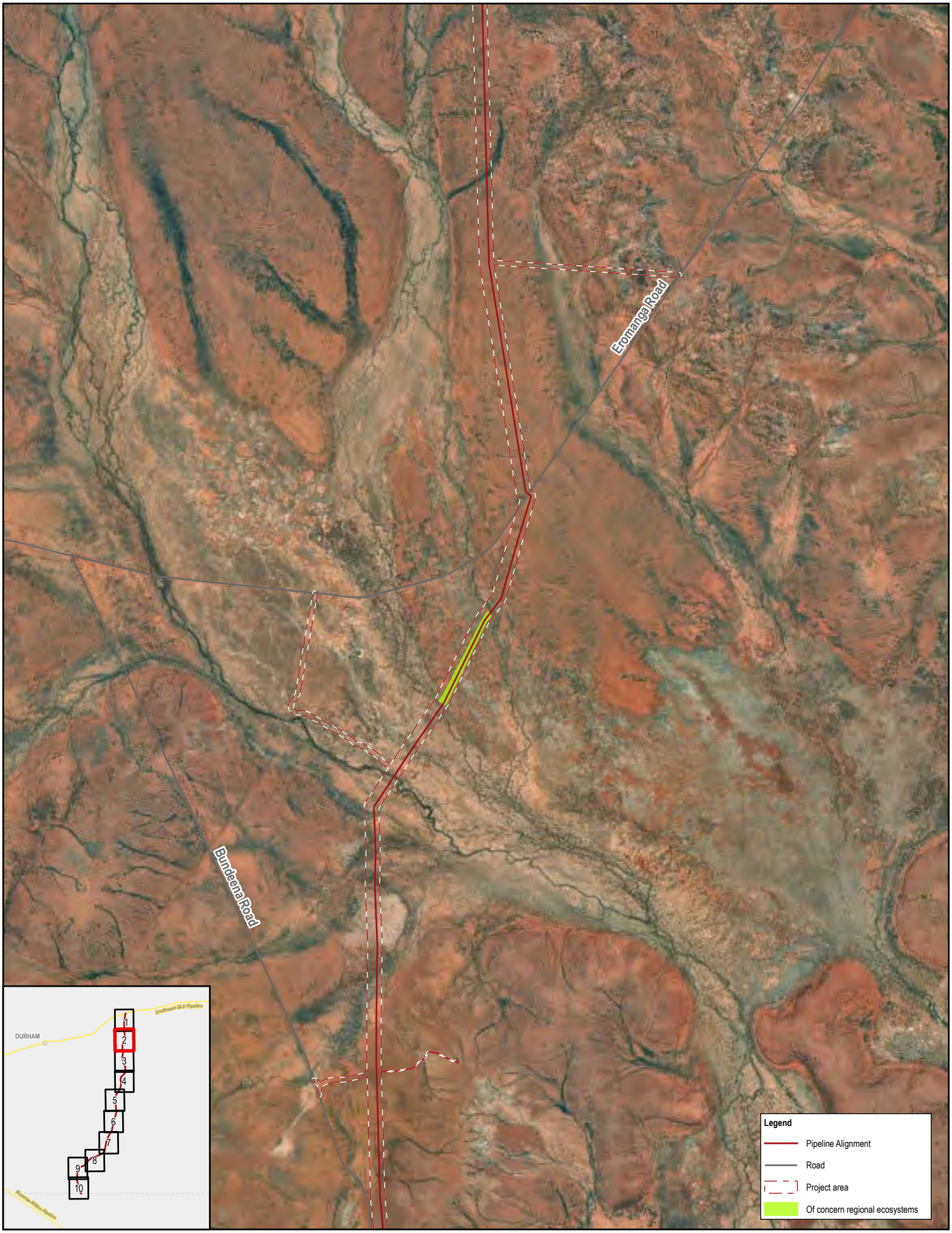
Project No. 12661648
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Figure 4.15

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Bulloo Interlink Pipeline

ESAs within the project site

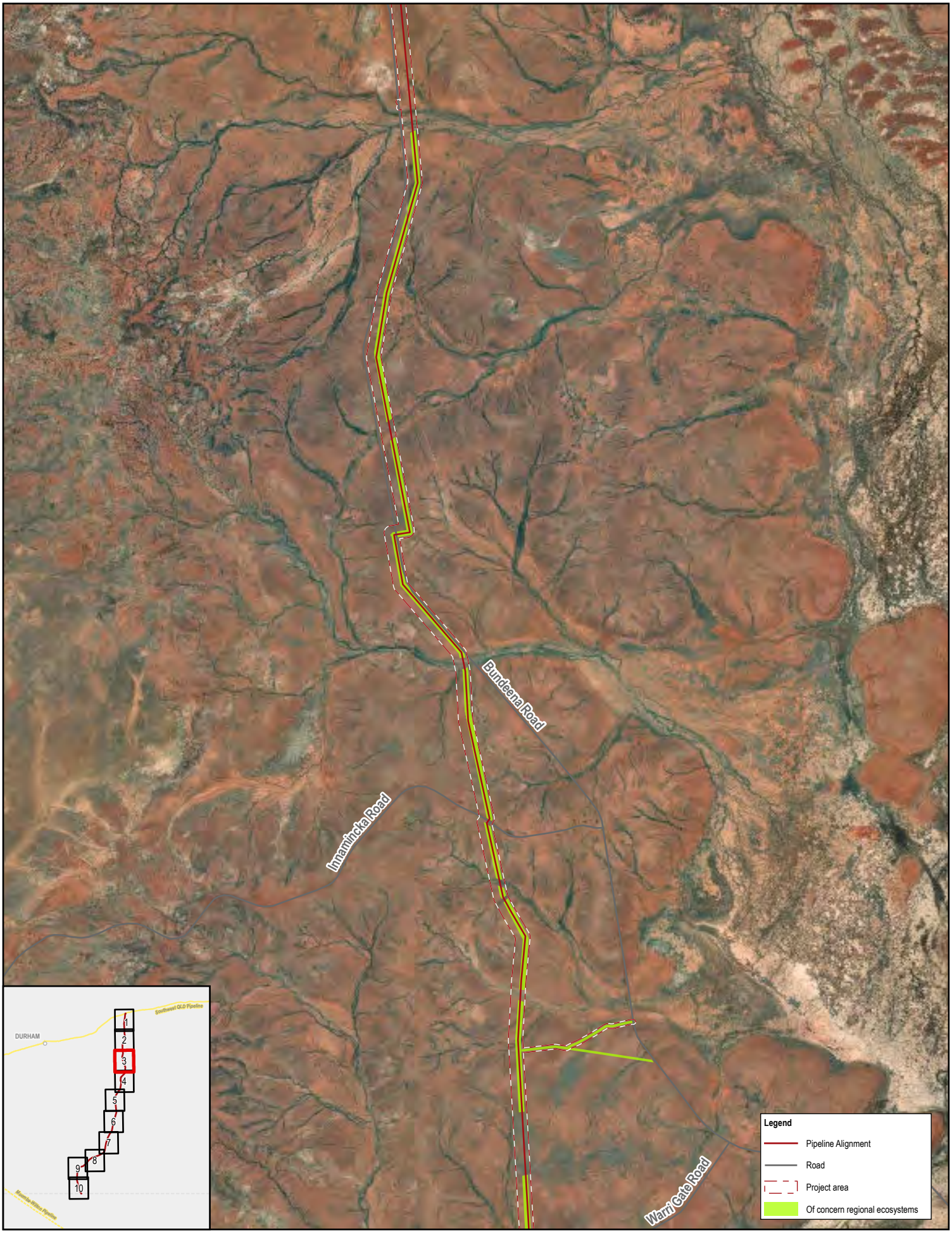
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Figure 4.15

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APA Group
Bulloo Interlink Pipeline

ESAs within the project site

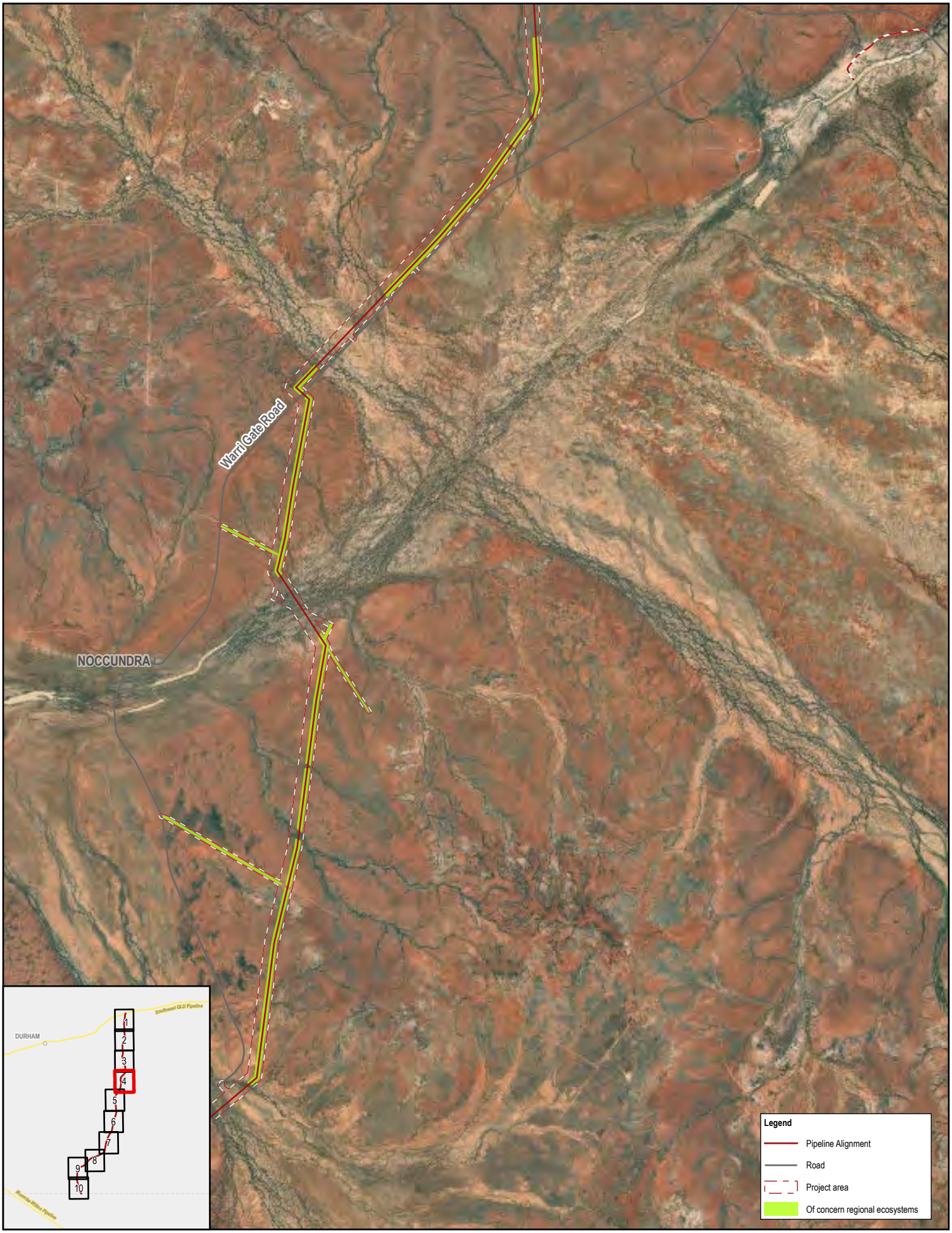
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Figure 4.15

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Bulloo Interlink Pipeline

ESAs within the project site

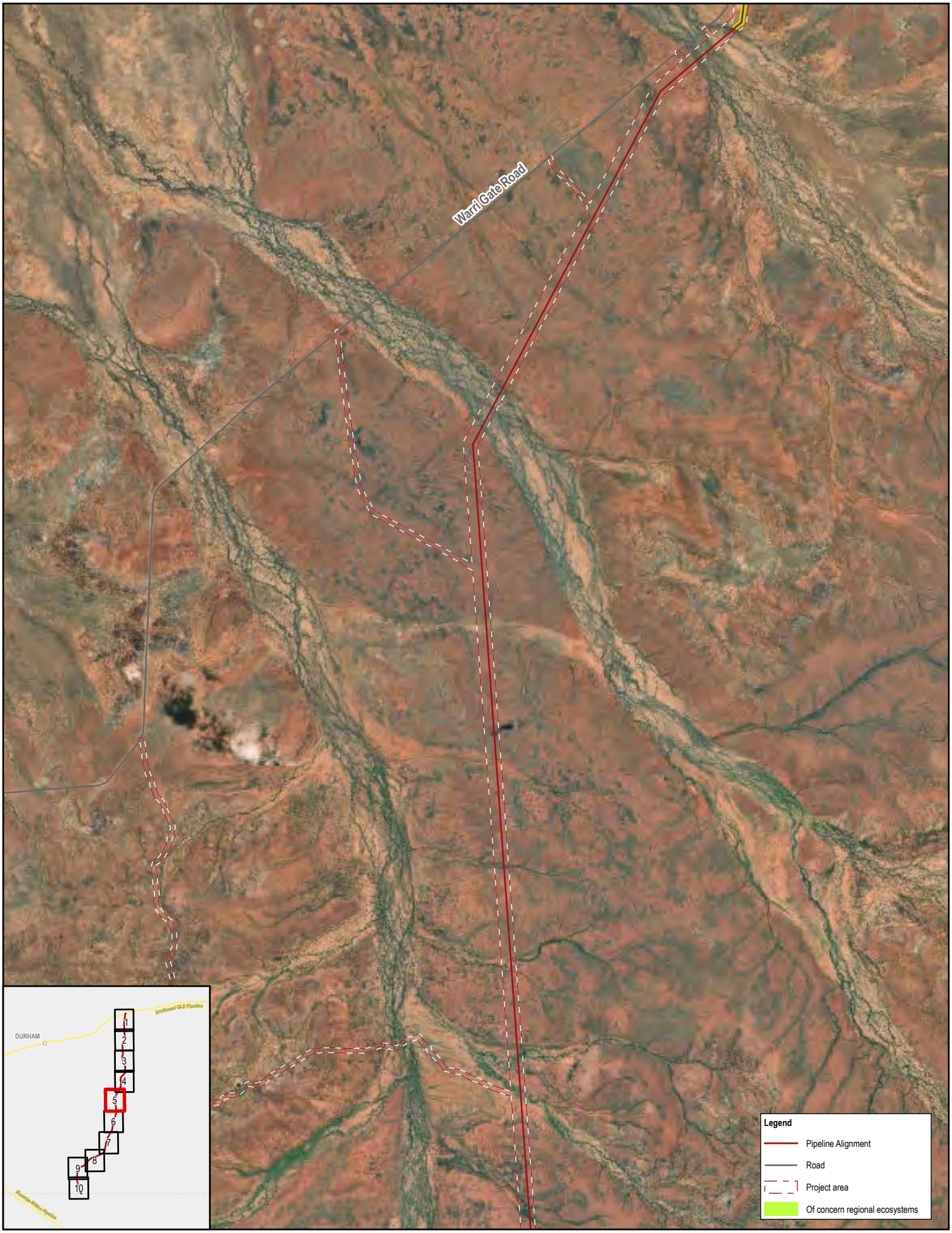
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Figure 4.15

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Bulloo Interlink Pipeline

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Date **29/07/2026**

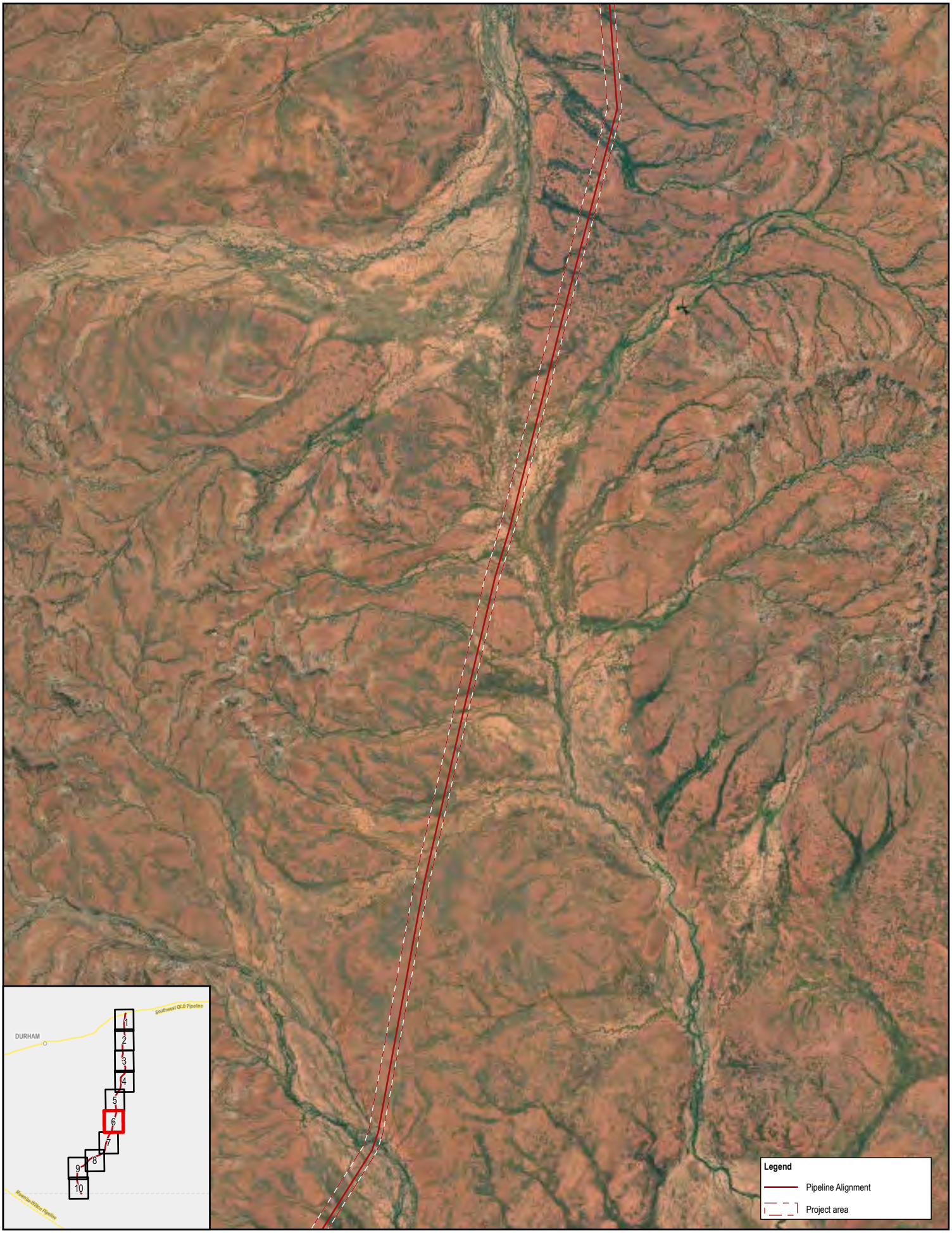
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ESAs within the project site

Figure 4.15

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ESAs within the project site

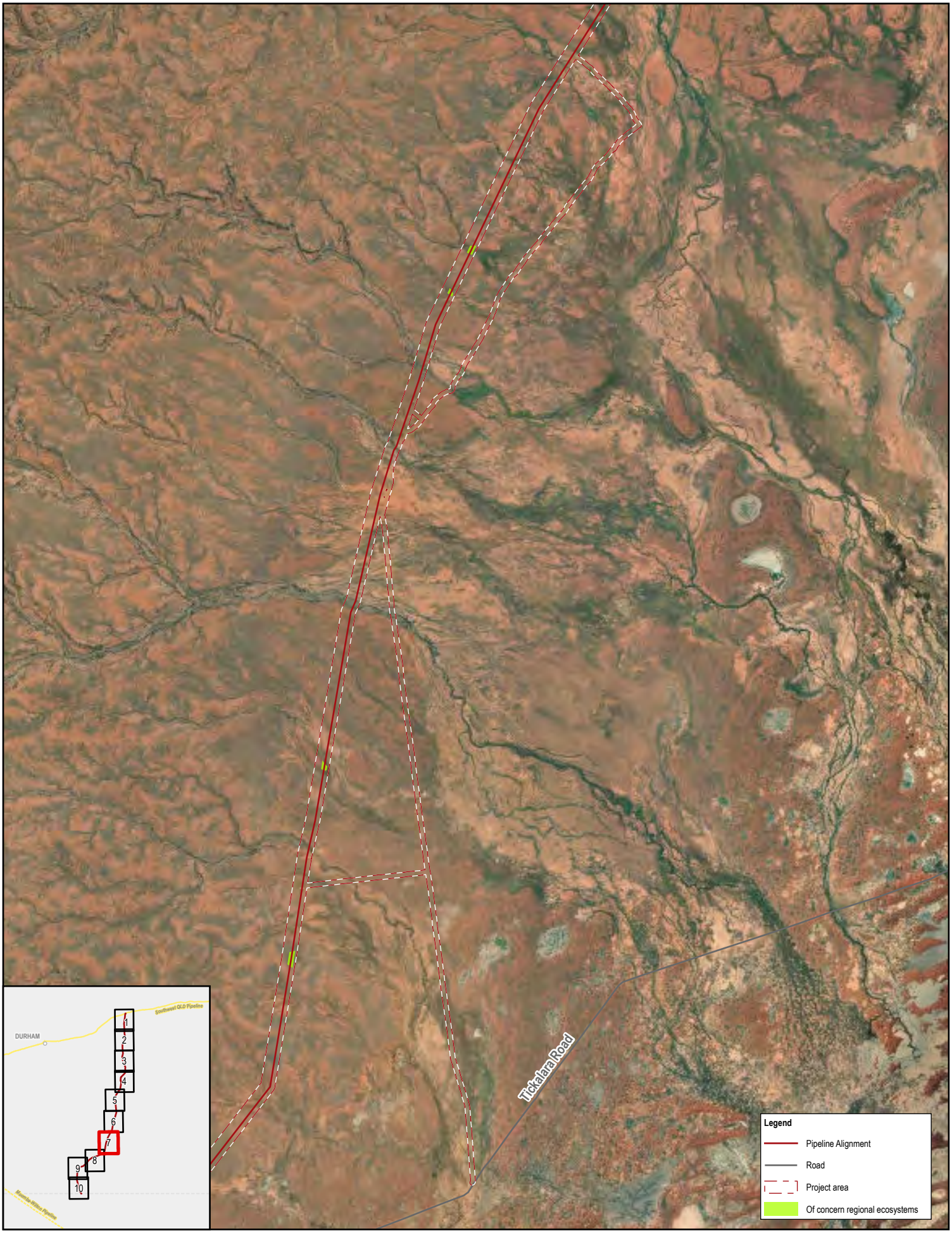
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Figure 4.15

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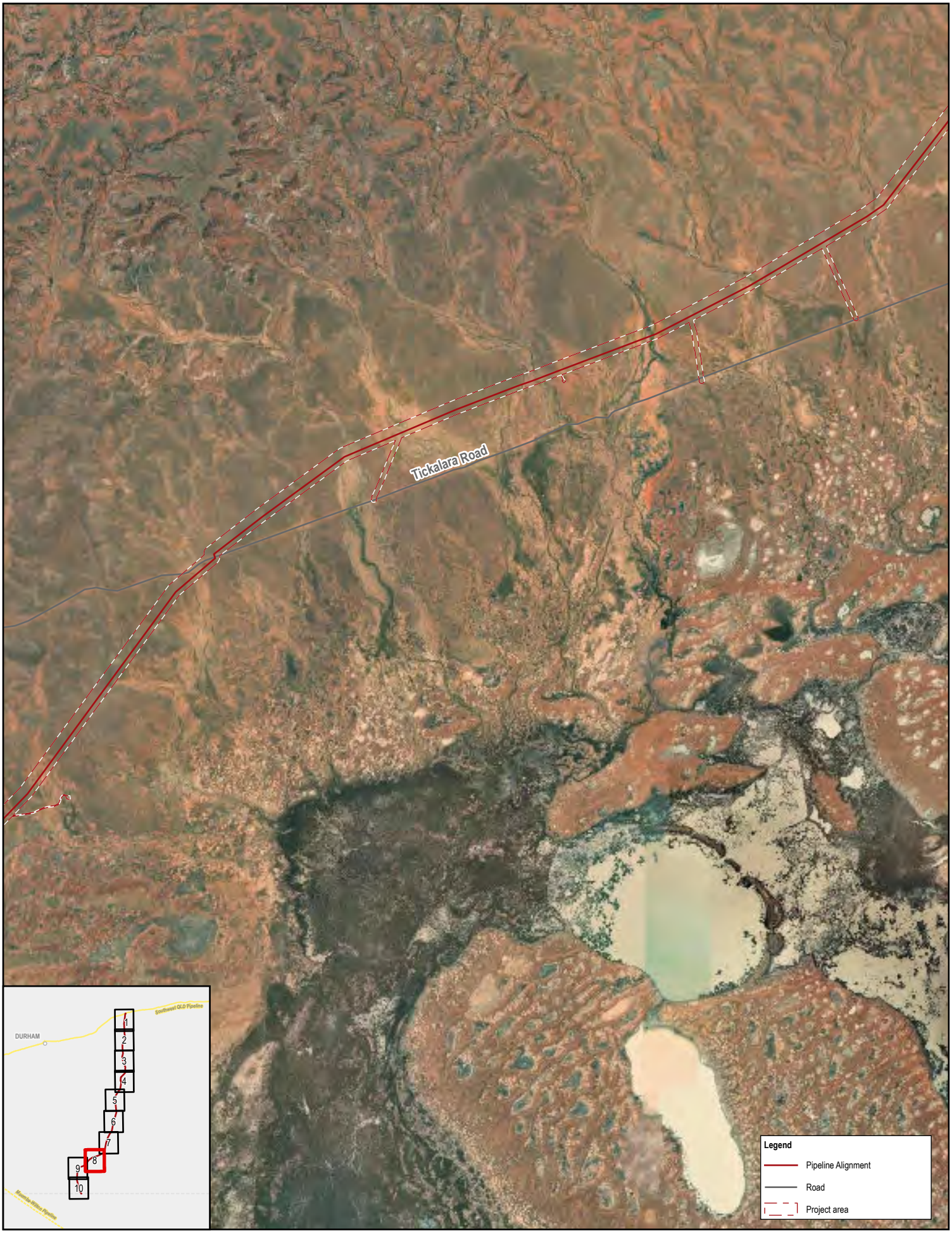
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Figure 4.15

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ESAs within the project site

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Figure 4.15

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ESAs within the project site

Figure 4.15

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4.4 Matters of state environmental significance

4.4.1 Summary of MSES values

MSES are defined in Schedule 2 of the EO Regulation and summarised in Table 4.7 as relevant to the project site. Terrestrial-related MSES determined to be present include the following and are discussed in sections below:

– Regulated vegetation (wetland)
– Regulated vegetation (defined watercourse)
– Connectivity
– Protected wildlife habitat.

Impacts to MSES, including significant residual impact assessments, are discussed in section 7.2.

Table 4.7 Summary of MSES

MSES value	Relevance to project
Regulated vegetation	
– Prescribed REs that are endangered REs	Not present within the project site. The project site does not intersect with endangered REs (VM class).
– Prescribed REs that are of concern REs	Not present within the project site. The project site does not intersect with of concern REs (VM class).
– A prescribed RE that intersects with an area shown as a wetland on the vegetation management wetlands map (to the extent of the intersection) (regulated vegetation (wetland))	Access tracks are located within field verified REs that intersect wetlands (at three distinct locations) as mapped on the Vegetation Management Wetland Map (section 4.4.2)
– A prescribed RE in an area of essential habitat on the essential habitat map for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a plant that is critically endangered wildlife, endangered wildlife or vulnerable wildlife.	Not present within the project site. The project site does not intersect any areas of mapped essential habitat. Essential habitat in Qld identifies areas critical for the survival and recovery of protected species. Under s20AC of the VM Act, the essential habitat map is a map certified by the chief executive as the essential habitat map for the State and showing, for the State, areas the chief executive reasonably believes are areas of essential habitat for protected wildlife. This mapping supports environmental assessments and decision-making under the VM Act, NC Act, EP Act, and EO Act.
– A prescribed RE located within a defined distance from the defining banks of a relevant watercourse or relevant drainage feature (regulated vegetation (defined watercourse))	Regulated vegetation within the defined distance of a watercourse is present along all mapped watercourses and drainage features within the project site (section 4.4.3).
Connectivity areas	The project site is located within a landscape with high connectivity (section 4.2.2). The DETSI connectivity tool has been run and found the project will not have a reduction in landscape connectivity (section 4.4.4).
Wetlands and watercourses: – A wetland in a wetland protection area – A wetland of high ecological significance – A wetland or watercourse in high ecological value waters	Not present within the project site. There are no high ecological value wetlands, high ecological value waterways, or wetland protection areas located within the project site. The waterways within the Bowen River sub-basin, including those within the project site, are wetlands of general ecological significance, and are therefore not considered MSES.

MSES value	Relevance to project
Designated precinct in a SEA	There is one designated precinct in a SEA (i.e. Channel Country) within the project site. This is situated along the Wilson River and extends upstream and downstream of the project site. A separate RIDA is being sought under RPI Act.
Protected wildlife habitat	
– An area that is shown as a high-risk area on the flora survey trigger map and that contains plants that are critically endangered wildlife, endangered wildlife or vulnerable wildlife	Not present within the project site. The project intersects an area shown as a high-risk area on the protected plants flora survey trigger map between Warri Gate Road and the alignment at KP 83 on an existing vehicle access track as depicted in Figure 4.16. The area does not contain plants that are critically endangered, endangered or vulnerable as listed under the NC Act. The area corresponds to a 1987 record of *Rhodanthe rufescens* occurring at the Noccundra air strip. *Rhodanthe rufescens* is listed as near threatened under the NC Act and is not MSES Further, the general exemption of clearing for routine maintenance of infrastructure (e.g. buildings, roads, stockyards, fences and vehicular tracks) applies. If clearing outside of the exemption for an existing vehicle track is proposed, then a flora survey report will be prepared and protected plant clearing permit (or exemption) sought.
– An area that is not shown as a high-risk area on the flora survey trigger map, to the extent the area contains plants that are critically endangered wildlife, endangered wildlife or vulnerable wildlife	Not present within the project site. As described in section 4.1 the project site does not contain plants that are critically endangered, endangered or vulnerable.
– A koala habitat area	Not present within the project site. The project is not located within a koala habitat area.
– A habitat for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a special least concern animal	The project site intersects habitat for conservation significant fauna species listed as critically endangered, endangered, vulnerable wildlife or special least concern under the NC Act (section 4.4.5) Significant residual impacts are assessed in section 7.2.1.
Protected areas (national parks, regional parks and nature refuges)	Not present within the project site. Bulloo Downs Nature Refuge occurs south of an east-west section of the pipeline alignment between KP 187 (1 km south) and KP 174 (2 km), before moving northward.
Highly protected zones of State marine parks	Not present within the project site.
Fish habitat areas	Not present within the project site.
Any part of a waterway providing for passage of fish if the construction, installation or modification of waterway barrier works carried out under an authority will limit the passage of fish along the waterway	While waterways providing for fish passage are present within the project site, the proposed works (temporary works) would not limit the passage of fish along the waterway. Refer to Appendix C (Aquatic Ecology Assessment Report) of the Environmental Authority Supporting Information Report (GHD, 2026a) for further detail.
Marine plants	Not present within the project site.
Legally secured offset areas	Not present within the project site. Legally secured offset areas under state legislation are not present within or adjacent to the project site, based on publicly available information.

4.4.2 Regulated vegetation (wetland)

Regulated vegetation (wetland) includes regulated vegetation that is located within 100 m of wetlands identified on the Vegetation Management Wetlands Map (established under section 20AA of the VM Act), and are features that:

– support plants that are adapted to and rely on inundation of water for at least part of their life cycle;
– include fresh, brackish and marine environments;
– can be dry for long periods of time between inundations (up to 10 years or longer); and
– include lakes, lagoons, estuaries, rivers, floodplains, swamps, bogs, billabongs, marshes, coral reefs and seagrass beds.

The CRoW is not located within any wetlands on the Vegetation Management Wetland Map and does not intersect any wetland buffer areas. The CRoW is located 120 m from wetland buffer areas at multiple locations; however, the pipeline alignment itself does not intersect with any mapped wetlands on the Vegetation Management Wetland Map, and is not located within a 100 m buffer from a mapped wetland.

Existing access tracks are located within field verified REs that intersect wetlands (at three distinct locations) as mapped on the Vegetation Management Wetland Map. An assessment of the potential significant residual impacts on regulated vegetation (wetland) associated with widening these existing access tracks for the project is provided in section 4.4.2.

The location of regulated vegetation (wetland) within the project site is depicted in Figure 4.17.

4.4.3 Regulated vegetation (defined watercourse)

The project site intersects extensive areas of mapped regulated vegetation located within the defined distance of the defining banks of a relevant watercourse, as identified on the Vegetation Management Watercourse and Drainage Feature Map (established under section 20AB of the VM Act) and shown on Figure 4.17. These areas are generally associated with the many tributaries of the Wilson River, draining into Bulloo Lake. The defining bank is the bank which confines the seasonal flows of the watercourse, but may be inundated by flooding from time to time. This can be either:

– the bank or terrace that confines the water before the point of flooding; or
– where there is no bank, the seasonal high-water line which represents the point of flooding.

The seasonal high-water line is defined as a zone that represents the usual peak seasonal flow level, identifiable by deposition, debris or characteristic vegetation zonation.

In accordance with the Environmental Offsets Regulation 2014 (Qld), remnant REs that occur within certain distances of relevant watercourses are classified as MSES. Clearing within the defined distance (5 m) of these watercourses within REs can trigger a significant residual impact. Several vegetation management watercourse features (as defined by the VM Act) are mapped by the Queensland Government within the project site, including 1st, 2nd, 3rd, 4th, 5th, and 6th order streams (Queensland Government, 2025).

Two criteria must be triggered for a linear infrastructure project to have a significant residual impact on regulated vegetation (defined watercourse):

– The clearing is required to be greater than the minimum width threshold for the relevant VM Act structure category for the RE (i.e. grassland >25 m wide, sparse >20 m wide, and dense >10 m wide).
– The clearing is to occur within 5 m of the defining bank of the watercourse or drainage feature.

The presence of mapped vegetation management watercourse and/or drainage features on the Vegetation Management Watercourse and Drainage Feature Map, within areas mapped as containing ground-truthed remnant REs, was used to identify areas of regulated vegetation (defined watercourse) within the project site.

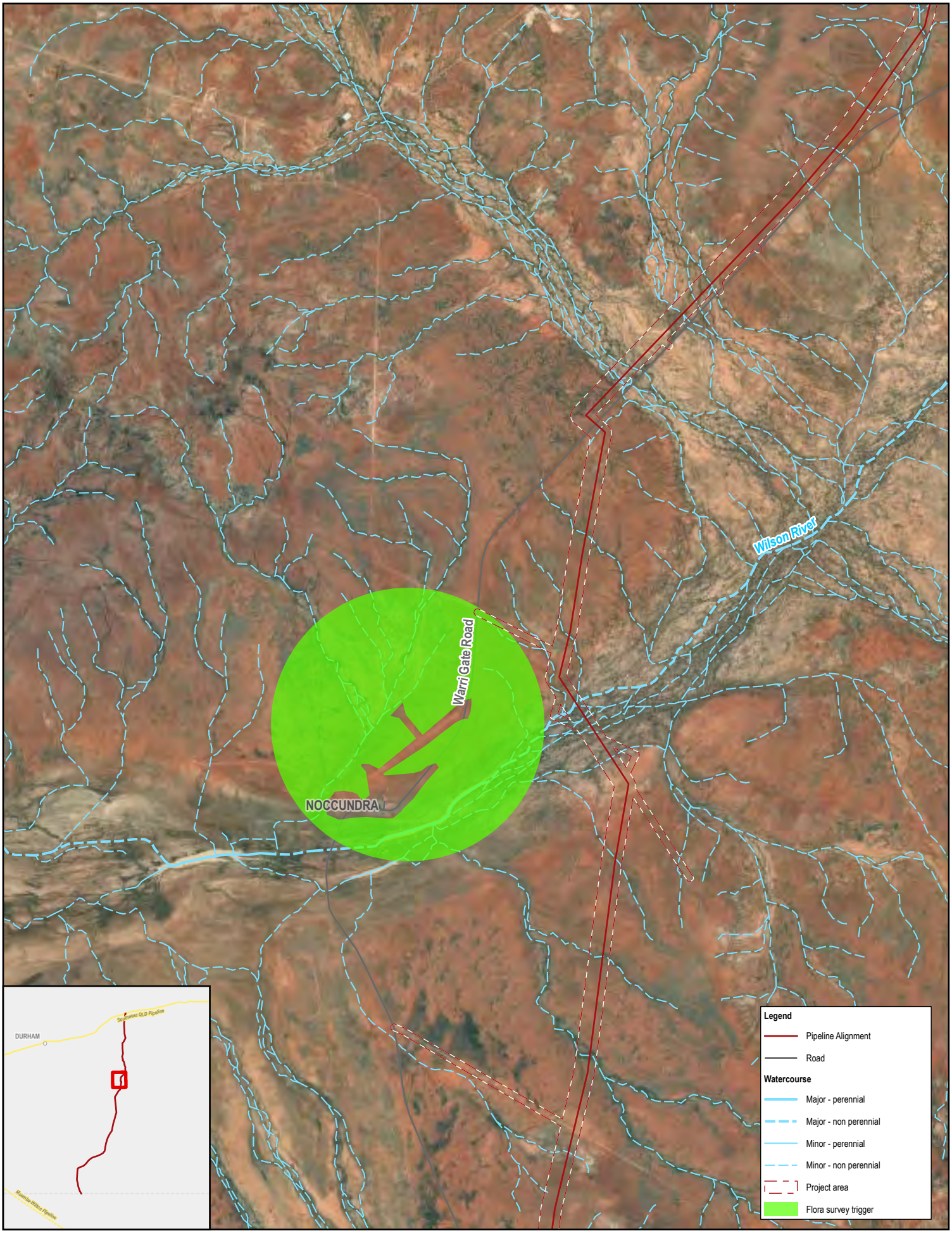
The intended environmental outcome is to avoid or minimise the clearing of watercourse vegetation to prevent bank erosion, maintain water quality, protect biodiversity, and preserve ecological connectivity. The Channel Country is characterised by a network of multiple braided channels, which are typically narrow (1–10 m in width), and often experience flooding during the wet season, flowing into larger rivers, lakes or wetlands. The ‘defining banks’ of these watercourses are often fluid in nature, and move within the braided channel. As such, mapping exact location of the defining banks in braided channels is not feasible.

The location of the defining bank was estimated by applying a buffer to the centreline of the mapped watercourse according to its stream order class, based on ground-truthed survey efforts and measurements taken from aerial imagery. The assumptions for mapping the defining banks are outlined in Table 4.8.

Table 4.8 Width of defining bank for mapped watercourses and drainage features under the VM Act

Stream order	Width of defining bank (from the centreline)
Stream order 1	0.5 m (total of 1 m wide)
Stream order 2	1 m (total of 2 m wide)
Stream order 3	5 m (total of 10 m wide)
Stream order 4	5 m (total of 10 m wide)
Stream order 5	7.5 m (total of 15 m wide)
Stream order 6	10 m (total of 20 m wide)

Where HDD is not implemented, clearing activities for the construction phase of the project occur within 5 m of the defining bank of a watercourse. These clearing activates encroach into the defined watercourse – regulated vegetation at several locations across the project, with the encroachment exceeding the limits of the two criteria for a linear infrastructure. An assessment of the potential significant residual impacts of the project on regulated vegetation (defined watercourse) is provided in section 7.2.1.



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Kilometres

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Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 54

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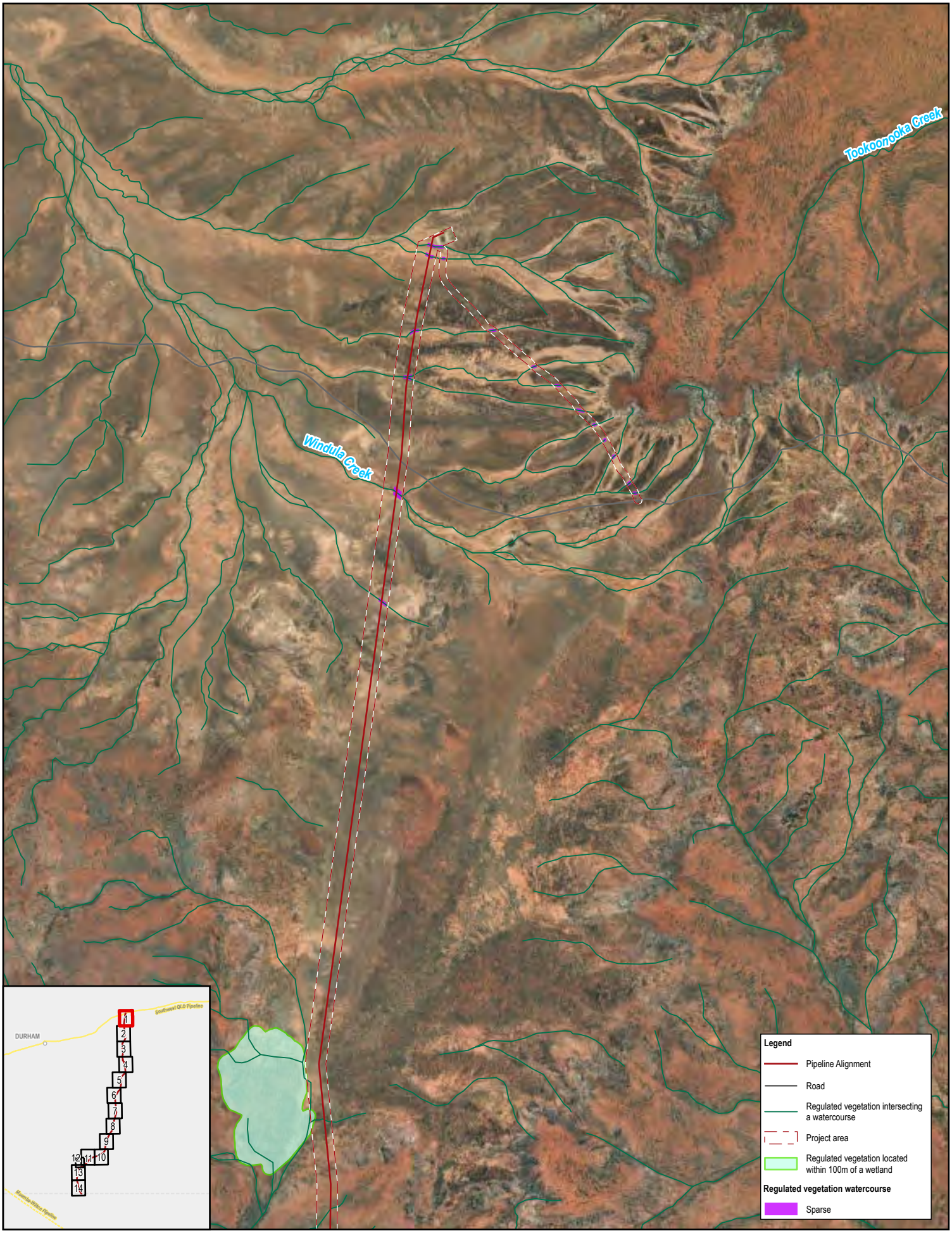
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Flora survey trigger area

Figure 4.16

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Regulated vegetation (wetlands and defined watercourses)

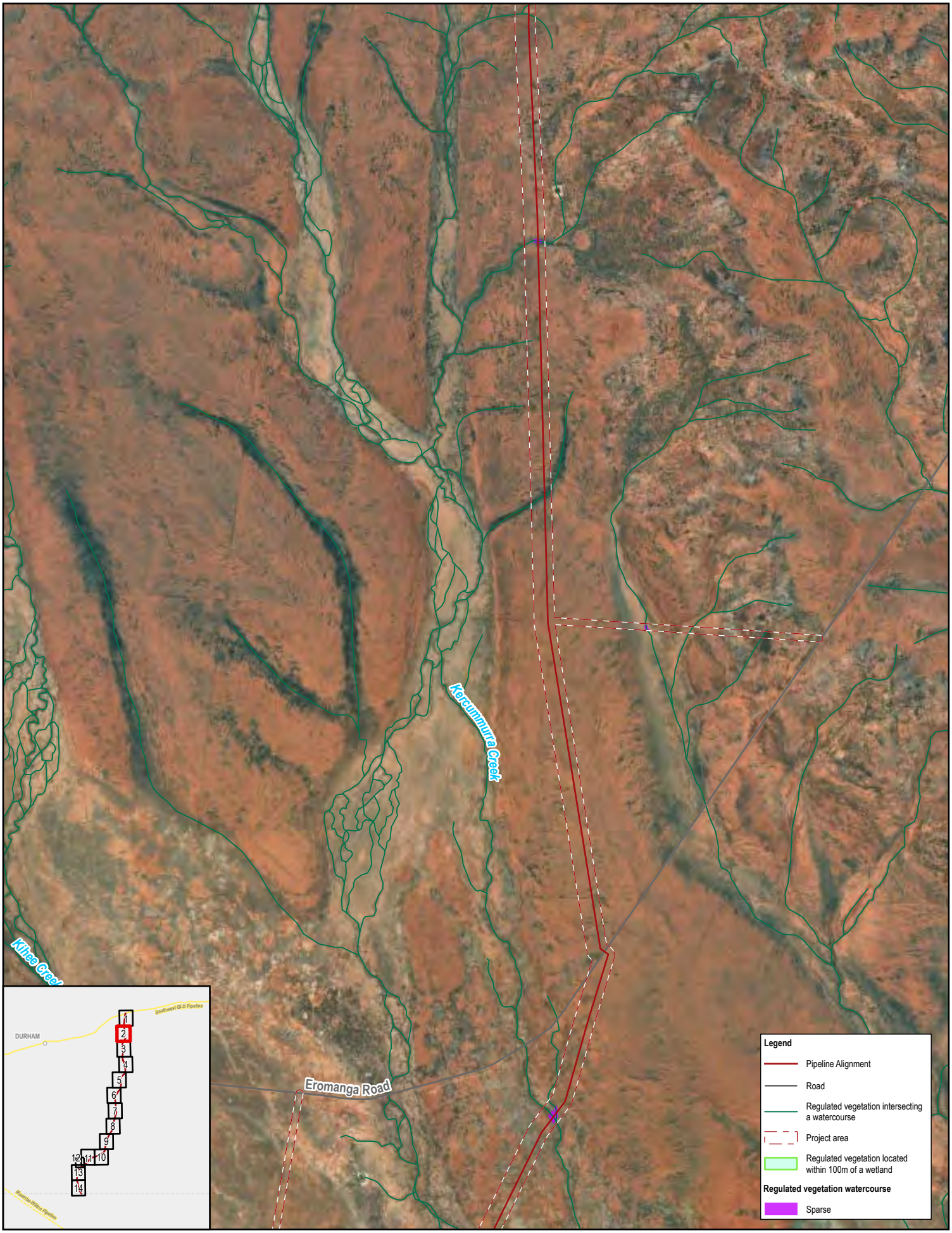
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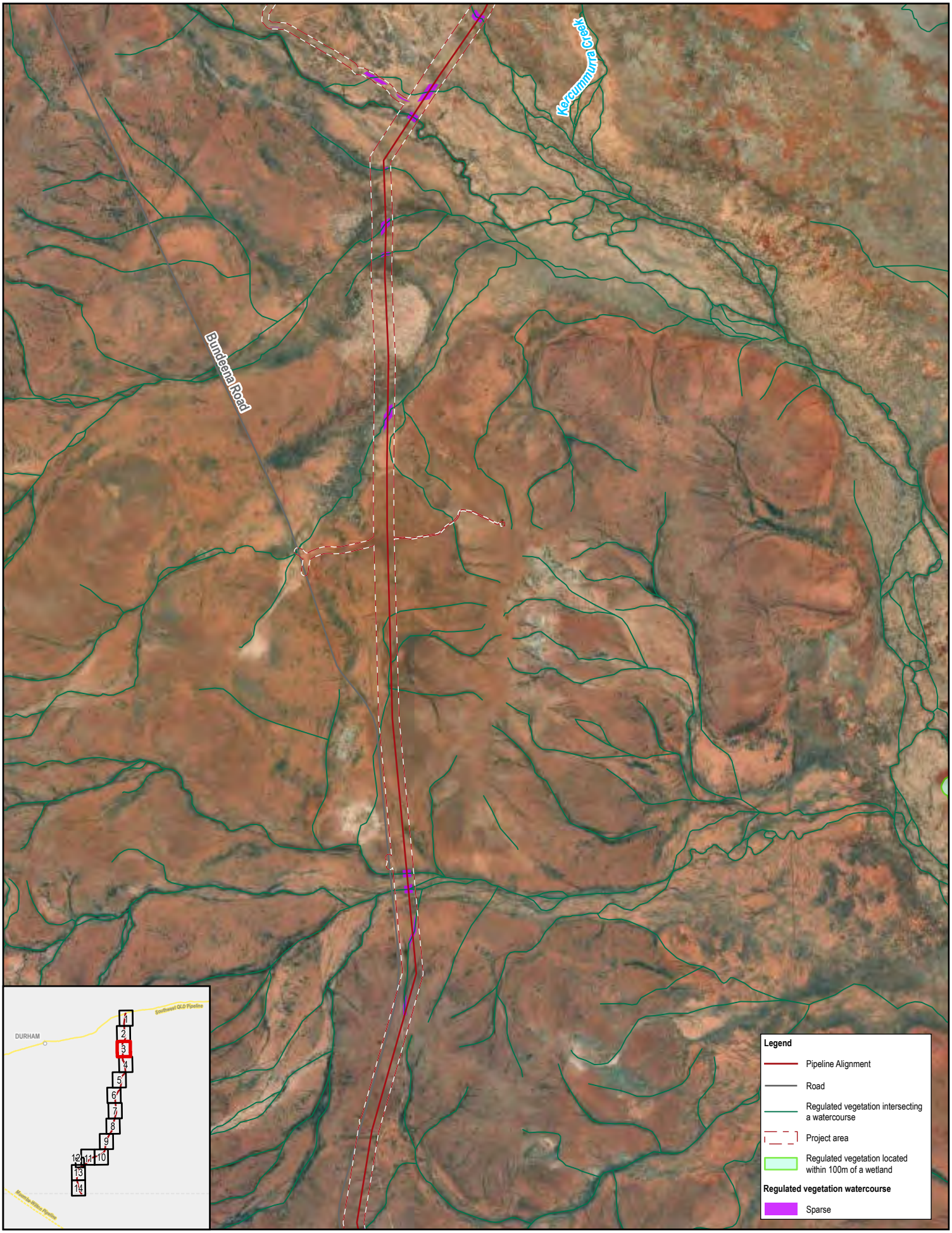
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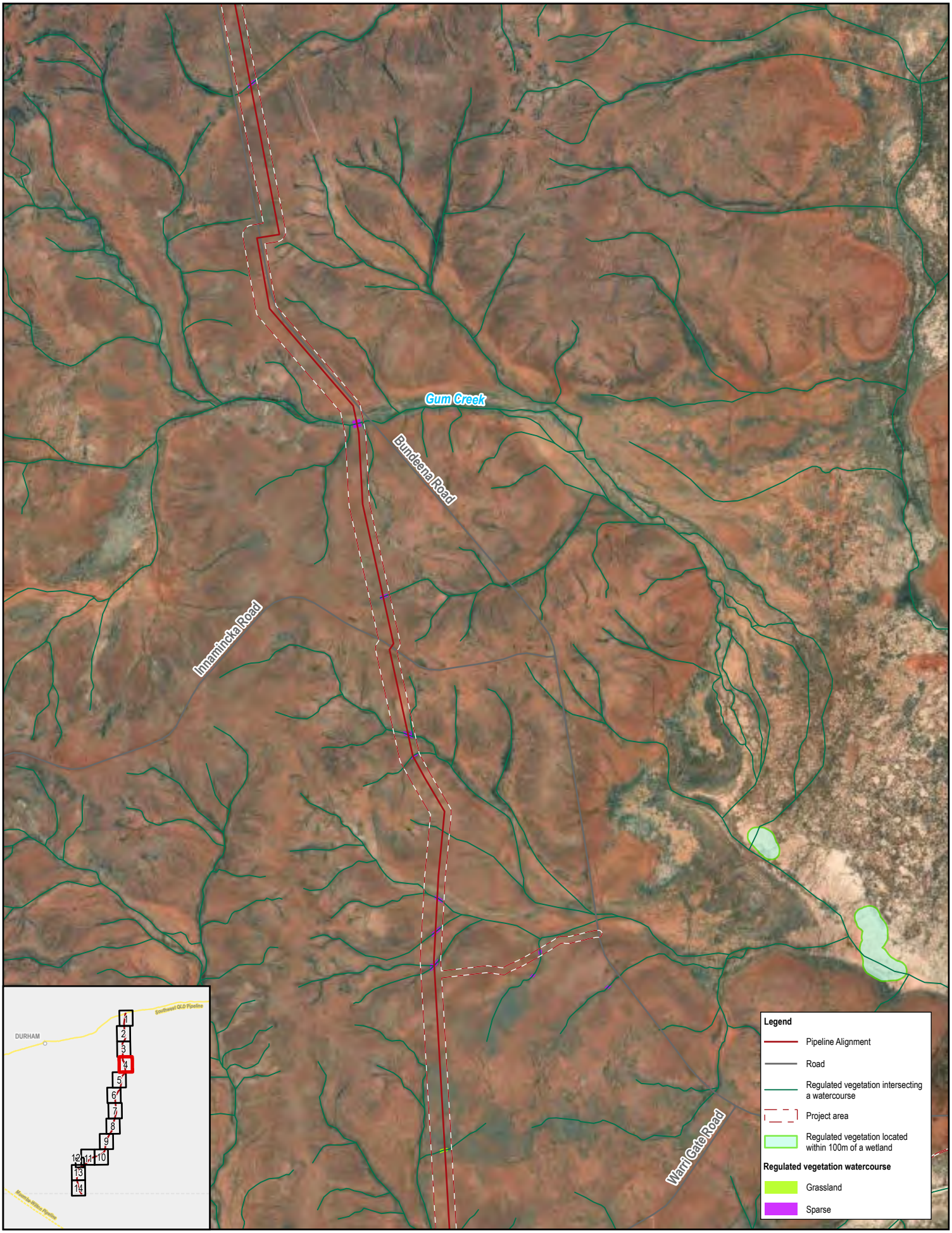
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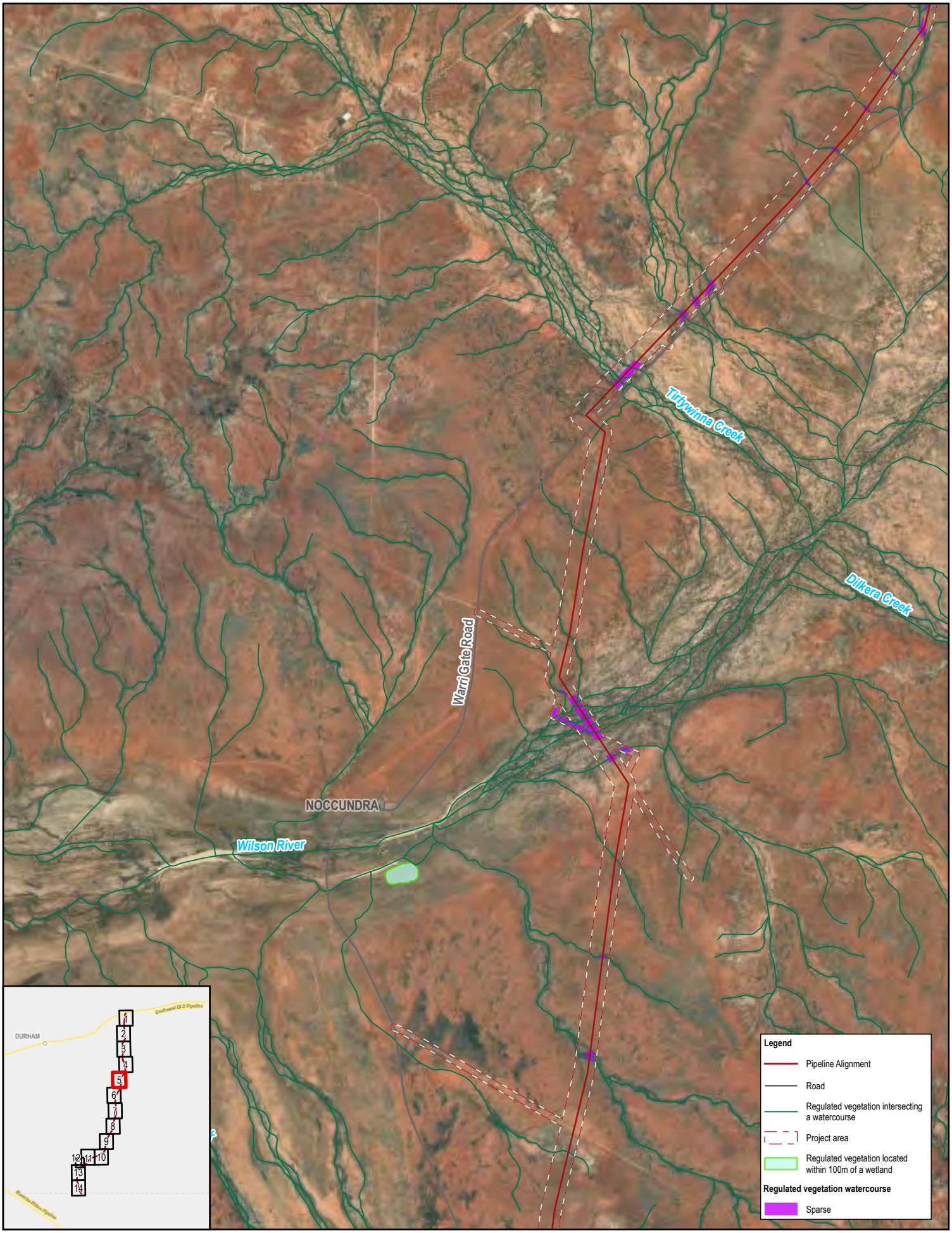
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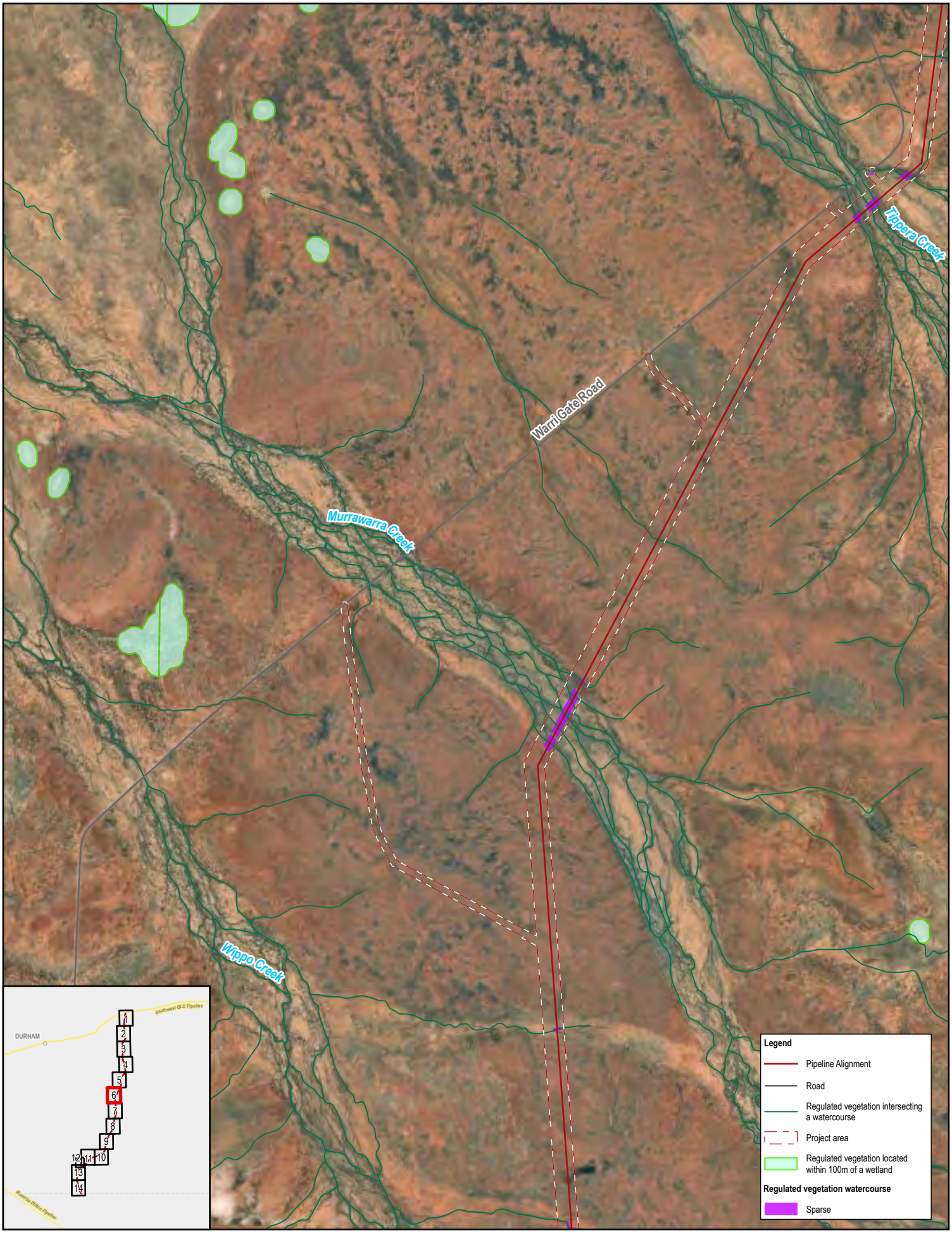
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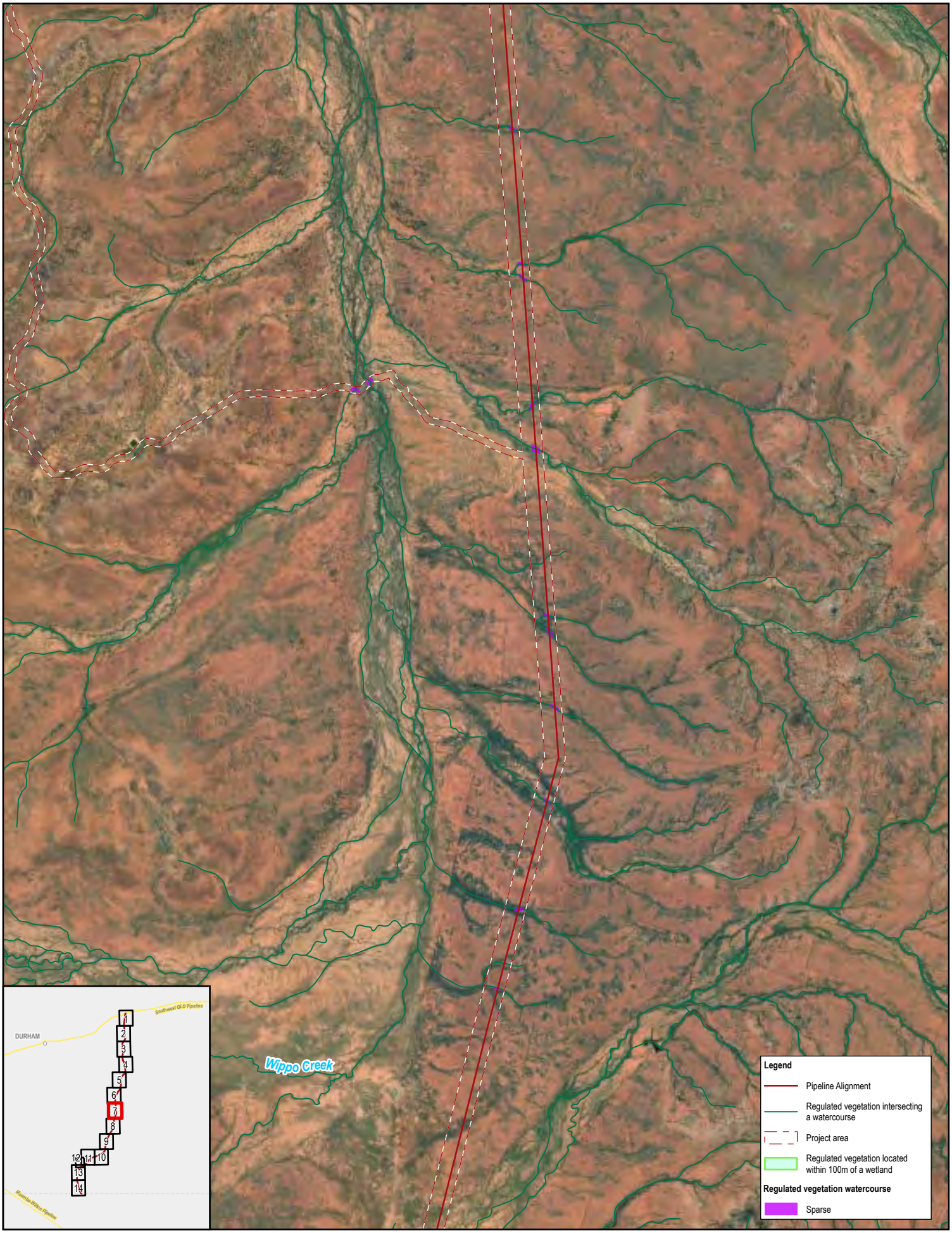
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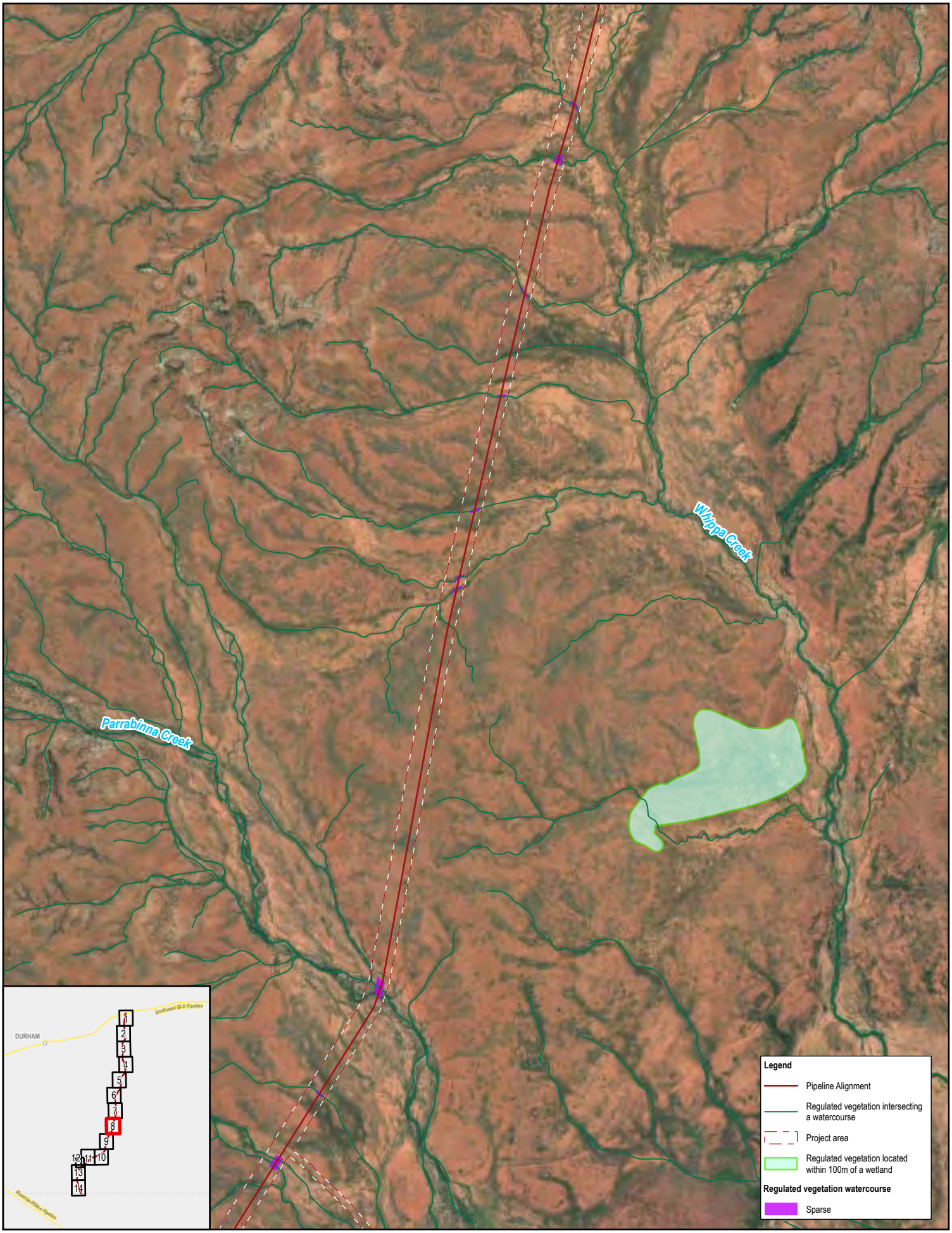
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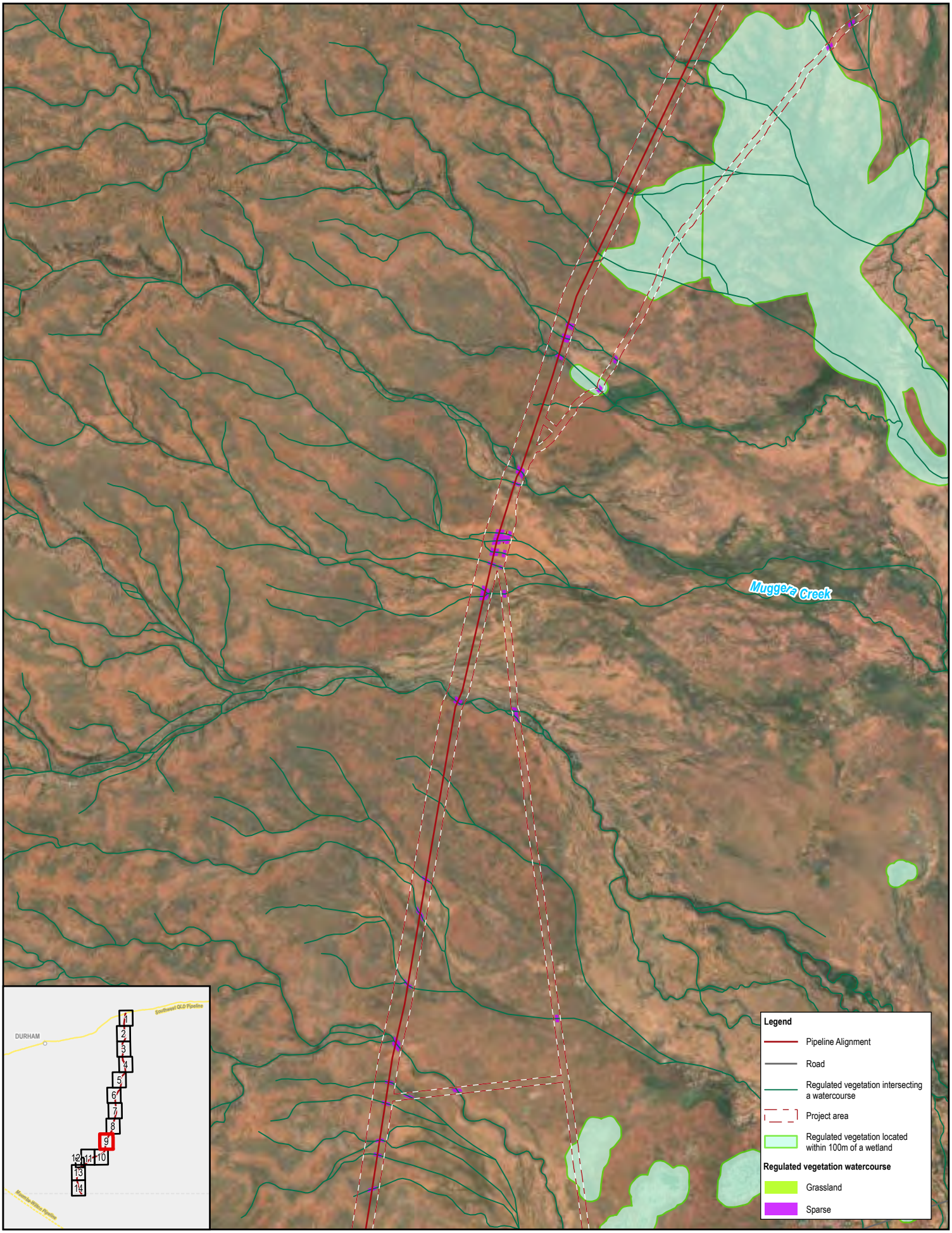
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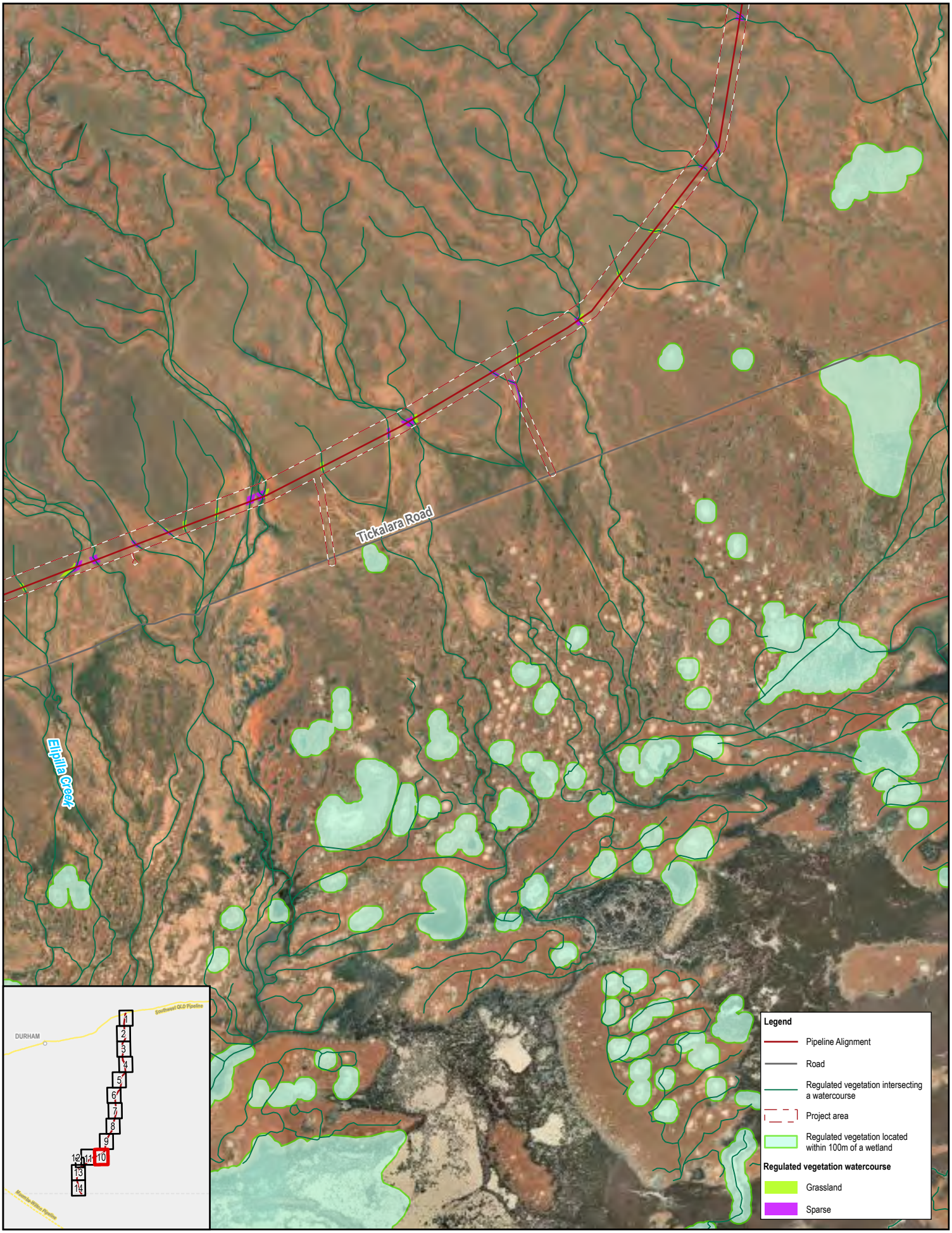
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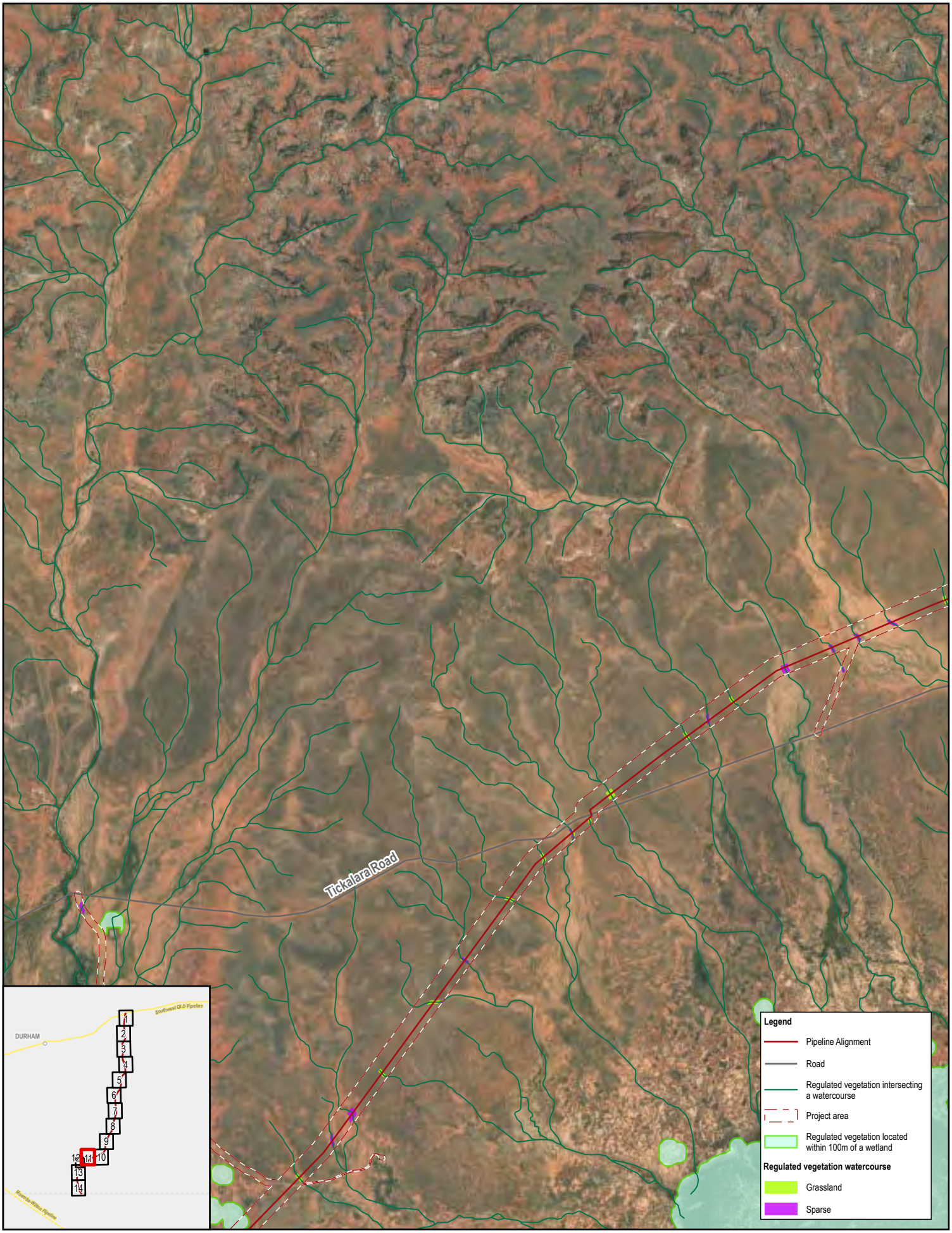
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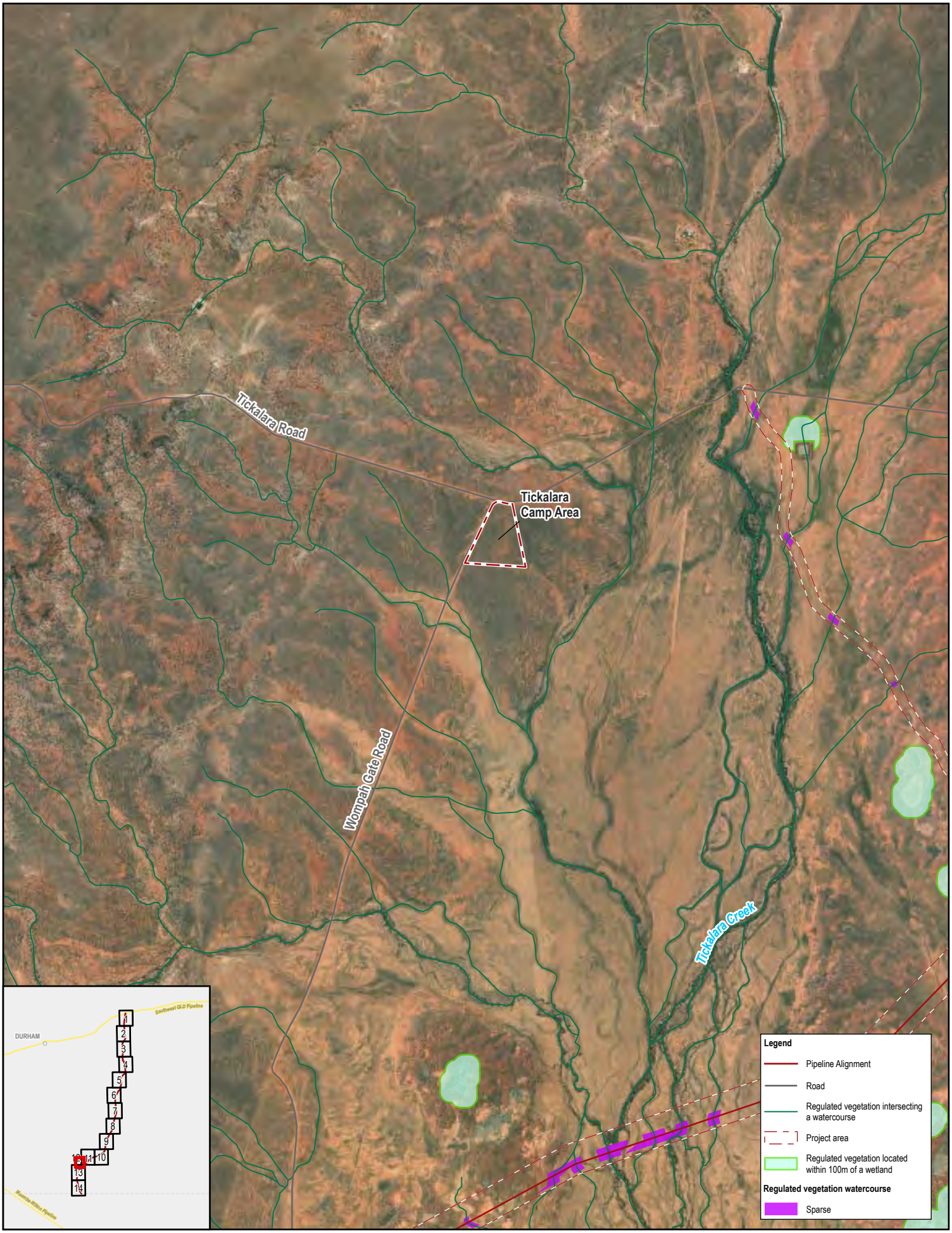
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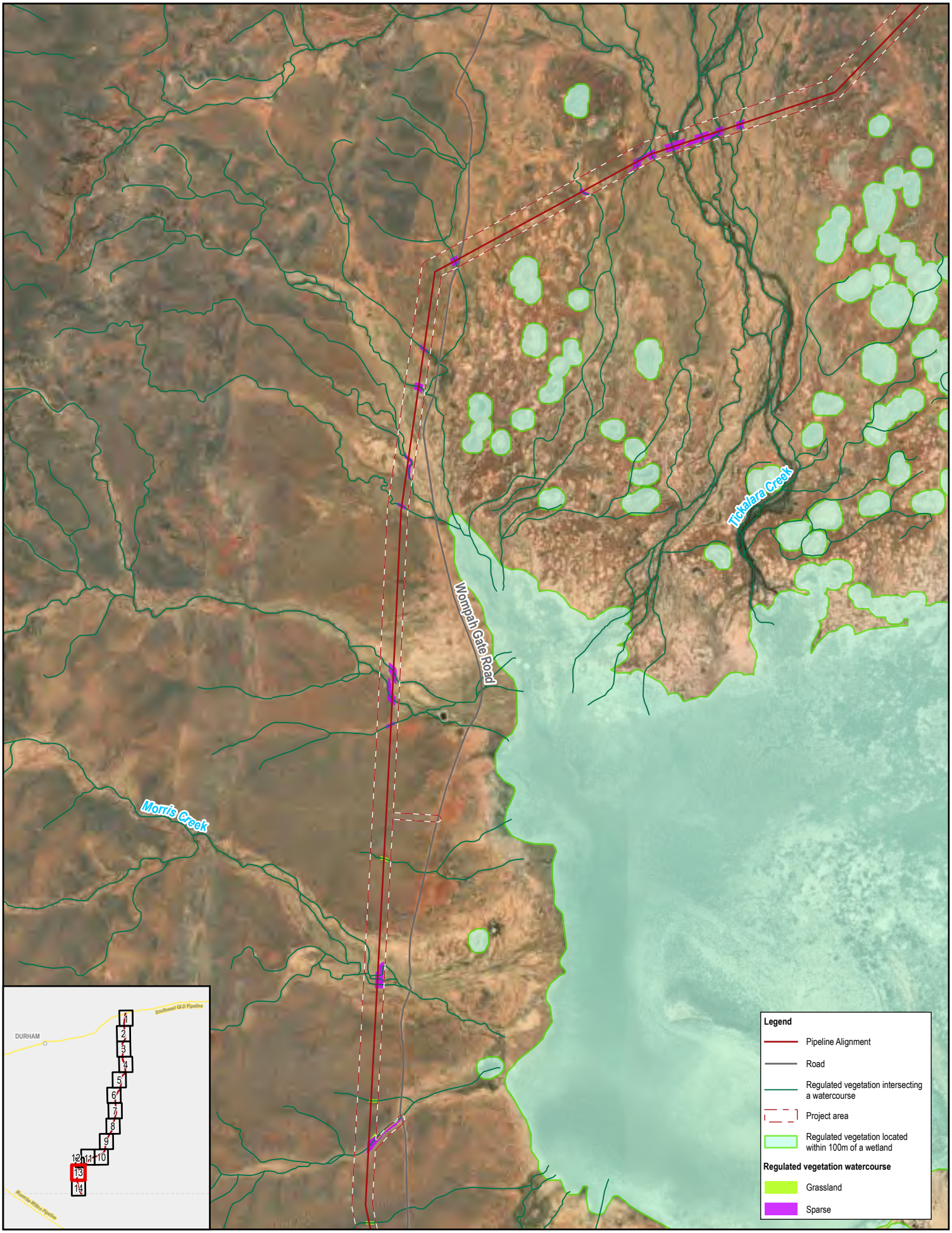
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Map Projection: Transverse Mercator
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Regulated vegetation (wetlands and defined watercourses)

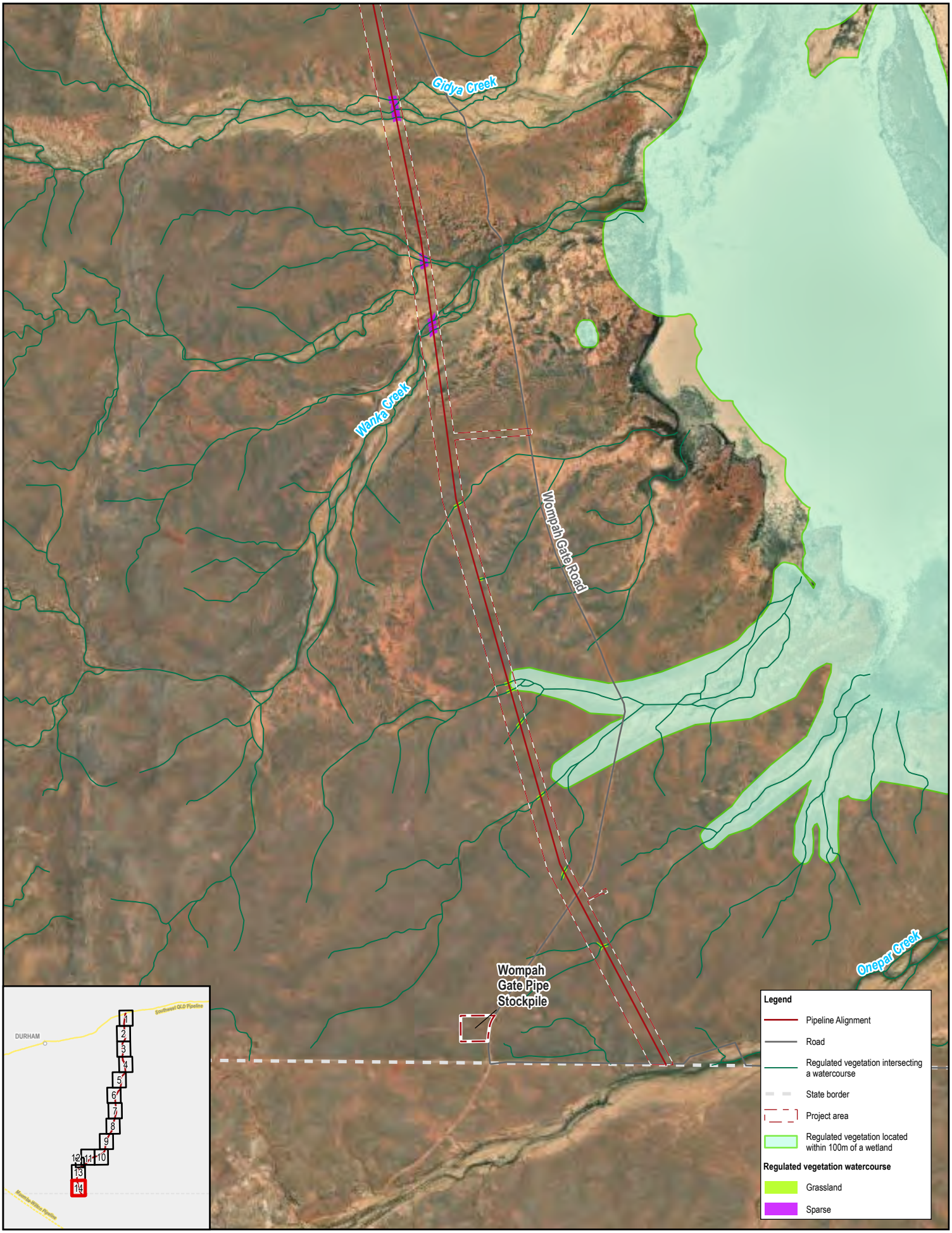
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Map Projection: Transverse Mercator
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Regulated vegetation (wetlands and defined watercourses)

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4.4.4 Connectivity

The project site is dominated by open plains habitat, comprising variable forb/grasslands and gibber plains interspersed with chenopod shrublands and patches of acacia/gidgee and mulga woodlands. Riparian woodlands were found to retain mature river red gum (*Eucalyptus camaldulensis*) and coolabah (*E. coolabah*), with water persisting in deeper ephemeral channels at the time of the field surveys. These high-value corridors contain elevated densities of HBTs that provide shelter and nesting opportunities for cockatoos, parrots, microbats and small mammals (Plate 4.5). Additionally, these riparian habitats provide potential nesting/foraging structure for raptors (e.g. grey falcon) and support seasonal waterbirds and migratory shorebirds when inundated. Mistletoe-bearing eucalypts/acacias within woodland patches (including *Amyema* spp.) provide suitable foraging habitat for mistletoe specialist species (e.g. painted honeyeater). Scattered patches of western bloodwood (*Corymbia terminalis*) containing hollows were observed across some of the plains, providing important stepping-stone habitat, and offering shelter and foraging opportunities for a wide range of fauna.



Plate 4.5 ***Fauna habitat observed in the project area, clockwise from top left: a wedge-tailed eagle nest; masked woodswallows foraging in a western bloodwood; a budgerigar adjacent to a small hollow; little corella inside a western bloodwood hollow***

Across the open plains, sparse ground-layer mosaics, including short grass patches, represent potential habitat for ground-dwelling birds (e.g. plains-wanderer). Chenopod flats and stony gibber country present habitat elements for arid-zone birds. True lignum (*Duma florulenta*) was scarce across the project area, but flowering lignum (*Eremophila polyclada*) was found in several patches, including a notable unique swamp habitat in the far north of the project area. No true dune fields were observed; instead, the southern section shows localised aeolian sand accumulation around gidgee (*Acacia cambagei*). Ground-dwelling mammal habitat was largely substrate-driven (e.g. cracking clays/gilgais suitable for the plains rat). Landscape connectivity was generally high, although barbed-wire fencing and station infrastructure locally may restrict movement for larger mammals.

4.4.5 Protected wildlife habitat

The project site intersects habitat for conservation significant fauna species listed as critically endangered, endangered, vulnerable or special least concern under the NC Act:

- Southern whiteface
- Fork-tailed swift
- Sharp-tailed sandpiper
- Curlew sandpiper
- Red goshawk
- Grey falcon
- Latham's snipe
- Painted honeyeater
- Caspian tern
- Pink cockatoo (eastern)
- Blue-winged parrot
- Plains-wanderer
- Glossy ibis
- Common greenshank
- Plains rat
- Short-beaked echidna.

Habitat values and species distributions within the project site are described in section 4.2.4. Impact areas and an assessment of the significant residual impact of the project on protected wildlife habitat is provided in section 7.2.4.

4.5 Biosecurity

Confirmed pest species within the project area included the European rabbit (*Oryctolagus cuniculus*), feral cat (*Felis catus*), wild dog (*Canis familiaris*), and feral pig (*Sus scrofa*). Evidence of each species was recorded across the extent of the project site (Plate 4.6). Introduced species, feral horse (*Equus caballus*) was also observed within the broader survey area.

Barbed wire fences were found across the project area. Grazing pressure was evident across much of the landscape, with some waterholes showing signs of degradation and many areas observed to be heavily grazed. Dieback of numerous trees and shrubs was observed across the project area, consistent with the prevailing arid conditions.



Plate 4.6 Pest species were confirmed in the project area though direct and indirect observations

No species observed within the project area were listed as prohibited or restricted invasive plants under the Biosecurity Act. Additionally, no species observed are listed as Weeds of National Significance (WoNS) and no species are listed as a prohibited matter under the *Bulloo Shire Council Biosecurity Plan* (Bulloo Shire Council, 2022). Exotic flora observed was limited to five species which included buffel grass (*Cenchrus ciliaris*), mimosa bush (*Vachellia farnesiana*) smooth mustard (*Sisymbrium erysimoides*), Noogoora burr (*Xanthium occidentale*), and common sowthistle (*Sonchus* oleraceus) (Plate 4.7). A total of five discrete locations were observed to contain exotic species, all of which are restricted to tributaries of the Wilson and Bulloo Rivers at KP 4, KP 18, KP 37, KP 59 and KP 145.



Plate 4.7 ***Species observations in the project area from left: Mimosa bush (Vachellia farnesiana), Noogoora burr (Xanthium occidentale)***

4.6 Matters of national environmental significance

The project has the potential to impact on MNES and has been separately referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (EPBC 2026/10534) for a decision.

A summary of the MNES values listed under the EPBC Act that may occur within the project site is presented in Table 4.9 below. Significant impact assessments were prepared as summarised in section 7.3.

Table 4.9 ***Summary of MNES***

MNES value	Comments
World Heritage properties	There are no World Heritage properties located within or adjacent to the project site. The nearest World Heritage property, Willandra Lakes, is located approximately 480 km south of the project site.
National Heritage places	There are no National Heritage places located within or adjacent to the project site. The nearest National Heritage place, Mithaka Cultural Lakes, is located approximately 150 km north-west of the project site.
Wetlands of international importance (Ramsar wetlands)	The Caryapundy Swamp Ramsar wetland (NSW) occurs immediately downstream of, and is hydrologically connected to Bulloo Lake, which is located within the desktop search extent (approximately 2.5 km east of the project site). Aquatic MNES, including Ramsar wetlands, are discussed in Appendix C (Aquatic Ecology Assessment Report) of the Environmental Authority Supporting Information Report (GHD, 2026a).
Listed threatened species and/or ecological communities	No EPBC Act listed TECs occur within the project site. The following EPBC Act listed threatened species were confirmed present within the project site during field surveys: – plains-wanderer – southern whiteface – blue-winged parrot. The likelihood of occurrence assessment identified the following EPBC Act listed threatened species as likely to occur or with potential to occur within the project site: – Likely to occur • sharp-tailed sandpiper • curlew sandpiper • grey falcon

MNES value	Comments
	• latham's snipe • painted honeyeater • Caspian tern • pink cockatoo (eastern) • glossy ibis • common greenshank – Potential to occur • fork-tailed swift • red goshawk • plains rat
Migratory species	The following EPBC Act listed migratory species were assessed as likely to occur or with potential to occur within the project site: – fork-tailed swift – caspian tern – glossy ibis.
Commonwealth marine areas	There are no Commonwealth marine areas located within or adjacent to the project site. The nearest Commonwealth marine area is located approximately 1,000 km west of the project site.
Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not located within or adjacent to the project site, or part of the catchments.
Commonwealth land	Commonwealth land is not located within or adjacent to the project site.
Nuclear actions	The project is not, and does not involve, a nuclear action.
Protection of water resources from coal seam gas development and large coal mining development	The project does not involve coal seam gas or coal mining development, and as such, impacts to 'a water resource' resulting from these activities are not anticipated.

5. Project impacts

5.1 Construction impacts

The CRoW is approximately 236 km long by nominally 40 m wide (covering approximately 944 ha), in addition to temporary laydown/work areas, and access tracks. Actual ground disturbance within the CRoW will be lower where vegetation retention, narrow-cut trenching, or trenchless techniques are utilised. The works will occur within a remote pastoral setting, intersecting sensitive features including the Wilson River SEA, the Bulloo Nature Refuge, and areas hydrologically connected to a Ramsar wetland located in NSW via downstream surface water processes. Construction will be staged across multiple spreads at an average rate of approximately 2.4 km/day, with sections of trench potentially open for up to one month, requiring stringent fauna management protocols and stormwater controls to prevent environmental harm.

During planning and design, APA applied a structured avoidance and impact-minimisation hierarchy, consistent with the EPBC Act, to identify the most suitable alignment within this constrained corridor. This process included the consideration of alternative pipeline routes, alignment options, design configurations and infrastructure layouts, with the objective of avoiding MSES, MNES and other sensitive environmental values wherever practicable. The adopted alignment represents the most environmentally and technically suitable route between the two existing pipelines, while avoiding sensitive areas to the maximum extent feasible.

Following the ecological surveys undertaken by GHD, progressive refinement of the alignment, including detailed micro-siting and targeted avoidance measures, has been undertaken to reduce environmental impacts. The alignment has been refined on five occasions to avoid or minimise impacts on higher-value habitats and sensitive ecological features including several recommended solely on the basis of good environmental stewardship, demonstrating a proactive avoidance approach consistent with regulatory expectations. Several of these refinements were implemented as precautionary measures based solely on environmental considerations, rather than engineering necessity.

These refinements have reduced potential impacts on riparian habitat, mature vegetation and HBTs. Where large trees or higher-value habitat features occur within the broader corridor, the alignment and disturbance footprint have been adjusted to prioritise retention and minimise clearing. A total of nine HBTs will be lost across the entire alignment, seven of these trees being dead stags with reduced temperature regulatory properties, providing sub-optimal and limited suitability for nesting. High-value channel crossings have been avoided where practicable, and where crossings are required, impacts are generally small, localised and occur within a landscape containing extensive areas of equivalent surrounding habitat.

5.1.1 Vegetation clearing and habitat loss

Clearing the CRoW and along access tracks will involve the removal of native vegetation (including mature trees), resulting in the localised loss of habitat, primarily within the construction footprint. Above ground infrastructure is minimal (e.g. mainline valves, vents, connection facilities); however, clearing for the 40 m wide CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpile (approximately 8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated post-construction, such disturbance is expected to be temporary.

Trenchless crossings (e.g. HDD under the Wilson River) and targeted pipeline alignment shifts are proposed to avoid direct disturbance of mature riparian trees at high-value locations (i.e. HBTs) across the project site. Clearing of the CRoW will also include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna. Direct disturbance of tree hollows, nests and roost sites may lead to localised displacement or mortality of dependent fauna with mortality risk managed through pre-clearance surveys and fauna handling protocols.

5.1.2 Habitat degradation and fragmentation

The use of existing local roads and proposed upgrades to existing tracks may degrade adjacent vegetation within approximately 40 m of disturbance edges and/or microhabitats relied upon by reptiles and small terrestrial fauna, affecting habitat quality and species composition. The cleared CRoW will be subject to increased light/wind effects, drying, and simplified understorey along the margins; with potential predator/competitor ingress along new linear edges. However, given the buried, linear nature of the pipeline, long-term habitat fragmentation risk is considered low.

Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterhole habitats during works. Trenching, vehicle movements and stockpiling can mix topsoils and subsoils, compact crusts, and flatten gilgai microrelief; reducing microhabitat for reptiles and small mammals until reinstated. Dispersive soils have been flagged as a key constraint and will be managed through soil handling procedures.

Hydrotest water quality exceedances, accidental spills of hazardous materials (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts (e.g. vegetation, soil crusts, etc.) if not appropriately controlled.

5.1.3 Fauna injury and mortality

Open trenches pose a risk of entrapment for reptiles, small mammals (e.g. plains rat) and ground birds. Where clearing intersects fauna habitat and riparian belts, there is also a risk of nest/den/roost tree removal resulting in injury and/or mortality of fauna without mitigation. Vehicle movements during construction activities can increase the risk of fauna injury or mortality from vehicle interactions on access tracks.

5.1.4 Increased predation pressure and competition

Clearing the CRoW may expose fauna (e.g. small mammals, reptiles) to predation by raptors, cats and wild dogs when moving across gaps. Loss of habitat within the CRoW may also increase competition for remaining food and shelter resources in adjacent patches. This risk is expected to be short-term and localised and will be reduced as vegetation regenerates following construction.

Avoidance of habitat by the plains-wanderer may occur due to the species' known behaviour of avoiding tall structures (e.g. fences, temporary accommodation facility, stockpiles) and human activity. Without mitigation, this may push individuals into areas of higher predation, or adjacent territories (i.e. direct competition).

5.1.5 Introduction and/or spread of invasive species

Importation and/or spread of pest animals and weeds along access tracks and stockpile margins, due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed (i.e. cleared) areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities, however, appropriate biosecurity controls and reinstatement are expected to limit the extent and duration of these effects

5.1.6 Altered hydrology at creek/floodout crossings

Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds and frogs, if beds/banks are not restored to pre-disturbance forms. Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.

5.1.7 Disturbance of fauna from increased dust, light, noise and vibration

Temporary increases in exposure to dust, light, noise and vibration during localised night works, HDD compounds and/or hydrotest activities may disturb nocturnal fauna and alter behaviour (e.g. bats, frogs). While low-frequency noise has the potential to mask calls of species such as the plains-wanderer at close range during active works, such effects are expected to be highly localised, time-limited and restricted to construction periods. Visual and acoustic disturbance during operation is expected to be negligible for a buried pipeline.

5.1.8 Changed fire and grazing dynamics

The construction of three new access tracks (approximately 0.50 ha and 626 m in total length) and widening of existing access tracks may alter fire frequency and facilitate stock/feral animal access, affecting recruitment in gidgee/mulga and chenopod systems.

5.2 Operational impacts

Operational impacts of the project are anticipated to be minimal, and may include fauna injury and/or mortality due to vehicle strikes, the introduction and/or spread of invasive species due to vehicle movements during routine maintenance works, and impacts to fauna behaviour due to the generation of artificial light and increased noise.

5.2.1 Fauna injury and mortality

Operational activities will consist of routine inspection, maintenance, and repairs carried out intermittently over the operational life of the pipeline and will include the movement of vehicles throughout the site to undertake these activities. Vehicle movements on access tracks during routine maintenance and repairs can increase the risk of fauna injury or mortality due to vehicle strikes.

The pipeline would be designed to operate with a minimum of operator intervention. Access to the pipeline easement would be necessary for routine inspections and to follow-up any issues identified. It is anticipated that less than four field staff are expected to maintain and patrol the pipeline each day which would include external coating surveys, ground and/or aerial patrols, repair or replacement of faulty/damaged components, internal cleaning of the pipeline, corrosion monitoring and remediation, and easement maintenance. Due to the minimal traffic generation expected to occur during the operation of the pipeline, operational activities will be confined to small, defined areas no further assessment for this stage has been undertaken.

5.2.2 Introduction and/or spread of invasive species

The movement of vehicles during routine maintenance activities may lead to the importation and/or spread of weeds along access tracks, particularly if hygiene controls are not adequately implemented. Disturbed areas, such as the CRoW, may be more susceptible to colonisation by weeds and feral fauna species. Routine inspection and maintenance activities will be confined to small, defined areas, and will be carried out intermittently over the operational life of the pipeline, however, appropriate biosecurity controls are expected to limit the extent and duration of these effects.

5.2.3 Disturbance of fauna from increased dust, light, noise and vibration

Visual and noise disturbance is generally low for buried pipelines during operation. However, short-term, localised increases in exposure to dust, light, noise and vibration during localised ongoing maintenance activities may disturb fauna during visits.

5.3 Decommissioning impacts

Decommissioning impacts of the project are also anticipated to be minimal, given that the pipeline is expected to remain in situ, significantly limiting disturbance. However, there is a low risk of localised habitat degradation and fauna injury and/or mortality during decommissioning activities.

5.3.1 Habitat degradation

Throughout the decommissioning phase, most of the underground pipeline is expected to remain in place, which minimises disturbance of the land, soils, established vegetation and habitat. Disturbance associated with the removal of surface infrastructure and sections where cutting, capping and filling is required, may lead to habitat degradation. However, these impacts are expected to be localised within relatively small footprints and short-term in nature.

5.3.2 Fauna injury and mortality

The removal of surface infrastructure, decommissioning sections of the pipeline, and associated movement of vehicles and machinery, may increase the risk of fauna injury and/or mortality. However, these impacts are also anticipated to be localised and short-term in nature.

5.4 Cumulative impacts

5.4.1 Approach

Cumulative impacts can be defined as the successive, incremental, and combined effect of multiple impacts, which may in themselves be minor, but could become significant when considered together.

Key projects relevant to the potential for terrestrial ecology impacts are considered in section 5.4.3 below. These projects have been selected as the key major projects that may result in cumulative terrestrial impacts with the project, and where sufficient information is available to undertake an assessment.

Cumulative impacts could occur as a result of an interface during construction, if construction activities are undertaken in the same physical location or at the same time. As the assessment determined there would be a minimal risk of operational impacts from the project, cumulative (operational) impacts are not considered likely.

5.4.2 Project identification

To identify relevant projects for the cumulative impact assessment, a desktop review was undertaken using the following sources, to identify relevant projects located within the Bulloo Shire local government area and/or a 20 km radius of the project site:

– Office of the Coordinator-General projects website, to identify state-significant projects (coordinated projects and large resource projects)
– EPBC Act Public Notices List.

5.4.3 Potential cumulative impacts

No relevant major future projects in the vicinity of the project site have been identified from publicly available information including the Queensland Department of Housing and Public Works website, the Office of the Coordinator General Coordinated Projects website, DETSI's public information portal with current EA applications or EPBC Act Public Notices List that would be considered to be developed concurrently with the project.

6. Recommended mitigation and management measures

6.1 Approach to mitigation

To avoid impacts, the pipeline alignment has been refined and its width reduced to the smallest safe working width to minimise the potential environmental impacts. The mitigation hierarchy ‘avoid, mitigate, offset’ applies to the project, and requires impacts to prescribed matters to be reasonably avoided wherever possible.

For the residual impacts that cannot be avoided, the extent of the impacts will be mitigated and continually managed to the greatest possible extent.

Measures draw upon the following guidelines:

– APGA Code of Environmental Practice (APGA, 2022)
– *Best Practice Erosion and Sediment Control Guidelines* (IECA, 2025)
– Queensland regulatory guidance (e.g. DES, 2024; Queensland Treasury, 2020)
– *Eligibility criteria and standard conditions – Petroleum pipeline activities – Version 2* (DEHP, 2015).

6.2 Recommended mitigation measures

This section outlines recommended mitigation measures for the project across the design, construction, operation and decommissioning phases. Mitigation measures aimed to reduce potential impacts include the development and implementation of project-specific environmental management plans (including a Construction Environmental Management Plan (CEMP), Erosion and Sediment Control Plan (ESCP) and Decommissioning Environmental Management Plan (DEMP). Mitigation measures are presented for avoidance, minimisation, and management of environmental impacts and are designed to protect environmental values, including potential plains-wanderer habitat, where present.

6.2.1 Design

Table 6.1 summarises the key risks, mitigation measures, and applicable standards associated with the design phase of the project, to guide CEMP requirements and environmental compliance.

Table 6.1 Design mitigation measures

Potential impact	Mitigation measures	Standards
Vegetation clearing and habitat loss	– Where HBTs are present, the width of the CRoW has been reduced to the smallest safe working width (20 m to 30 m), to minimise the impact footprint, avoid HBTs and minimise the number of HBTs required to be removed. – Continue to refine pipeline alignment where practicable, noting that the pipeline alignment has been refined to avoid HBTs, riparian trees and high-value habitats (including potential breeding places for conservation significant species) where possible. – The avoid–minimise–mitigate decision pathway has been documented to demonstrate compliance and to retain justification for any unavoidable disturbance. – Confirm that the CRoW is minimised to the greatest practicable extent and will not exceed 40 m in width, and that construction turn-around/work areas do not exceed 50 m. – Where reduced widths are adopted (e.g. 20 m to 30 m through sensitive features), record the justification and constraints. – Prioritise the use of existing access tracks and new access track passing/ widening locations outside of vegetated areas, in order to minimise and avoid the removal of vegetation where possible, and to facilitate access track construction and upgrades.	APGA, 2022 DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
Habitat degradation and fragmentation	– Limit disturbance to the CRoW and approved access tracks. – Locate temporary stockpiling and storage locations for excavated materials from watercourse crossings along the pipeline alignment and away from watercourse crossings. – Confirm that laydowns/stockpiles constitute 'non-linear infrastructure' and, where within/near ecologically sensitive features (e.g. riparian vegetation, known/ potential habitat for native species), demonstrate that siting cannot be avoided and will not negatively impact these values. – Develop a site-specific ESCP that aligns with the International Erosion Control Association (IECA) standards (IECA, 2025), including management of dispersive soils. – Limit simultaneous disturbance of multiple floodout systems, and stage works to minimise open-trench lengths near sensitive habitats. – Link staging to contingency procedures required prior to significant disturbance, and record staging decisions for compliance. – Staging will be designed to minimise the duration and extent of disturbance within plains-wanderer habitat.	APGA, 2022 DES, 2024 DEHP, 2015 IECA, 2025
Introduction and/or spread of invasive species	– Prepare a biosecurity management procedure that includes provisions for pre clear weed surveys and vehicle washdown points, as per the Queensland Biosecurity Act. – Avoid the use of rodenticides and other poisons to minimise the risk of secondary poisoning to raptors and other predatory species. – Include hygiene and weed controls as part of measures 'reasonably necessary' to prevent environmental harm and retain monitoring records.	DES, 2024 DEHP, 2015
Altered hydrology at creek/floodout crossings	– A trenchless crossing methodology (i.e. HDD) has been adopted at the Wilson River SEA (~1.4 km) to avoid direct impacts to high-value habitats (including HBTs and potential breeding places for conservation significant species. – Reinstate natural bed/bank profiles as soon as practicable following the completion of works. – Confirm that watercourse works are undertaken by a suitably qualified person and are consistent with the order of preference for works timing (i.e. no water → no flow → flow without impeding low flow). – Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties.	APGA, 2022 DES, 2024 DEHP, 2015 Queensland Treasury, 2020

6.2.2 Construction

Table 6.2 summarises the key risks, mitigation measures, and applicable standards associated with the construction phase of the project, to guide CEMP requirements and environmental compliance.

Table 6.2 Construction mitigation measures

Potential impact	Mitigation measures	Standards
Vegetation clearing and habitat loss	– Use HDD at the Wilsons River crossing to avoid direct impacts to high-value habitats (e.g. HBTs, potential breeding places for conservation significant species, etc.). – Locate storage areas (e.g. stockpiling areas, laydowns) and access tracks/ passing locations outside of vegetated areas where possible, to minimise vegetation removal required. – Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – GPS-enabled machinery post physical marking of the CRoW and geofenced construction boundaries. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat.	APGA, 2022 DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
	– Respread of topsoil and ripping immediately following trench backfilling, and topsoil reinstatement as soon as possible following completion of works including reinstatement of large woody debris where feasible. – Reinstate landform, contours and drainage to a stable condition as soon as practicable following completion of works. – Permit natural regrowth of temporary disturbance areas as soon as practicable.	
Habitat degradation and fragmentation	– Limit disturbance to the CRoW, extra work spaces and approved access tracks. – Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes. – Develop a site-specific ESCP in accordance with IECA standards (2025), including the protection of sensitive habitats using erosion and sediment controls. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank and secured by erosion and sediment controls. – Stabilise disturbed areas promptly following completion of works. – Incorporate dust minimisation measures through the CEMP. – Storage and handling of dangerous and hazardous materials (e.g. fuel, oil and other chemicals) would be undertaken in accordance with *AS 1940:2017 – The storage and handling of flammable and combustible liquids*.	APGA, 2022 DES, 2024 DEHP, 2015 IECA, 2025
Fauna injury and mortality	– Pre-clearance surveys for fauna and potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake daily inspections of trenches. – Any fauna handling must be conducted under the relevant permits. – Where required, high-risk and low-risk SMPs will be prepared for impacts to animal breeding places, in accordance with the NC Act. – Prepare and implement incident response procedures for any wildlife injury or mortality during construction. – Implement trench management measures including daily inspections of trenches.	APGA, 2022 DES, 2024
Invasive species	– Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at an approved facility • requirement for secure storage of food scraps, with offsite disposal, to avoid attracting pest animals. – Prohibit construction staff from bringing domestic animals on site. – Undertake active feral pest monitoring during construction, particularly for feral cats via deployment of active controls such as Felixer grooming traps at locations along the pipeline alignment where cat faeces have been observed. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. Avoiding the use of rodenticides and other poisons to minimise the risk of secondary poisoning to raptors and other predatory species.	DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
Altered hydrology at creek/floodout crossings	– Develop and implement a site-specific ESCP in accordance with IECA standards (IECA, 2008), including the protection of sensitive habitats using erosion and sediment controls, and the management of dispersive soils. – Place stripped soils outside waterways and stabilise using erosion controls. – Undertake bed and bank stabilisation as soon as practicable post completion of works once subsurface is achieved. – Design crossings to maintain floodplain connectivity and natural hydrology. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	IECA, 2008 APGA, 2022 DES, 2024 Queensland Treasury, 2020
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust generation on the CRoW and access tracks. – Direct lighting away from sensitive habitats where possible. – Use broadband reversing alarms instead of tonal beepers. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent bushland. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works. – Limit construction works to daylight hours wherever feasible to reduce light and noise impacts to nocturnal fauna.	APGA, 2022 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Control access to the CRoW to manage firebreaks. – Include fire contingency/response measures within written contingency procedures.	APGA, 2022 DEHP, 2015

6.2.3 Operation

Table 6.3 summarises the key risks, mitigation measures, and applicable standards associated with the operation phase of the project, to guide CEMP requirements and environmental compliance.

Table 6.3 Operation mitigation measures

Potential impact	Mitigation measures	Standards
Fauna injury and mortality	– Limit onsite maintenance to daylight hours wherever feasible to reduce light/ noise impacts on nocturnal fauna. – Seek instruction from fauna spotter-catchers or suitably qualified environmental representatives if fauna injury occurs. – Maintain entrapment prevention measures where open excavations/trenches occur. – Identify local wildlife carers/vets in the operation environmental management plan, including relevant contact details. – Prepare and implement adverse incident response procedures for wildlife injury or mortality.	DES, 2024 DEHP, 2015
Introduction and/or spread of invasive species	– Undertake monitoring and adaptive weed management and inspections for three years post-construction, with treatment of outbreaks as required. – Include mapping of major weed infestations identified during pre-clearing surveys in the CEMP, alongside tailored management responses. – Implement vehicle wash-down and pest reporting protocols during operations. – Report monitoring outcomes through the annual return update report where required. – Manage food and waste to avoid attracting pest animals.	DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust generation on the CRoW and access tracks. – Direct lighting away from sensitive habitats where possible. – Use broadband reversing alarms instead of tonal beepers. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent bushland. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Limit maintenance works to daylight hours wherever feasible to reduce light and noise impacts to nocturnal fauna.	APGA, 2022 DES, 2024 DEHP, 2015

6.2.4 Decommissioning

Table 6.4 summarises the key risks, mitigation measures, and applicable standards associated with the decommissioning phase of the project, to guide CEMP requirements and environmental compliance.

Table 6.4 Decommissioning mitigation measures

Potential impact	Mitigation measures	Standards
Habitat degradation	– Limit disturbance to the CRoW and approved access tracks to protected retained vegetation and support reinstatement. – Locate storage areas/access tracks within existing disturbed areas where practicable. – Reinstate landform, contours and drainage to a stable condition as soon as practicable following completion of works. – Permit natural regrowth of temporary disturbance areas as soon as practicable. – Undertake photo-point and performance indicator monitoring until stable vegetation cover and final acceptance criteria are achieved.	APGA, 2022 DES, 2024 DEHP, 2015
Fauna injury and direct mortality	– Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction.	APGA, 2022 DES, 2024

7. Impact assessment

7.1 Environmentally sensitive areas

The impacts on Category C ESAs described in section 4.3 are described in Table 7.1.

Table 7.1 ESA disturbance within the project site

ESA Type	RE impacted	Impact area (ha)	Total (ha)
Of concern RE	5.5.1	98	206.95
	5.5.1 x2	106.3	

7.2 Matters of state environmental significance

As identified in section 4.4.1 the following MSES are associated with the project site:

– Regulated vegetation (wetland)
– Regulated vegetation (defined watercourse)
– Connectivity
– Protected wildlife habitat.

An assessment has been undertaken against the Queensland *Significant Residual Impact Guideline* (DEHP, 2014) for species and ecological values listed at the state level, that were confirmed present, likely to occur, or considered to have the potential to occur within the project site. Several state-listed species that are considered MSES are also listed under the EPBC Act and have been assessed below in section 7.3

The assessment considers only impacts on MSES. Near threatened species are not considered MSES, nor are least concern plants, and as such, no significant residual impact assessment has been undertaken for *Rhodanthe rufescens* or *Sclerolaena walkeri*, respectively.

A summary of the significant residual impact assessments is provided below in Table 7.2. The assessment determined that the project is likely to result in a significant residual impact on MSES, being regulated vegetation (defined watercourse) for which an offset under the EO Act is likely to be required. A potentially significant residual impact is predicted in relation to protected wildlife habitat for plains-wanderer. As presented in section 7.3, a potentially significant impact is predicted for plains-wanderer as MNES under the EPBC Act. Any proposed offset for plains-wanderer would be provided under the EPBC Act and the *EPBC Act Environmental Offsets Policy* (DSEWPC, 2012).

Table 7.2 Summary of likelihood of occurrence and significant residual impact assessment results for MSES

MSES value	Impact area (disturbance footprint) (ha)	Significant Residual Impact / Offset require
Regulated vegetation		
Regulated vegetation (wetland)	0	Unlikely
Regulated vegetation (defined watercourse)		
– RE 5.9.3	1.28	Likely
– RE 5.3.2	0.6	Likely
– RE 5.3.21	2.12	Likely
– RE 5.3.21a	0.37	Likely
– RE 5.3.4	0.31	Likely
– RE 5.3.5	0.2	Likely
– RE 5.3.7	0.02	Likely
– RE 5.3.9	2.14	Likely

MSES value	Impact area (disturbance footprint) (ha)	Significant Residual Impact / Offset require
– RE 5.5.1	0.53	Likely
– RE 5.5.1x2	0.59	Likely
– RE 5.5.4	0.16	Likely
– RE 5.5.4x1	1.57	Likely
– RE 5.6.2	0.29	Likely
– RE 5.6.4	0.18	Likely
Connectivity		
Connectivity	N/A	Unlikely
Protected wildlife habitat		
– Critically endangered wildlife		
• Plains-wanderer	620.7	MNES
• Curlew sandpiper	281.3	Unlikely
– Endangered wildlife		
• Pink cockatoo (eastern)	210.1	Unlikely
• Common greenshank	281.3	Unlikely
• Red goshawk	670.4	Unlikely
– Vulnerable wildlife		
• Southern whiteface	688.4	Unlikely
• Blue-winged parrot	1,117.6	Unlikely
• Painted honeyeater	330.9	Unlikely
• Sharp-tailed sandpiper	281.3	Unlikely
• Grey falcon	1,117.6	Unlikely
• Latham's snipe	281.3	Unlikely
• Plains rat	923.1	Unlikely
– Special least concern wildlife		
• Short-beaked echidna	1,117.6	Unlikely
• Fork-tailed swift	1,117.6	Unlikely
• Caspian tern	281.3	Unlikely
• Glossy ibis	281.3	Unlikely

7.2.1 Regulated vegetation (defined watercourse)

The project is **likely** to result in a significant residual impact on regulated vegetation (defined watercourse). In accordance with Schedule 2, item 5 of the Queensland Offsets Regulation 2014, a prescribed RE is considered a MSES to the extent the ecosystem is located within a defined distance from the defining banks of a relevant watercourse or relevant drainage feature.

A relevant watercourse or drainage feature is defined as those identified on the Vegetation Management Watercourse and Drainage Feature Map (as per section 20AB of the VM Act). Clearing within the defined distance of these REs can trigger a significant residual impact. Several vegetation management watercourse features are mapped within the project site, including 1st, 2nd, 3rd, 4th, 5th, and 6th order streams.

Due to the linear nature of this project and high density of watercourses and drainage features within the Channel Country bioregion, intersection with these features cannot be avoided; however, impacts have been minimised where feasible in areas where the CRoW has been reduced. Where HDD is not implemented, clearing activities for the construction phase of the project may occur within 5 m of the defining bank of a watercourse.

Two criteria must be triggered for a linear infrastructure project to have a significant residual impact on regulated vegetation (defined watercourse):

– The clearing is required to be greater than the minimum width threshold for the relevant VM Act structure category for the RE (i.e. grassland >25 m wide, sparse >20 m wide, and dense >10 m wide).
– The clearing is to occur within 5 m of the defining bank of the watercourse or drainage feature.

The methodology used to map regulated vegetation (defined watercourse) is defined in section 4.4.3.

Due to the linear nature of the project, it intersects several mapped watercourse and drainage features; therefore, project activities will occur within 5 m of the defining banks. Where impacts occur within regulated vegetation (defined watercourse) at a width greater than 20 m in REs with a 'sparse' structure category and greater than 25 m in REs with a 'grassland' structure category, a significant residual impact is triggered; with the total area impacted presented in Table 7.3.

Clearing of regulated vegetation associated with a defined watercourse exceeds the relevant criteria for a significant residual impact. An offset under the EO Act is likely to be required as a result of this impact (Table 7.3).

Table 7.3 Impact of the project on regulated vegetation (defined watercourse)

Value	Impact area (ha)	Threshold	Outcome
Regulated vegetation (defined watercourse) – grassland		25 m wide	Significant
– RE 5.9.3	1.28		
Regulated vegetation (defined watercourse) – Sparse		20 m wide	Significant
– RE 5.3.2	0.6		
– RE 5.3.21	2.12		
– RE 5.3.21a	0.37		
– RE 5.3.4	0.31		
– RE 5.3.5	0.2		
– RE 5.3.7	0.02		
– RE 5.3.9	2.14		
– RE 5.5.1	0.53		
– RE 5.5.1x2	0.59		
– RE 5.5.4	0.16		
– RE 5.5.4x1	1.57		
– RE 5.6.2	0.29		
– RE 5.6.4	0.18		

7.2.2 Regulated vegetation (wetland)

The project is **unlikely** to result in a significant residual impact on regulated vegetation (wetland). In accordance with Schedule 2, item 3(a) of the Environmental Offsets Regulation 2014 (Qld), a prescribed RE is considered a MSES to the extent that the ecosystem intersects with a relevant wetland. A relevant wetland is defined as those identified on the on the Vegetation Management Wetlands Map (as per section 20AA of the VM Act).

Two criteria must be triggered for a linear infrastructure project to have a significant residual impact on regulated vegetation (wetland):

– The clearing is required to be greater than the minimum width threshold for the relevant VM Act structure category for the RE (i.e. grassland >25 m wide, sparse >20 m wide, and dense >10 m wide).
– The clearing is to occur within 50 m of the defining bank of the wetland.

While the project will clear within 50 m of the defining bank of a relevant wetland, the impact is associated with widening to 10 m an existing linear access track, and therefore does not exceed any width thresholds for structure category. For a prescribed activity to have a significant residual impact on a RE that lies within a mapped wetland, both criteria must be exceeded; therefore, the project is unlikely to result in a significant residual impact on regulated vegetation (wetland) and no offset will be required (Table 7.4).

Table 7.4 Impact of the project on regulated vegetation (wetland)

Value	Total impact within project site	Threshold	Outcome
Regulated vegetation (wetland)	0 ha	No threshold	Not significant

7.2.3 Connectivity areas

The project is **unlikely** to result in a significant residual impact on connectivity areas. To determine whether the project would impact connectivity in Queensland, spatial analysis was undertaken comparing pre- and post-impact vegetation data, including measurement of changes in core remnant ecosystem extent at the local-scale, and referencing a fragmentation threshold table based on RE conditions. There are two 'tests' outlined in the Queensland *Significant Residual Impact Guideline* (DEHP, 2014) to determine whether an action would have a significant residual impact on connectivity areas:

– the change in the core remnant ecosystem extent at the local-scale (post-impact) is greater than a threshold determined by the level of fragmentation at the regional-scale; and
– any core area that is greater than or equal to 1 ha is lost or reduced to patch fragments (core to non-core).

Both development impact tests for connectivity were completed as part of the assessment. The results confirmed that neither test was triggered, with no significant change to the core remnant ecosystem extent at the local scale. Therefore, the project is not expected to significant residual impact on connectivity.

7.2.4 Protected wildlife habitat

Plains-wanderer

Avoidance

Large-scale habitat avoidance was constrained due to the distribution of suitable habitat across the pipeline alignment; however, impact avoidance has been applied wherever practicable through alignment refinement, footprint minimisation and design optimisation. Species-specific mitigation measures will be implemented to reduce overall impacts to the species. Notably, the number of stockpiles has been reduced to a single stockpile, and construction fencing has not been proposed to avoid introducing artificial perching substrate for predatory raptors that can cause plains-wanderers to abandon habitat. Additionally, the project site has been reduced as far as practicable through iterative alignment refinements and detailed design to minimise impacts on suitable habitat where feasible. Temporary disturbance areas will be rehabilitated following construction.

Potential impacts

The plains-wanderer is a ground-dwelling bird that relies on the specific structure of sparse native grasslands, chenopod shrublands and herblands for foraging, shelter and breeding. As a result, vegetation clearing, ground disturbance and changes to grassland structure associated with construction activities may affect habitat suitability and increase the risk of disturbance or mortality where the species occurs. Construction activities also have the potential to pose a short-term risk of injury to birds during clearing activities or vehicle movements, which will be managed through pre-clearance surveys, fauna handling protocols, trench management measures and construction management plans and controls. It is anticipated that impacts would be localised, short-term and restricted to the construction phase, with the extent and duration constrained by the limited footprint of

disturbance, the availability of extensive suitable habitat beyond the project site, and the implementation of targeted avoidance and mitigation measures.

Table 7.5 summarises the potential impacts of the project on the plains-wanderer.

Table 7.5 Impacts of the project on plains-wanderer

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks will result in temporary disturbance to habitat during the construction phase. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Disturbed areas will be reinstated immediately following construction, with recovery expected to occur within a short period given the disturbance-adapted nature of these vegetation communities and the utilisation of stripped topsoils and associated seedbank. No permanent barriers to movement or long-term loss of habitat is anticipated.
Loss of habitat features	Vegetation clearing will temporarily change the structural composition of the ground layer on which the species is dependent. However, this vegetation is fast-growing and naturally experiences some seasonal growth and senescence in response to varying rainfall. No long-term loss of habitat features is anticipated
Disturbance of breeding places	Vegetation clearing may directly impact on nests and roost sites for the plains-wanderer.
Fauna injury and/or mortality	The project has the potential to cause direct injury and/or mortality during vegetation clearing prior to trenching in the absence of mitigation, as well as vehicle strikes on access tracks associated with the increase in vehicle movements during construction.
Habitat abandonment	The addition of tall structures can lead to abandonment of habitat due to the species' known behaviour of avoiding such structures (e.g. fences, temporary accommodation facility, stockpiles, etc.) and human activity. Tall structures can provide perching substrate for avian predators. This may occur during construction activities, imposed by stockpiles and fencing; or during operation, with the introduction of KP markers and warning signage. Any potential habitat avoidance would be localised and temporary in nature, largely confined to the construction phase, and is not expected to result in lasting displacement or functional loss of habitat at a population scale.
Indirect impacts	
Edge effects and habitat fragmentation	Due to the low, sparse nature of most existing vegetation, edge effects will be relatively minor with negligible change in microclimatic conditions and light levels resulting from vegetation clearing. Given the buried, linear nature of the pipeline, long-term habitat fragmentation risk is considered to be negligible.
Barrier/permeability changes	As the pipeline will be buried, it will not have any lasting barrier effects. The movement of birds will be locally restricted during construction; however, this impact will be minimised given that the pipeline will be constructed in 50 km long sections.
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may increase predation by raptors, cats and wild dogs when moving across gaps. In addition, the placement of KP markers along the pipeline alignment may increase predation by creating artificial perches. Any increase in predation risk is expected to be minor and short-term, reflecting temporary changes during construction rather than a sustained increase in predator efficiency or abundance.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits. APA pipeline technicians will occasionally travel the alignment, creating the potential for very infrequent vehicle disturbance.

Potential impact	Description
Changed fire and grazing dynamics	Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.6 outlines the recommended measures to mitigate the potential impacts of the project on the plains-wanderer.

Table 7.6 Recommended mitigation measures for the plains-wanderer

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal	– Areas of adjacent mapped plains-wanderer habitat are to be protected by erosion and sediment controls during construction works. – Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of CRoW boundary using highly visible pegs or markers at regular intervals, with all contractors to be inducted on these boundaries. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – GPS-enabled machinery and geofenced construction boundaries. – Undertake progressive reinstatement and permit natural regrowth of temporary disturbance areas as soon as practicable following the completion of works. – Clearing to proceed sequentially to minimise the length of the active construction zone. – Pre-clearance surveys for plains-wanderer individuals and potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Locate storage areas/access tracks within existing disturbed areas where practicable.	APGA, 2021 DES, 2024 DCCEEW, 2016
Fauna injury and/or mortality	– Pre-clearance surveys for plains-wanderer individuals and potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Prepare a translocation method statement to outline measures to be taken to remove and translocate any nests found within the construction zone during preclearance surveys. Nest translocation would only be considered as a last resort where avoidance is not practicable and would be implemented solely under expert advice and the relevant regulatory approvals. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake daily inspections of trenches. – Any fauna handling must be conducted under the relevant permits. – Prepare a high-risk SMP for the plains-wanderer, in accordance with NC Act requirements. – Prepare and implement incident response protocols for any wildlife injury or mortality encountered during construction. – Implement trench management measures, including daily inspections of trenches and twice daily in the event of extreme heat waves.	APGA, 2021 DES, 2024 DEHP, 2015 DCCEEW, 2016

Potential impact	Mitigation measures	Standards
Habitat abandonment	– Limit the number of pipe stockpiles to two. – No construction or operation phase fencing is proposed to reduce this risk, with the exception of the aboveground infrastructure. – Limit the height of KP markers and warning signage to the lowest height allowable under AS2885 (i.e. reduce to 1.5 m or less if possible).	APGA, 2021 DES, 2024 DCCEEW, 2016
Indirect impacts		
Edge effects and habitat fragmentation	– Sensitive habitats are to be protected by erosion and sediment controls during construction works.	IECA, 2008
Barrier/permeability changes	– Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Prepare and implement adverse incident response protocols for any plains-wanderer injury or mortality or any plains-wanderer nests encountered during construction. – Implement measures to prevent fauna entrapment in trenches/pipe sections. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake daily inspections of trenches. – Any fauna handling must be conducted under the relevant permits.	APGA, 2021 DES, 2024 DCCEEW, 2016
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Minimise post height to reduce the potential roosting value for raptor species. – Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management (i.e. Felixer grooming traps) in areas of plains-wanderer habitat during construction. Active feral cat management would be targeted to areas of plains-wanderer habitat affected by construction activities and implemented in consultation with landholders and Bullo Shire Council. – Enforce strict hygiene, water storage, and waste management and removal protocols to prevent build-up of supplemental food and water sources for feral predators. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food scraps, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DCCEEW, 2016

Potential impact	Mitigation measures	Standards
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Limit onsite maintenance to daylight hours wherever feasible to reduce light and noise impacts on nocturnal fauna. – Restrict night-time driving through areas of plains-wanderer confirmed habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns) and access tracks/passing locations outside of vegetated areas where possible, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures. – Maintain existing grazing and fire management practices.	APGA, 2021 DES, 2024 DCCEEW, 2016

Significant residual impact assessment

The project has the **potential** to result in a significant residual impact on the plains-wanderer as presented in Table 7.7.

This assessment has been made based on the following factors:

– The detection of the species from five independent locations within the project site, is significant, given that the species has only been recorded from one other known location in Queensland in the last decade (Astrebla Downs and an adjacent pastoral station). Noting that the concentration of records reflects the application of targeted survey effort in a region with historically limited survey coverage rather than an indication of high local population density.

– The species' reliance on habitat structure rather than specific floristic composition, makes it potentially susceptible to direct and indirect construction impacts that influences the quality of nesting and foraging habitat. A trait that also enables it to utilise a shifting mosaic of suitable habitat in the surrounding arid and semi-arid landscapes.

– The ecosystems and species habitat in arid and semi-arid Queensland is spatially dynamic and naturally fluctuating depending on rainfall, grazing pressure and seasonal variations, such that it is resilient to change and adverse/ harsh conditions. This habitat type is extensively available surrounding the project site.

– The species' ground-dwelling nature makes it susceptible to predation, with vegetation clearing and temporary structures associated with pipeline construction (stockpiles, fences etc) capable of increasing both predator perch locations and exposure to predation in cleared areas, as well as potentially increasing abandonment of adjacent habitats due to temporary structure heights.

– The species' small population size, low density and patchy distribution make it susceptible to localised decline from chance events

– The temporary, localised and reversible nature of construction-phase disturbance associated with a buried linear infrastructure project and short disturbance timeframes.

– The implementation of comprehensive, species-specific mitigation and rehabilitation measures designed to avoid direct mortality, maintain habitat connectivity and minimise indirect effects such as disturbance and predation risk.

Table 7.7 Significant residual impact assessment – plains-wanderer

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will result in the temporary removal of approximately 620.7 ha of habitat. However, this habitat is peripheral, episodically used and represents a small percentage of suitable habitat available to the species within the broader landscape in a region where suitable habitat is broadly distributed and temporality dynamic. Plains-wanderers typically occur at low densities across open grassland habitats, with population dynamics primarily driven by large-scale climatic conditions and vegetation structure rather than localised temporary disturbance or floristic composition (DAWE, 2021). Given the temporary nature of impacts associated with a buried pipeline with minimal surface structures, the small proportion of habitat affected amongst the extensive comparable habitat that surrounds the project site, the project is unlikely to result in a long-term decrease in the size of the local population.
Reduce the extent of occurrence of the species	**Unlikely** The temporary and localised disturbance of 620.7 ha represents a small proportion of suitable habitat within the surrounding landscape. Plains-wanderer occupancy in arid Queensland typically occurs at low density, is episodic, condition-dependent and spatially dynamic, that is strongly influenced by fine-scale habitat condition rather than landscape extent alone (Commonwealth of Australia, 2016). Given the temporary nature of disturbances associated with a buried pipeline, staged construction, progressive reinstatement, and the availability of extensive comparable habitat beyond the CRoW, impacts and potential abandonment of habitats within the project site and habitats directly adjacent are likely to be restricted to the construction phase. Once complete, and the reinstated topsoil and seedbank germinate and grassland habitat replenishes, occupancy of the project site is anticipated to return. With no long-term or residual reduction in the area of occupancy for the species along the majority of the alignment. Based on this the project is unlikely to result in a permanent or sustained reduction in the extent of the species' occurrence.
Fragment an existing population	**Unlikely** Construction activities, both direct and indirect, may temporarily alter movement patterns and abandonment of habitats at a local scale; however, impacts will be short-term and confined to a narrow, linear corridor. The pipeline will be buried, no permanent fencing and minimal permanent infrastructure will be established, and disturbed areas will be reinstated following construction, using the stripped topsoil and associated seedbank. Clearing widths are not expected to exceed the species' movement capacity, and connectivity between suitable habitat patches will be maintained. As such, any potential movement obstacles will be restricted to the construction phase, with no permanent barriers anticipated and occupancy of the project site likely to return once the grassland and associated habitat replenish. As a result, it is unlikely that the project will permanently fragment an existing population.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the temporary nature of disturbance from construction activities and the species' known use of episodic, condition-dependent habitat, genetic isolation is not expected due to retained connectivity across surrounding habitat and habitat patches.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Weed and pest management measures, including vehicle hygiene protocols, will be implemented during construction. As a ground-dwelling species, the plains wanderer is susceptible to predation from feral predators including cats and foxes (DoE, 2015d). Roads are known to facilitate movement of feral predators (Raiter et al., 2018). Construction of the CRoW has the potential to increase feral predation pressures by facilitating movement of cats. However, in this environment, where vegetation is sparse and patchily distributed, the creation of the CRoW is unlikely to significantly increase predation densities. Pest management will be applied and can be used to reduce the predation pressures.

Impact criteria	Description
Introduce disease that may cause the population to decline	**Unlikely** Disease is not identified as a key threat to plains-wanderer in the species' national recovery plan or conservation advice (Commonwealth of Australia, 2016). While emerging research indicates that some avian pathogens can occasionally affect non-traditional hosts (beak and feather disease virus), there is no evidence that disease is currently limiting plains-wanderer populations. Standard biosecurity protocols will be applied to all personnel and equipment entering habitat. Accordingly, the project is unlikely to introduce or exacerbate disease at a scale capable of contributing to population decline.
Interfere with the recovery of the species	**Unlikely** Recovery objectives for the plains-wanderer focus on maintaining and enhancing open grassland habitat across its range (Commonwealth of Australia, 2016). With only 620.7 ha of habitat loss, and extensive intact habitat remaining, and structural rehabilitation planned, the project is unlikely to interfere with these recovery objectives at a landscape scale. The project site supports extensive *Astrebla spp.* grasslands and sparse herblands that provide suitable seasonal habitat for the species, and these vegetation types are naturally resilient, with recovery expected following temporary pipeline disturbance. The national recovery plan for the plains-wanderer (Commonwealth of Australia, 2016) notes that moderate disturbance can maintain or improve habitat suitability by preventing vegetation over-thickening. There is, however, potential for short-term disruption to breeding if construction activities coincide with active nests, as the species can breed opportunistically throughout the year. Targeted pre-clearance surveys, adaptive timing of works, and avoidance buffers around any detected nests will be required to minimise this risk. With only a relatively small area of habitat affected within a radius of extensive intact habitat remaining, and reinstatement to restore open grassland structure, the project is not expected to result in long-term habitat degradation or to interfere with the species' recovery.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Potential** The project will clear approximately 620.7 ha of potentially suitable grassland habitat. However, the pipeline will be buried, surfaces reinstated with the stripped topsoil and seedbank, and natural vegetation allowed to regenerate for most of the impacted areas (except for permanent surface structures and infrastructure). The majority of these impacts are temporary and anticipated to regenerate well post-construction, albeit that within the arid zone, the timing of recovery is dependent on available rainfall and may experience protracted recovery in low rainfall conditions. Evidence indicates that plains-wanderer habitat in arid and semi-arid systems is naturally dynamic and resilient to short-term disturbance, with open, low-biomass vegetation structure capable of being re-established rapidly following reinstatement, particularly if seedbanks in the stripped soils can regenerate. Post-construction reinstatement is anticipated to restore key habitat attributes, including high bare-ground cover, sparse low vegetation and low litter accumulation. Given the temporary disruption to ecologically significant locations, the project is not expected to result in a sustained or landscape-scale decline in the availability or function of these locations given the extensive availability of comparable habitat in the surrounding landscape, and the species' known use of episodic, condition-dependent habitat. Given the species reliance on low grassland vegetation with high proportions of bare ground that is episodic, and resilient to harsh naturally occurring events (drought, flood, etc.) that is capable of regeneration in a matter of months following disturbance, there is potential for these impacts to be reliably managed to low residual levels.

Impact criteria	Description
	Plains-wanderer breeding in arid and semi-arid Queensland is episodic and strongly dependent on favourable seasonal conditions rather than occurring at fixed breeding locations. Breeding success is closely linked to suitable habitat structure and seasonal environmental conditions (DAWE 2021). Breeding for the species is strongly rainfall driven and most commonly occurs following the wetter months from August to December (DAWE 2021). However, they are opportunistic breeders, and nesting may occur at any time of year when conditions are favourable. If these seasonal conditions dictate that the habitat structure within and directly adjacent to the disturbance footprint are suitable for nesting and display during the construction phase, the direct and indirect disturbances created by the project could disrupt breeding through the temporary altering of suitable grassland structure required, abandonment of habitat from construction infrastructure and activities and by interfering with vocalisation-based mate attraction and pair formation. Plains-wanderer nests are shallow ground scrapes; eggs may also be vulnerable to damage or abandonment if construction activities occur near active nests. A translocation method statement will be prepared and used to guide the translocation of any nests found during pre-clearance surveys; however, nest translocation would only be considered as a last resort where avoidance is not practicable and would be implemented solely under expert advice and the relevant regulatory approvals. The proposed habitat loss is proportionally small (620.7 ha) relative to the extent of suitable habitat within the broader landscape. Construction scheduling and post-construction habitat reinstatement means impacts are temporary, restricting these potential breeding disruptions to the construction phase.
Conclusion	Based on the assessment outcomes the project is considered to have the potential to result in a significant residual impact on the plains-wanderer.

Southern whiteface

Avoidance

Targeted field surveys were commissioned to map the distribution of HBTs to avoid areas of potential roosting and nesting habitat for the southern whiteface. To minimise environmental impact, the project footprint has been progressively refined through detailed field surveys and micro-siting to avoid critical habitat features that will not readily recover, particularly HBTs.

The pipeline alignment was reconfigured to avoid a patch of *Acacia spp.* open woodland and will utilise HDD at the Wilson River, an area identified as high-value habitat due to the presence of multiple hollow-bearing riparian trees. A footprint refinement exercise undertaken by a senior ecologist using high-accuracy Trimble GPS enabled micro-adjustments to the alignment, resulting in the avoidance of the majority of HBTs within variable grass and herb-dominated landscapes. While the pipeline alignment may still traverse the broadly suitable habitat areas, important local breeding features were largely able to be avoided.

Potential impacts

The southern whiteface is a small, primarily ground-foraging bird that inhabits open woodlands and shrublands with a grassy or herbaceous understory and scattered hollow-bearing trees (HBTs) used for nesting and roosting. Vegetation clearing, removal of microhabitat features and disturbance during construction may result in localised and temporary reductions in habitat quality, short-term displacement of individuals, or increased exposure to predators where the species occurs. Through strategic alignment refinements and micro-siting avoidance measures, the loss of hollow-bearing trees has been significantly reduced across the pipeline alignment.

Table 7.8 summarises the potential impacts of the project on the southern whiteface.

Table 7.8 Impacts of the project on southern whiteface

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width and access tracks will result in localised habitat disturbance, with most affected areas expected to be reinstated facilitating natural regeneration of vegetation post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of mature riparian trees	Vegetation clearing will result in the loss of mature established trees which take decades to centuries to re-establish. Trenchless crossings (i.e. using HDD under the Wilson River) and targeted pipeline alignment shifts will avoid direct disturbance of mature riparian vegetation (i.e. HBTs) at high-value locations. The loss of HBTs has been reduced to nine individual trees across the entire 236 km pipeline alignment, seven of which are dead stags that provide sub-optimal habitat.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Disturbance of breeding places	The removal of a small number of hollow-bearing trees may result in the localised loss of potential nesting resources for the species. The likelihood of direct interaction with active nests is low, and pre-clearance surveys and fauna management measures will minimise the risk of disturbance or injury to birds and breeding places.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the southern whiteface has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may cause the species to disperse away from the disturbance area. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.
Changed fire and grazing dynamics	Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.9 outlines the recommended measures to mitigate the potential impacts of the project on the southern whiteface.

Table 7.9 Recommended mitigation measures for the southern whiteface

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers at regular intervals, with all contractors to be inducted on these boundaries. – Sensitive habitats are to be protected by erosion and sediment controls during construction works. – GPS-enabled machinery and geofenced construction boundaries. – Undertake progressive reinstatement and promote natural regrowth of temporary disturbance areas as soon as practicable following completion of works. – Clearing to proceed sequentially to minimise the length of the active construction zone. – Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement.	APGA, 2021 DES, 2024 DCCEEW, 2023b
Loss of mature riparian trees	– Micro-siting of the pipeline alignment and use of HDD to cross the Wilson River to avoid impacts on hollow-bearing trees and minimise the loss of mature riparian trees. – Mark clearing boundaries and habitat features using appropriate methods, as applicable, such as visible and physical signage, GPS-defined clearing boundaries (eg geofencing) to control vegetation clearing, All operators will be inducted on approved clearing boundaries prior to works commencing s. – The width of the CRoW has been reduced to the smallest safe working width (20 m), to minimise the impact footprint where HBTs occur in high local densities.	DCCEEW, 2023b
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CROW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following the completion of works. – Limit onsite maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna.	APGA, 2021 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns) and access tracks/passing locations outside of vegetated areas where possible, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DCCEEW, 2023b

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the southern whiteface as presented in Table 7.10.

Table 7.10 Significant residual impact assessment – southern whiteface

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** As per above, the population within the project site has been assessed as unlikely to be an important population, with the scale and duration of the disturbance unlikely to affect population viability.
Reduce the extent of occurrence of the species	**Unlikely** As detailed above, the population within the project site has been assessed as unlikely to be an important population. The project will temporarily disturb 32.7 ha of breeding and foraging habitat and 655.7 ha of foraging habitat, a small proportion of locally used habitat within a landscape of extensive suitable habitat. Through pipeline-realignment and GPS micro siting at important waterway crossings, avoidance of HBT's and minimisation of impacts to potential breeding habitat, combined with the localised loss of foraging habitat that is abundant in the surrounding region, impacts are anticipated to be minor.
Fragment an existing population	**Unlikely** The population that utilises habitat within the project site has been assessed as unlikely to meet the definition of an important population for the species The narrow, linear footprint, buried pipeline and temporary localised impacts associated with the project, combined with lack of permanent, significant movement barriers is unlikely to impede movement or connectivity across the habitats present. Based on this, populations would remain interconnected across the landscape and are unlikely to be fragmented as a result of the projects impacts.
Result in genetically distinct populations forming as a result of habitat isolation;	**Unlikely** Given the temporary nature of disturbance from construction activities, the extensive availability of comparable habitat in the surrounding landscape, and avoidance of HBTs and minimisation of impacts to potential breeding habitat, genetic isolation is not expected due to retained connectivity across surrounding habitat.

Impact criteria	Description
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** The project will implement weed and pest management protocols (e.g. vehicle hygiene, declared weed controls). No invasive species directly threatening southern whiteface are expected to establish beyond current levels.
Introduce disease that may cause the population to decline	**Unlikely** No diseases are currently known to threaten the southern whiteface. With standard biosecurity measures in place, the project is unlikely to introduce disease into the species' habitat.
Interfere with the recovery of the species	**Unlikely** Recovery objectives focus on retaining breeding habitat (e.g. HBTs) and connected foraging resources. As residual habitat loss equates to only a small percentage of habitat loss in the greater landscape, and most high-value patches will be avoided and retained, the project is unlikely to interfere with species recovery at the landscape scale.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The project will temporarily disturb 32.7 ha of breeding and foraging habitat and 655.7 ha of foraging habitat, a small proportion of locally used habitat within a landscape of extensive suitable habitat including open woodland and shrubland with a grassy/shrubby understorey used for foraging and mature riparian vegetation with associated HBT's for potential breeding habitat. However, living or dead trees with hollows, crevices, stumps and standing dead timber used for roosting and nesting have been prioritised for avoidance as these nesting resources are slow to develop and replace (ACT Scientific Committee, 2024; DCCEEW, 2023c). To achieve this, a targeted alignment refinement survey was undertaken at all watercourse crossings and associated riparian vegetation, using high-accuracy Trimble GPS. All HBTs and significant ecological values were mapped and actively avoided where practicable, resulting in a substantial reduction in the number of HBTs requiring removal through refinement of the pipeline alignment. This realignment ultimately targeted avoidance of hollow-bearing eucalypts across the entire alignment, however, pipeline alignment adjustments also considered *Acacia* spp. with small hollows suitable for the southern whiteface, with impacts these being similarly minimised through micro-siting and refinement. The general test for significance is whether an impact is 'important, notable or of consequence, having regard to its context or intensity'. Contextually, habitat in the region is vast and highly connected, with relevant habitat resources associated with extensive waterway systems. The impact to 688.4 ha of broadly suitable habitat requiring the minimal removal of HBTs is not considered important, notable or of consequence. Particularly when considering the amount of suitable HBT's actively avoided though these surveys and those in both the direct vicinity, and broader landscape that will remain intact for future breeding resources. Overall, the refinement process has minimised the removal of HBTs and standing dead timber within ecologically significant waterway crossings, supporting greater vegetation retention, bank stability and conservation of breeding resources. When combined with staged construction and rehabilitation, the magnitude and duration of impact will be limited. While residual impacts to critical habitat may occur at a local scale, their context within the surrounding retained vegetation and available habitat means they are unlikely to be of consequence or cause disruption to ecologically significant locations for the southern whiteface.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the southern whiteface.

Pink cockatoo (eastern)

Avoidance

Targeted impact avoidance measures were undertaken for the pink cockatoo (eastern). The proposed project site has been reconfigured to utilise HDD at one key location, the Wilson River, which was identified as high-value habitat for this species due to the presence of large DBH HBTs.

To reduce environmental impacts, the pipeline alignment has been carefully refined using a high-accuracy Trimble GPS to avoid sensitive areas and additional HBTs. Design considerations also prioritize maintaining floodplain connectivity by preserving natural flood hydrology and preventing water diversion. While the pipeline alignment may still traverse broadly suitable habitat areas, important local breeding features were largely able to be avoided.

Site-specific erosion and sediment control plans have been developed to address risks associated with soil erosion, including managing dispersive soils. Biosecurity measures such as pre-clearance surveys, a dedicated weed and biosecurity management plan, and vehicle washdown stations will be implemented to reduce the introduction and spread of invasive species. Construction activities will be staged to limit simultaneous disturbance of flood out systems and minimize the length of open trenches near sensitive habitats features, further reducing the potential for adverse environmental effects.

Potential impacts

The pink cockatoo (eastern) is an endangered, long-lived bird that inhabits arid and semi-arid woodlands, relying on large, mature HBTs for nesting, access to surface water, and extensive connected vegetation for foraging and movement. HBT availability varied with waterway size, with larger waterways supporting the highest densities of HBTs in the form of *Eucalyptus camaldulensis* and *E. coolabah.* Isolated *Corymbia terminalis* were also found to potentially support suitable breeding habitat for this species. Semi-arid woodlands dominated by mulga which may provide suitable foraging habitat for the pink cockatoo (eastern) were found to be present and wooded habitat suitable for movement corridors abundant, particularly along waterways where mature eucalypts were found to occur.

Construction activities, including vegetation clearing, loss of HBTs, and disturbance of nests and roosts, may temporarily affect habitat availability, temporarily disturb breeding behaviour, locally influence movement corridors, or increase short-term exposure to predators and other threats during construction. These potential pathways are constrained by the limited footprint of the project site, the buried and linear nature of the pipeline, extensive avoidance measures, and the availability of suitable habitat beyond the construction footprint.

Table 7.11 summarises the potential impacts of the project on the pink cockatoo (eastern).

Table 7.11 Impacts of the project on the pink cockatoo (eastern)

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in the localised loss of habitat. Above-ground infrastructure is minimal; clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha) and hydrotest water dams will create short-term, localised disturbance. Where the CRoW is reinstated, ground layer habitat values are expected to recover, and long-term habitat loss will be limited, including small numbers of retained access or above-ground features where required.
Loss of mature riparian trees	Targeted alignment refinement and trenchless crossings (e.g. HDD under the Wilson River) have been used to avoid and minimise direct disturbance to mature riparian vegetation and HBTs at high-value locations wherever possible. The total loss of HBTs has been reduced to nine individual trees across the entire pipeline alignment, seven of which are standing dead stags with reduced temperature regulatory properties, providing sub-optimal and limited suitability for nesting.
Loss of habitat features	Vegetation clearing will include the removal of important habitat features, including suitably sized tree hollows. Targeted alignment refinement and trenchless crossings (e.g. HDD under the Wilson River) have been used to avoid and minimise direct impacts to HBTs at high-value locations wherever possible. The total loss of HBTs has been reduced to nine individual trees across the entire pipeline alignment, seven of which are standing dead stags with reduced temperature regulatory properties, providing sub-optimal and limited suitability for nesting. Additionally, some logs, groundcover and other microhabitat features within the construction footprint, resulting in temporary reduction in shelter and foraging opportunities for fauna.

Potential impact	Description
Disturbance of breeding places	No active or previously used breeding places (tree hollows) were observed within the disturbance footprint. Temporary disturbance to tree hollows, nests or roost sites outside of the alignment may result in short-term displacement of individuals if present during construction. The loss of HBTs has been reduced to nine individual trees across the entire pipeline alignment, seven of which are standing dead stags with reduced temperature regulatory properties, providing sub-optimal and limited suitability for nesting. Pre-clearance surveys and fauna management measures are expected to minimise the risk of direct interaction with active nests.
Fauna injury and/or mortality	Vehicle movements and clearing activities introduce a low, short-term risk of fauna injury during construction. This risk will be managed through pre-clearance surveys, speed restrictions, spotter-catcher supervision and construction protocols, and is not expected to result in population-level impacts.
Indirect impacts	
Dust and sediment drift	Road and track activity may temporarily degrade vegetation adjacent to disturbance edges, affecting habitat condition and quality at a local scale where not effectively managed.
Increased predation pressure	Clearing the CRoW may temporarily expose fauna to increased predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the pink cockatoo (eastern) has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to materially increase predation pressures for the species.
Introduction and/or spread of invasive species	Construction activities may facilitate the introduction or spread of pest animals or weeds if hygiene controls are not implemented. Disturbed areas may be more susceptible to colonisation by invasive plants; however, these risks will be addressed through biosecurity and weed management measures.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in noise, light, dust and vibration during construction activities may result in short-term behavioural avoidance of affected areas and habitats. Visual and acoustic disturbance during operation is expected to be negligible due to the buried nature of the pipeline.
Changed fire and grazing dynamics	Construction activities introduce a short-term potential for accidental fire or localised changes in grazing behaviour. Given the remote setting, absence of new water sources, and control of access, no long-term changes to fire or grazing regimes are expected.

Mitigation measures

Table 7.12 outlines the recommended measures to mitigate the potential impacts of the project on the pink cockatoo (eastern).

Table 7.12 Recommended mitigation measures for the pink cockatoo (eastern)

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers at regular intervals, with all contractors to be inducted on these boundaries. – GPS-enabled machinery and geofenced construction boundaries. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024

Potential impact	Mitigation measures	Standards
Loss of mature riparian trees	– Mark clearing boundaries and habitat features using appropriate methods, as applicable, such as visible and physical signage, GPS-defined clearing boundaries (eg geofencing) to control vegetation clearing, All operators will be inducted on approved clearing boundaries prior to works commencing. – The width of the CRoW has been reduced to the smallest safe working width (20 m) in areas supporting mature trees, to minimise the footprint and avoid additional HBTs where practicable, thereby limiting the number of trees requiring removal.	APGA, 2021 DES, 2024
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily inspections of trenches and twice daily in the event of extreme heat waves.	APGA, 2021 DES, 2024 DCCEEW, 2023a
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following the completion of works. – Limit onsite maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna.	APGA, 2021 DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns) and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DCCEEW, 2023a

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the pink cockatoo (eastern) as presented in Table 7.13.

Table 7.13 Significant residual impact assessment – pink cockatoo (eastern)

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will result in the localised disturbance of approximately 210.1 ha of breeding and foraging habitat containing HBTs that provide nesting resources. The species has a broad regional distribution and large home range (~ 30 km² per breeding pair (DSE, 2004)). Design led avoidance measures, including HDD at the Wilson River, together with alignment refinement, micro sitting and no-go zones, will retain the majority of high-value riparian habitat and HBTs. Given the limited spatial extent of disturbances, the availability of suitable habitat in the surrounding landscape and the species' mobility, a long-term decrease in regional population size is not expected.
Reduce the extent of occurrence of the species	**Unlikely** Removal of 210.1 ha of habitat represents a small proportion of the available semi-arid woodland within the broader landscape. Pink cockatoos (eastern) are highly mobile and capable of moving between widely spaced habitat patches (DSE, 2004). Extensive areas of mulga and eucalypt woodland will remain intact, and floodplain connectivity will be preserved. Accordingly, the project is unlikely to result in a measurable reduction in the species' area of occupancy at a landscape scale.
Fragment an existing population into two or more populations	**Unlikely** The project site is linear and narrow (<40 m in most areas) and will not create barriers exceeding the species' dispersal capability. HDD will maintain continuity of a key riparian corridor important for movement and access to mature HBTs (nesting trees) (DCCEEW, 2023d). Surrounding wooded habitat will continue to function as movement corridors; therefore, fragmentation of the population into isolated sub-populations is not expected.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the temporary nature of disturbance from construction activities, the availability of comparable habitat in the surrounding landscape, and avoidance of HBTs and minimisation of impacts to potential breeding habitat, genetic isolation is not expected due to retained connectivity across surrounding habitat.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** A project-specific weed and biosecurity management plan, vehicle washdown stations, and pre-clearance surveys will be implemented to prevent the introduction or spread of invasive plants and predators. These measures are expected to maintain existing threat levels and avoid establishment of new harmful invasive species.
Introduce disease that may cause the population to decline	**Unlikely** Disease is not recognised as a key threat to the pink cockatoo (eastern) in the current conservation advice (DCCEEW, 2023d). With standard biosecurity protocols for personnel, equipment and materials, the project is unlikely to introduce or exacerbate disease at a scale capable of contributing to population decline.

Impact criteria	Description
Interfere with the recovery of the species	**Unlikely** Recovery objectives emphasise retention of large HBTs, maintenance of connected woodland, and protection of movement corridors (DCCEEW, 2023d). While a small number of HBT will be lost. As discussed above, the majority of high-value riparian vegetation will be retained, and connectivity will be preserved. Given the localised extent of removal relative to the surrounding habitat, the project is unlikely to interfere at the regional scale.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	Recognising their ecological importance, targeted field surveys were undertaken to map and avoid HBTs through both refinements and micro siting of the pipeline alignment, and the use of HDD to avoid high-value riparian habitats. This achieved substantial avoidance of potential nesting resources, resulting in a total residual loss of nine HBTs across the entire alignment, seven of these trees being dead stags with reduced temperature regulatory properties, providing sub-optimal and limited suitability for nesting. The survey and realignment process demonstrates a strong commitment to impact avoidance and minimisation. The significance of the loss of nine HBTs was considered in context, including the proportion of trees removed relative to availability within the broader waterway corridors. In each circumstance, the approach to avoidance considered the contextual impact on resource availability. HBT availability varied with waterway size. Larger waterways, which required more clearing, supported the highest densities of HBTs; removal of one to two hollows in living trees in these areas represents a small proportion of available habitat. Smaller waterways supported few suitable trees, and alignment adjustments were prioritised to avoid HBT removal entirely. When considering the context of the broader waterway corridors, where additional HBTs are available, the removal of these nine hollows is unlikely to be of consequence to the local hollow availability. Additionally, construction timing controls, pre-clearance surveys and the engagement of fauna spotter/ catchers during vegetation clearing, will further reduce the likelihood of disturbance to active nests. Combined with the project site's location outside of the core distribution of the species, within the 'Habitat may occur' mapping (DCCEEW, 2023d). It is unlikely that the project will disrupt ecologically significant locations.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the pink cockatoo (eastern).

Blue-winged parrot

Avoidance

Targeted impact avoidance measures were undertaken for this species. The project site has been reconfigured to utilise HDD at one key location, the Wilson River, which was identified as high-value habitat for this species due to the presence of large DBH HBTs. To reduce environmental impacts, the pipeline alignment has been carefully refined using a high-accuracy Trimble GPS to avoid sensitive areas and additional HBTs.

Designs will maintain floodplain connectivity by preserving natural flood hydrology and preventing water diversion. Site-specific ESCPs will address soil erosion and dispersive soils. Weed and biosecurity risks will be managed through pre-clearance surveys, a dedicated management plan, and vehicle washdown stations.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance and habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary changes to foraging habitat quality, short-term disturbance to foraging flocks, or temporary alteration of local habitat conditions during construction.

Table 7.14 summarises the potential impacts of the project on the blue-winged parrot.

Table 7.14 Impact of the project on blue-winged parrot

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result localised disturbance to habitat, with the majority of affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of mature riparian trees	Vegetation clearing will result in the loss of mature established trees which take decades to centuries to re-establish. Trenchless crossings (i.e. using HDD under the Wilson River) and targeted pipeline alignment shifts will avoid direct disturbance of mature riparian vegetation (i.e. HBTs) at high-value locations. The loss of HBTs has been reduced to nine individual trees across the entire pipeline alignment, seven of which are dead stags that provide sub-optimal habitat.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Fauna injury and/or mortality	Vehicle movements and vegetation clearing during construction introduce a low, short-term risk of fauna injury. This risk will be managed through pre-clearance surveys, speed restrictions, spotter-catcher supervision and construction protocols, and is not expected to result in population-level impacts.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the blue-winged parrot has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.
Changed fire and grazing dynamics	Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.15 outlines the recommended measures to mitigate the potential impacts of the project on the blue-winged parrot.

Table 7.15 Recommended mitigation measures for the blue-winged parrot

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators are to be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DAWE, 2021
Loss of mature riparian trees	– Use GPS-defined clearing boundaries (e.g. geofencing) to control clearing near hollow-bearing trees, with all contractors and operators inducted on the approved GPS clearing limits prior to works commencing. – The width of the CRoW has been reduced to the smallest safe working width (20 m), to minimise the impact footprint, avoid HBTs, and minimise the number of HBTs required to be removed.	DAWE, 2021
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DAWE, 2021

Potential impact	Mitigation measures	Standards
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following the completion of works. – Limit onsite maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna.	APGA, 2021 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns), and access track/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DAWE, 2021

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the blue-winged parrot as presented in Table 7.16.

Table 7.16 Significant residual impact assessment – blue-winged parrot

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The blue-winged parrot is a highly mobile partial migrant with a broad inland distribution, occurring across southern Victoria, south-eastern South Australia, Tasmania, and inland NSW and Queensland during non-breeding dispersals (BirdLife International, 2023; DCCEEW, 2023b). The project will clear 1117.6 ha of foraging habitat for the blue-winged parrot which is a small percentage of the habitat available in the greater landscape. Given the species' mobility and the wide regional availability of similar habitat, this local loss is unlikely to lead to a long-term decrease in population size (DCCEEW, 2023b).
Reduce the extent of occurrence of the species	**Unlikely** Localised clearing will not meaningfully shrink the area of occupancy, as the species persists across a vast, continuous range with similar habitat available elsewhere (BirdLife International, 2023). The project's activities will be restricted to a 40 m wide CRoW and will not lead to the disappearance of the species from any 2 km x 2 km area, the scale at which area of occupancy is measured.
Fragment an existing important	**Unlikely** Blue-winged parrots regularly move large distances, with some individuals crossing Bass Strait (DAWE, 2021). The small, linear project site of the project will not create barriers or fragment populations into isolated subpopulations (BirdLife International, 2023).
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the temporary nature of disturbance from construction activities, the availability of wide regional available habitat in the surrounding landscape, genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Standard weed and pest management measures will be implemented. No mechanism exists for the project to increase invasive species at levels that could harm blue-winged parrots.

Impact criteria	Description
Introduce disease that may cause the population to decline	**Unlikely** No known disease threats to blue-winged parrots will be exacerbated by the project, and no pathway for disease introduction has been identified.
Interfere with the recovery of the species	**Unlikely** Given the localised habitat loss, abundance of foraging habitat in the region, and absence of breeding impacts, the project is unlikely to interfere with recovery efforts.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The species breeds mainly in southern regions well outside the project site, so no impacts to breeding habitat or the breeding cycle are expected (BirdLife International, 2023; DCCEEW 2023b). The project will result in the localised disturbance of foraging and staging habitat used by the blue-winged parrot during non-breeding movements. However, impacts and disturbance to the majority of this area will be temporary in nature, and while these habitat attributes are important at a local scale, they are widespread and extensively available across the surrounding landscape, with the proposed clearing representing only a small proportion of the available foraging habitat in the broader landscape. Given the species' mobility and the wide regional availability of similar habitat, the local loss of habitat is unlikely to cause disruption to ecologically significant locations.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the blue-winged parrot.

Painted honeyeater

Avoidance

The project footprint has been revised to avoid an acacia woodland patch with mistletoe, a vital food source for the painted honeyeater. While the pipeline alignment may still traverse the broadly suitable habitat areas, important local foraging features were largely able to be avoided.

HDD will be used at one key riparian site, the Wilson River, to minimise habitat disturbance. HDD crossings will reduce surface impact, with natural bed and bank restoration planned. Floodplain connectivity will be maintained by preserving natural hydrology. Erosion, sediment, weed, and biosecurity risks will be managed through targeted controls, including pre-clearance surveys and vehicle washdowns. Staged construction will limit disturbance duration and extent near sensitive habitats, minimising impacts on critical painted honeyeater habitat.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance and habitat modification within the CRoW and associated infrastructure areas, may result in localised and reductions in the availability or quality of mistletoe-bearing habitat, disturb foraging individuals, or temporarily alter local woodland conditions during construction.

Table 7.17 summarises the potential impacts of the project on the painted honeyeater

Table 7.17 Impacts of the project on the painted honeyeater

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width and access tracks will result in localised disturbance to and loss of potential habitat, with the majority of affected areas expected to be reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will involve the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.

Potential impact	Description
Disturbance of breeding places	The project site is outside the core breeding distribution. The habitats present in the project site have been assessed as unlikely to provide breeding habitat for the species. The likelihood of direct interaction with active nests is low and will be managed through pre-clearance surveys and fauna management protocols.
Fauna injury and/or mortality	Vehicle movements and vegetation clearing during construction introduce a low, short-term risk of fauna injury. This risk will be managed through pre-clearance surveys, speed restrictions, spotter-catcher supervision and construction protocols, and is not expected to result in population-level impacts.
Increased competition	Loss of habitat within the CRoW may increase competition for remaining food and shelter resources in adjacent habitat patches.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the painted honeyeater has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Changed fire and grazing dynamics	Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.18 outlines the recommended measures to mitigate the potential impacts of the project on the blue-winged parrot.

Table 7.18 Recommended mitigation measures for the painted honeyeater

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of CRoW boundary using highly visible pegs or markers. – Locating storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators are to be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2021b

Potential impact	Mitigation measures	Standards
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily inspections of trenches and twice daily in the event of extreme heat waves.	DCCEEW, 2021b
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement. • monitoring and adaptive management of weed spread. • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility. • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DCCEEW, 2021b
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DCCEEW, 2021b

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the painted honeyeater as presented in Table 7.19.

Table 7.19 Significant residual impact assessment – painted honeyeater

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The painted honeyeater is a highly mobile, nomadic frugivore closely tied to the seasonal availability of mistletoe fruit (DoE, 2015c). Most suitable habitat within the broader landscape lies outside the project site, with only 330.9 ha of foraging habitat (mistletoe-bearing trees) affected. This represents a small proportion of the available habitat in the surrounding landscape. Given the abundance of foraging resources across the region and the species' mobility, the project is unlikely to cause long-term population decline.
Reduce the extent of occurrence of the species	**Unlikely** The painted honeyeater occupies a large range across inland eastern Australia, moving in response to flowering and fruiting cycles (DoE, 2015c). The small-scale habitat removal associated with the project will not reduce the species' area of occupancy at a landscape scale.
Fragment an existing important	**Unlikely** Given the species' capacity for long-distance movements and its ability to forage across fragmented landscapes (DoE, 2015c), the project site will not isolate or fragment the population.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the temporary nature of disturbance from construction activities, the availability of wide regional available habitat in the surrounding landscape and no breeding habitat within the project site, genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Predators such as cats already occur within the region. Ongoing feral animal control programs will continue through the life of the project, minimising any risk of increased predation pressure. Erosion, sediment, weed, and biosecurity risks will be managed through targeted controls, including pre-clearance surveys and vehicle washdowns.
Introduce disease that may cause the population to decline	**Unlikely** No diseases are currently known to pose a threat to the painted honeyeater (DoE, 2015c). The project will not create pathways for disease introduction.
Interfere with the recovery of the species	**Unlikely** The painted honeyeater is highly mobile and relies on scattered mistletoe resources across a broad landscape (DoE, 2015c). The project involves minor habitat loss within an area with limited habitat suitability, with abundant foraging habitat remaining regionally. The project is therefore unlikely to interfere with recovery efforts for the species.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** Whilst there are mistletoe-bearing acacias and eucalypts that provide foraging resources for the painted honeyeater; mistletoe within the project site occurs at low and scattered densities. HDD will be used at the Wilson River to minimise riparian disturbance, and most higher-quality foraging habitat occurs outside the project site. The removal of 339.9 ha of potential foraging habitat, including a few mistletoe-bearing trees that provide foraging resources for the painted honeyeater (DoE, 2015c represents only a small fraction of available habitat. With abundant habitat across the region, the project will not disrupt ecologically significant locations.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the painted honeyeater.

Sharp-tailed sandpiper

Avoidance

Construction activities may occur across both dry and wet seasonal conditions. Potential disturbance to migratory shorebirds and associated aquatic prey resources will be managed through construction staging, avoidance of sensitive areas where practicable, and the implementation of site-specific erosion and sediment control measures. These controls will minimise sediment mobilisation and protect water quality and aquatic habitats during variable seasonal conditions.

The pipeline alignment was refined to avoid deeper high value channels at one key riparian location, the Wilson River, likely to represent HCSS for sharp-tailed sandpiper foraging and migration. HDD will be used to pass beneath these sensitive, high-value habitats, reducing direct disturbance to surface hydrology, downstream habitats, and foraging areas.

Pre-clearance weed surveys, implementation of a biosecurity management plan, and vehicle wash-down procedures will reduce the risk of invasive species introduction or spread. Construction staging will limit the extent of simultaneous disturbance and minimise the length of open trenches near riparian and wetland habitats that may be used opportunistically by migratory shorebirds.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance and habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary disturbance to wetland and floodplain habitats, minor short-term alterations of local hydrological conditions, or disturbance of transient individuals using these areas during construction.

Table 7.20 summarises the potential impacts of the project on the sharp-tailed sandpiper.

Table 7.20 Impacts of the project on the sharp-tailed sandpiper

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in the localised disturbance to habitat, with most affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will involve the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation.
Alteration of hydrology at creek/ floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the sharp-tailed sandpiper has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.

Potential impact	Description
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.21 outlines the recommended measures to mitigate the potential impacts of the project on the sharp-tailed sandpiper.

Table 7.21 Recommended mitigation measures for the sharp-tailed sandpiper

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators are to be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2024a
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2024a
Alteration of hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank, and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Design crossings to maintain floodplain connectivity and natural hydrology. – Implement flood and storm contingency procedures.	IECA, 2008 DES, 2024

Potential impact	Mitigation measures	Standards
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DCCEEW, 2024a
Altered hydrological function and flood behaviour	– Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Place stripped soils outside waterways and stabilise using erosion controls.	DCCEEW, 2024a IECA, 2008
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit construction to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following the completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the sharp-tailed sandpiper as presented in Table 7.22.

Table 7.22 Significant residual impact assessment – sharp-tailed sandpiper

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The sharp-tailed sandpiper is a highly mobile migratory shorebird using a wide variety of inland and coastal wetlands during the non-breeding season, including temporary and artificial wetlands (BirdLife Australia, 2021; DCCEEW, 2023e). Most suitable habitat within the broader landscape lies outside the project site, with only 281.3 ha of potential foraging habitat affected, representing a small percentage of available within the landscape. Additionally, there is no nationally or internationally important habitats, as listed in the *National Directory of Important Shorebird Habitat* (DCCEEW, 2025) that occurs within the project site that is likely to support and ecologically significant proportion of the population. Given its extensive range, nomadic habitat use, and the abundance of alternative foraging sites regionally, the project is unlikely to cause long-term population declines.
Reduce the extent of occurrence of the species	**Unlikely** The species' widespread distribution across inland and coastal Australia during the non-breeding season (BirdLife Australia, 2021) and the small scale of disturbance relative to available habitat means the area of occupancy will not be significantly affected.
Fragment an existing population	**Unlikely** The sharp-tailed sandpiper undertakes long-distance migrations and exhibits high mobility within Australia (DCCEEW, 2023e). The project site will not create barriers to movement or fragment populations, given its small scale and the species' capacity to use multiple wetland sites across the landscape.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the high mobility of the species and the species breeding location in the Northern hemisphere (Siberia), genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** The project includes no mechanisms for introducing or increasing invasive species beyond those already present in the area. Ongoing feral animal management programs will continue throughout the project lifespan.
Introduce disease that may cause the population to decline	**Unlikely** There are no known disease threats to the sharp-tailed sandpiper in Australia (DCCEEW, 2023e). The project will not create any new vectors for disease introduction.
Interfere with the recovery of the species	**Unlikely** Given the small scale of habitat loss, the lack of nationally and internationally important habitats or ecologically significant proportions of the population, the availability of extensive alternative wetlands, and the species' capacity to exploit ephemeral and artificial waterbodies, the project is unlikely to interfere with recovery efforts (BirdLife Australia, 2021; DCCEEW, 2023e).
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The species breeds in the Northern Hemisphere (Siberia) and migrates to Australia during the non-breeding season, arriving from August and departing by April (DCCEEW, 2023e). The sharp-tailed sandpiper utilises shallow inland wetlands, floodplains and vegetated margins for foraging and roosting during the non-breeding season (BirdLife Australia, 2021). There are no nationally or internationally important habitats, as listed in the *National Directory of Important Shorebird Habitat* (DCCEEW 2025) that occur within the project site that would constitute ecologically significant locations. Habitat within the project site represents potential and transient foraging or roosting As such, the project is unlikely to cause disruption to ecologically significant locations.

Impact criteria	Description
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant impact on the sharp-tailed sandpiper.

Curlew sandpiper

Avoidance

The footprint has been refined to avoid deeper high value channels at two key riparian locations that may provide locally important foraging habitat during the non-breeding season, the Wilson River and one unnamed channel that may provide temporary foraging habitat during the non-breeding season. HDD will be used to pass beneath these high-value habitats, reducing direct disturbance to surface hydrology, downstream habitats, and foraging areas.

Additional mitigation measures include clearly defined no-go zones around riparian buffers, site-specific ESCPs to prevent habitat degradation, and a staged construction approach to limit open trench lengths near potential foraging sites. These measures further reduce the likelihood of disturbance to transient curlew sandpipers and support the conclusion that significant impacts are unlikely.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary disturbance to wetland, floodplain and riparian habitats, minor short-term alterations to local hydrological conditions, or disturbance of transient individuals using these areas during construction.

Table 7.23 summarises the potential impacts of the project on the curlew sandpiper.

Table 7.23 Impacts of the project on the curlew sandpiper

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to habitat, with most affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts.
Alteration of hydrology at creek/ floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the curlew sandpiper has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation/spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.

Potential impact	Description
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.24 outlines the recommended measures to mitigate the potential impacts of the project on the curlew sandpiper.

Table 7.24 Recommended mitigation measures for the curlew sandpiper

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Locating storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing. Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2023d
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2023d
Altered hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Design crossings to maintain floodplain connectivity and natural hydrology. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008).	IECA, 2008 DES, 2024
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008

Potential impact	Mitigation measures	Standards
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators	DES, 2024 DEHP, 2015 DCCEEW, 2023d
Altered hydrological function and flood behaviour	– Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	IECA, 2008 DCCEEW, 2023d
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit construction to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the curlew sandpiper as presented in Table 7.25.

Table 7.25 Significant residual impact assessment – curlew sandpiper

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The curlew sandpiper is a long-distance migrant breeding in the Siberian Arctic and using Australian coastal and inland wetlands during the non-breeding season (Higgins & Davies, 1996; DCCEEW, 2023f). The project will result in the localised removal of 281.3 ha of potential roosting and foraging habitat, representing a small percentage of available habitat within the broader landscape. The species exhibits high site fidelity at key non-breeding sites (Rogers et al., 2008), but regional-scale analyses show widespread habitat use across Australia, particularly during inland flood events (Studds et al., 2017). Additionally, there is no listed nationally or internationally important habitats within the project site, with habitats present not supporting an ecological significant proportion of the population Given the small, localised scale of impacts, the abundance of alternative wetlands in the broader landscape and lack of important habitats, the project is unlikely to cause long-term population decline.

Impact criteria	Description
Reduce the extent of occurrence of the species	**Unlikely** Curlew sandpipers occupy numerous wetlands across inland and coastal Australia each year (DCCEEW, 2023f). The proposed habitat loss constitutes only a small percentage of available habitat in the local landscape and will not reduce the species' occupancy from within the 2 km x 2 km scale at which area of occupancy is measured. The species' high mobility and use of multiple foraging sites during the non-breeding season further reduces the likelihood of any decline in area of occupancy (DCCEEW, 2023f).
Fragment an existing population	**Unlikely** The curlew sandpiper undertakes annual migrations exceeding 10,000 km, with documented stopovers across northern and inland Australia (Higgins & Davies, 1996; Rogers et al., 2008). The project site is too small to impede movements or isolate habitats at a scale that could fragment populations. Remaining habitat connectivity within the region exceeds thresholds considered ecologically significant for migratory shorebirds (DCCEEW, 2023f).
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Curlew sandpipers breed exclusively in the Arctic tundra and do not breed in Australia (Higgins & Davies, 1996; Hong-Yan et al., 2011), as such genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Feral animal control programs for foxes, cats, and pigs are active in the region, and no new vectors for invasive species establishment will be created by the project (DCCEEW, 2023f). Ongoing weed and pest management will be implemented through the project's Environmental Management Plan.
Introduce disease that may cause the population to decline	**Unlikely** No diseases have been identified as a key threat to curlew sandpipers in Australia (DCCEEW, 2023f). Standard biosecurity protocols will be adopted to prevent incidental disease transmission.
Interfere with the recovery of the species	**Unlikely** Key recovery objectives for the curlew sandpiper under conservation advice include protecting non-breeding habitat, managing disturbance, and mitigating hydrological changes (DCCEEW, 2023f). The project site does not support any listed national or international important habitat habitats (DCCEEW, 2025). The project will avoid high-value wetland habitats using HDD, minimise seasonal disturbance, and impact only 281.3 ha of potential habitat out of a much larger regional network. As such, it is unlikely to interfere with recovery objectives.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The curlew sandpiper utilises intertidal mudflats, sandy and shelly substrates, saltmarshes and shallow inland wetlands for foraging and roosting during the non-breeding season. Within the project site, the habitats present are likely to provide opportunistic and transient foraging and roosting habitat during migration. Additionally, there is no nationally or internationally important habitats, as listed in the *National Directory of Important Shorebird Habitat* (DCCEEW 2025) that occurs within the project site that is likely to be considered ecologically significant. As such, the project is unlikely to cause disruption to ecologically significant locations.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact to the curlew sandpiper.

Common greenshank

Avoidance

The footprint has been refined to avoid deeper, high-value channels at one key riparian location that may provide locally important foraging habitat during the non-breeding season, the Wilson River.

Further mitigation measures include the establishment of no-go zones around sensitive riparian habitats, ESCPs tailored to local soil conditions, and the restoration of natural bed and bank profiles post-construction to maintain floodplain function. Weed and pathogen risks will be managed through pre-clearance surveys, a weed and biosecurity plan, and vehicle washdown protocols. Construction will be staged to avoid simultaneous disturbance across multiple floodout systems, limiting habitat fragmentation and preserving ecological connectivity. These combined measures further reduce the likelihood of disturbance to transient common greenshank and support the conclusion that significant impacts are unlikely.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance, and habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary disturbance to wetland, floodplain and riparian habitats, minor short-term alterations of local hydrological conditions, or disturb transient individuals using these areas.

Table 7.26 summarises the potential impacts of the project on the common greenshank.

Table 7.26 Impacts of the project on the common greenshank

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in the localised disturbance to habitat, with most affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts.
Altered hydrology at creek/floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the common greenshank has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.

Potential impact	Description
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.27 outlines the recommended measures to mitigate the potential impacts of the project on the common greenshank.

Table 7.27 Recommended mitigation measures for the common greenshank

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2024b
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2024b
Altered hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – All stripped topsoil and sub-soils to be placed outside of waterways in designated stockpiling areas located above the top of bank and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Design crossings to maintain floodplain connectivity and natural hydrology. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008).	IECA, 2008 DES, 2024
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008

Potential impact	Mitigation measures	Standards
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DCCEEW, 2024b
Altered hydrological function and flood behaviour	– Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Place stripped soils outside waterways and stabilise using erosion controls. – Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	IECA, 2008 DCCEEW, 2024b
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit construction to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the common greenshank as presented in Table 7.28.

Table 7.28 Significant residual impact assessment - common greenshank

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will result in the localised clearance of 281.3 ha of potential foraging and roosting habitat within the project site. This represents a small proportion of available habitat within the broader landscape, which remains extensive and connected. Avoidance measures, including HDD at the Wilson River, reduce the likelihood of direct disturbance to higher-value riparian and wetland habitats. Additionally, there is no listed nationally or internationally important habitats within the project site, with habitats present not supporting an ecological significant proportion of the population. Given the low residual impact, the project is unlikely to result in a long-term decline in the size of the population.
Reduce the extent of occurrence of the species	**Unlikely** The project site affects only 281.3 ha of ephemeral foraging habitat within a landscape supporting extensive, connected wetland habitats. The small, localised extent of impact is unlikely to reduce the area of occupancy at the 2 km x 2 km scale at which area of occupancy is measured.
Fragment an existing population	**Unlikely** The common greenshank is highly mobile, with large home ranges and migratory movements between wetland complexes. Given the linear nature of the project, and avoidance of high-value channels via HDD, the project is unlikely to create barriers that will fragment the population.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The project site does not support breeding habitat for the common greenshank, which breeds in the Northern Hemisphere. As such, genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Implementation of a weed and pest management plan during construction will prevent the introduction or spread of invasive flora and fauna, avoiding degradation of wetland habitats used by the common greenshank.
Introduce disease that may cause the population to decline	**Unlikely** No diseases affecting the common greenshank are known from the region, and construction is unlikely to introduce any disease vectors.
Interfere with the recovery of the species	**Unlikely** The project will result in only 281.3 ha of temporary disturbance to low-value habitat. The project site does not support any listed national or international important habitats (DCCEEW, 2025) or an ecologically significant proportion of the population. Higher-value riparian habitats remain intact due to HDD. Given the widespread availability of suitable habitat in the region, the project is unlikely to interfere with species recovery objectives.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** Habitat for the common greenshank includes a mosaic of shallow foraging wetlands, saltmarshes, mudflats, and vegetated wetland margins Such habitats may be used opportunistically depending on local conditions, particularly in response to rainfall and inundation events, with the habitats unlikely to constitute ecologically significant locations. While 281.3 ha of marginal foraging habitat may be impacted, the project avoids key permanent wetlands and migratory stopover sites via HDD and the area does not support breeding habitat. No loss of ecologically significant habitats are anticipated, as such, no disruption is expected.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the common greenshank.

Grey falcon

Avoidance

The project site has been reconfigured to utilise HDD at one key riparian location, the Wilson River, identified as locally important habitat for this species due to the presence of river red gums and coolabah (preferred nesting trees). To protect these sensitive habitats, no-go zones around large trees and the Wilson River SEA have been made a priority. The project site has been designed to minimise disturbance to larger riparian trees wherever possible following the recent ecological study. While the pipeline alignment may still traverse the broadly suitable habitat areas, important local breeding habitat features were largely able to be avoided.

Pre-clearance surveys and on-site fauna spotters will safeguard wildlife, while biosecurity measures, including vehicle washdowns and invasive species monitoring, will manage weed and pathogen risks. Dust suppression, restricted night work, and ongoing ecological monitoring under a robust EMP will further protect the environment. These integrated measures reduce disturbance to locally important habitat features and support the minimisation of impacts within the project site.

Potential impacts

Construction activities associated with the project, including vegetation clearing, disturbance near riparian corridors or mature trees capable of supporting nesting structures, increased vehicle movement, and temporary changes to landscape use, may result in localised and temporary disturbance to potential nesting habitat, short-term displacement of individuals where present, or temporary disruption of foraging behaviour during construction.

Table 7.29 summarises the potential impacts of the project on the grey falcon.

Table 7.29 Impacts of the project on the grey falcon

Potential impacts	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to habitat, with most terrestrial habitats affected to be reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of mature riparian trees	Vegetation clearing will result in the loss of mature established trees which take decades to centuries to re-establish. Trenchless crossings (i.e. using HDD under the Wilson River) and targeted pipeline alignment shifts will avoid direct disturbance of mature riparian vegetation (i.e. HBTs) at high-value locations.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Disturbance of breeding places	Direct disturbance of mature riparian trees, nests and roost sites may result in short-term localised displacement of individuals where present, with risks managed through pre-clearance surveys and fauna management protocols.
Fauna injury and/or mortality	Where clearing intersects riparian belts, there is a low and short-term risk of disturbance to fauna, which will be managed through avoidance, pre-clearance surveys, speed restrictions and spotter-catcher supervision. Vehicle movements during works can also increase the risk of fauna injury and mortality from vehicle strikes on access tracks.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the grey falcon has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.

Potential impacts	Description
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.
Changed fire and grazing dynamics	Changes in vegetation structure imposed by overgrazing and altered fire frequency can reduce prey densities. Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.30 outlines the recommended measures to mitigate the potential impacts of the project action on the grey falcon.

Table 7.30 Recommended mitigation measures for the grey falcon

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2019
Loss of mature riparian trees	– Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing. – The width of the CRoW has been reduced to the smallest safe working width (20 m), to minimise the impact footprint, avoid HBTs, and minimise the number of HBTs required to be removed.	DCCEEW, 2019

Potential impact	Mitigation measures	Standards
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves.	DCCEEW, 2019
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact. sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DCCEEW, 2019

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the grey falcon as presented in Table 7.31.

Table 7.31 Significant residual impact assessment – grey falcon

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The species is widely dispersed at low densities across inland Australia, with broad foraging ranges and low nesting densities. The project avoids high-value riparian habitats where breeding trees are located through the use of HDD and re-alignment at key locations, minimising potential habitat loss. As a result, the project is unlikely to lead to a long-term decrease in the population size.
Reduce the extent of occurrence of the species	**Unlikely** The species occupies extensive areas across inland Australia and is not restricted to the project site. Localised clearing of foraging habitat and scattered large trees will not reduce the area of occupancy given the species' wide-ranging behaviour, mobility, and the abundance of similar habitat outside the project site.
Fragment an existing important population	**Unlikely** The grey falcon is highly mobile and capable of moving across large distances when foraging. The project is linear in nature, avoids large continuous habitat blocks through HDD, and retains connectivity of riparian corridors. Consequently, fragmentation into two or more populations is not anticipated.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Some foraging habitat may be removed within the footprint; however, this is small relative to the species' large foraging range, and extensive similar habitat remains available in the surrounding landscape, as such genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** The project will implement standard weed and pest management measures. Weed and biosecurity risks will be managed through pre-clearance surveys, a dedicated management plan, and vehicle washdown stations. No invasive species threatening the grey falcon are expected to be introduced or facilitated by the project.
Introduce disease that may cause the population to decline	**Unlikely** No diseases are known to threaten grey falcon populations in the region. The project is unlikely to introduce or facilitate the spread of disease.
Interfere with the recovery of the species	**Unlikely** Conservation advice for the grey falcon highlights protecting large nesting trees and maintaining habitat connectivity as key recovery actions. With HDD under major riparian corridors, avoidance of large nesting trees, and limited disturbance to foraging habitat, the project will not interfere with these recovery objectives.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** While potential breeding trees occur in the project area, avoidance measures (e.g. HDD and micro-siting) ensure no direct impacts on known or high-value nesting habitat. Breeding occurs from June–November, but no nests were recorded during surveys, and the likelihood of disrupting the breeding is considered low given the avoidance of large riparian. As such, disruption to ecologically significant locations are not expected.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the grey falcon.

Latham's snipe

Avoidance

The footprint has been refined to avoid a deeper high-value channel at the Wilson River. HDD will be used to pass beneath these high-value habitats, reducing direct disturbance to surface hydrology, downstream habitats, and foraging areas. While the pipeline alignment may still traverse the broadly suitable habitat areas, high-value habitat features were largely able to be avoided.

In the project site, suitable habitat occurs within vegetated areas present along levees, drainage lines, and braided channels, where episodic flooding creates critical foraging habitat offering temporary suitability for the Latham's snipe. This habitat type is abundant within the broader landscape, and no residual impact is expected from the project following completion.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance and habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary disturbance to ephemeral wetlands and drainage features, minor short-term alteration of wetland margins used for foraging, or short-term disturbance of transient individuals during construction.

Table 7.32 summarises the potential impacts of the project on Latham's snipe.

Table 7.32 Impacts of the project on Latham's snipe

Potential impact	Impact description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to habitat, with the majority of affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts.
Altered hydrology at creek/floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, Latham's snipe has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.

Potential impact	Impact description
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.33 outlines the recommended measures to mitigate the potential impacts of the project on Latham's snipe.

Table 7.33 Recommended mitigation measures for Latham's snipe

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access track/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing, with all contractors and operators inducted on approved clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2024c
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2024c
Altered hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – Design crossings to maintain floodplain connectivity and natural hydrology. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008).	IECA, 2008 DES, 2024
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders.	DES, 2024 DEHP, 2015 DCCEEW, 2024c

Potential impact	Mitigation measures	Standards
	– Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	
Altered hydrological function and flood behaviour	– Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	DCCEEW, 2024c
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit onsite construction and maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant impact on the Latham's snipe as presented in Table 7.34.

Table 7.34 Significant residual impact assessment – Latham's snipe

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population.	**Unlikely** Latham's snipe occurs widely but at low densities across its Australian range. Only small numbers have been historically recorded in the project area. The project will result in the localised loss of 281.3 ha of potential foraging habitat; however, HDD will avoid disturbance to higher-value riparian channels (Wilson River), and works will occur outside the migratory period. The project is therefore unlikely to lead to a long-term decrease in the size of any important population.
Reduce the extent of occurrence of the species.	**Unlikely** The project will result in the loss of 281.3 ha of potential foraging habitat in a landscape where suitable habitat is widespread and abundant. Latham's snipe will continue to occupy surrounding wetlands and drainage features at the 2 km x 2 km scale at which area of occupancy is measured. The small scale and temporary nature of habitat disturbance will not reduce the area of occupancy.
Fragment an existing important population	**Unlikely** Latham's snipe is highly mobile and capable of dispersing across large distances between foraging and roosting sites (DCCEEW, 2024b). The linear project site, avoidance of high-value channels via HDD, and retention of habitat connectivity in the surrounding landscape mean that the species will not be fragmented.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Latham's snipe breeds in northern Japan and eastern Russia and migrates to Australia for the non-breeding season. As the project site does not support breeding habitat, and works will occur outside the peak migratory period, genetic isolation is not expected.

Impact criteria	Description
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** The project will implement standard weed and pest management plans, minimising the risk of invasive species spread within wetland and drainage habitats used by Latham's snipe.
Introduce disease that may cause the population to decline	**Unlikely** No diseases are known to threaten Latham's snipe in Australia, and the project is not expected to introduce any disease vectors that could affect the species.
Interfere with the recovery of the species	**Unlikely** Recovery of Latham's snipe relies on the protection and management of foraging and roosting habitats across its migratory range. With HDD under higher-value channels, minimal residual impacts, the lack of listed internationally important habitats or ecologically significant proportion of the population and works scheduled outside the migratory period, the project is unlikely to interfere with recovery objectives for the species.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The project will temporarily disturb 281.3 ha of low-value habitat along levees, drainage lines, and channels. HDD at key high-value sites and rapid rehabilitation following construction will ensure habitat availability and quality is not reduced. Additionally, the species is capable of dispersing across large distances between foraging and roosting sites, as such the project is not expected to disrupt ecologically significant locations.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the Latham's snipe.

Red goshawk

Avoidance

The project design avoids key riparian corridors where possible using HDD and micro-siting to minimise clearing of tall riparian trees and habitat fragmentation. The alignment has been refined to avoid sensitive areas and large trees, with no-go zones clearly marked and enforced to protect these critical habitats. Known nesting habitat was not recorded in habitat mapping surveys, and all high-value trees will be avoided wherever feasible. The project design maintains floodplain connectivity by preserving natural flood hydrology and preventing water diversion. While the pipeline alignment may still traverse the broadly suitable habitat areas, high-value habitat features were largely able to be avoided.

Site-specific ESCPs have been developed to address risks from soil erosion and dispersive soils. Weed and biosecurity risks will be managed through pre-clearance surveys, a dedicated management plan, and vehicle washdown stations to prevent the introduction and spread of invasive species. Construction activities will be staged to limit simultaneous disturbance of flood out systems and minimize the length of open trenches near sensitive habitats, further reducing potential environmental impacts.

Potential impacts

Construction activities associated with the project, including vegetation clearing, disturbance near riparian corridors and wetlands, increased vehicle movement, and temporary changes to landscape use, may reduce the availability of potential foraging habitat, disturb individuals moving through the area, or temporarily disrupt hunting behaviour.

Table 7.35 summarises the potential impacts of the project on the red goshawk.

Table 7.35 Impacts of the project on the red goshawk

Threat	Impact description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in the permanent loss of habitat. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of mature riparian trees	Vegetation clearing will result in the loss of mature established trees which take decades to centuries to re-establish. Trenchless crossings (i.e. using HDD under the Wilson River) and targeted pipeline alignment shifts will avoid direct disturbance of mature riparian vegetation (i.e. HBTs) at high-value locations. The loss of HBTs has been reduced to nine individual trees across the entire pipeline alignment, seven of which are dead stags that provide sub-optimal habitat.
Loss of habitat features	Vegetation clearing will involve the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Disturbance of breeding places	Direct disturbance of tree hollows, nests and roost sites may may result in short-term localised displacement of individuals where present, with risks managed through pre-clearance surveys and fauna management protocols.
Fauna injury and/or mortality	Where clearing intersects riparian belts, there is a low and short-term risk of disturbance to fauna, which will be managed through avoidance measures, pre-clearance surveys, speed restrictions and spotter-catcher supervision.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' capacity for flight, the red goshawk has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.
Changed fire and grazing dynamics	Changes in vegetation structure imposed by overgrazing and altered fire frequency can reduce prey densities. Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.36 outlines the recommended measures to mitigate the potential impacts of the project on the red goshawk.

Table 7.36 Recommended mitigation measures for the red goshawk

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2023e
Loss of mature riparian trees	– Mark clearing boundaries and habitat features using appropriate methods, as applicable, such as visible and physical signage, GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing, All operators will be inducted on approved clearing boundaries prior to works commencing. – The width of the CRoW has been reduced to the smallest safe working width (20 m), to minimise the impact footprint, avoid HBTs, and minimise the number of HBTs required to be removed	DCCEEW, 2023e
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves.	DCCEEW, 2023e
Indirect Impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders	DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
	– Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit onsite limited to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat.	APGA, 2021 DES, 2024 DEHP, 2015
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	APGA, 2021 DES, 2024 DCCEEW, 2023e

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the red goshawk as presented in Table 7.37.

Table 7.37 Significant residual impact assessment – red goshawk

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will result in the localised clearance of 670.4 ha of potential red goshawk foraging habitat. However, with HDD avoiding key riparian corridors and the species' naturally low density and broad distribution in the region, residual impacts are not expected to result in a long-term decrease in population size.
Reduce the extent of occurrence of the species	**Unlikely** The removal 670.4 ha of potential habitat within the project site represents a small proportion of the habitat available at the landscape scale. Red goshawks are highly mobile and will continue to utilise adjacent intact habitats in the surrounding region.
Fragment an existing population	**Unlikely** The project's linear footprint and the use of HDD to avoid a major riparian corridor will maintain habitat connectivity across the landscape. Given the species' large home ranges (>200 km^2) and ability to move between habitat patches, fragmentation of the population is not anticipated
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** No active nests were recorded during surveys, and clearing is predominantly outside high-value riparian/nest-tree patches where large trees occur and the project site is located outside of the species 'known' range on the distribution mapping within the conservation advice (DCCEEW, 2023g) As such, genetic isolation is not expected.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Standard weed/pest hygiene and management will be implemented, limiting invasive species establishment or spread.

Impact criteria	Description
Introduce disease that may cause the population to decline	**Unlikely** No diseases are known to threaten the red goshawk in the region, and the project is not expected to introduce or spread disease.
Interfere with the recovery of the species	**Unlikely** While the loss of some temporary loss of foraging habitat will occur, regional habitat connectivity and large tracts of surrounding woodland will remain intact. Given the localised extent of habitat removal and the high likelihood of natural restoration, the project is unlikely to interfere with the recovery objectives for the red goshawk.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** Breeding and nesting habitat (large mature nesting trees near watercourses and connected riparian corridors) was not found in the project site. No active nests were recorded during surveys, and clearing is predominantly outside high-value riparian/nest-tree patches where large trees occur, design refinement prioritises retention. Additionally, the project site is located outside of the species 'known' range on the distribution mapping within the conservation advice (DCCEEW, 2023g) As such, disruption to ecologically significant locations is not expected.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the red goshawk.

Plains rat

Avoidance

Targeted impact avoidance measures were not practicable as suitable habitat occurs extensively across the alignment for this species, however, impact avoidance has been applied wherever practicable through alignment refinement, footprint minimisation through sensitive areas and avoidance of higher-values areas. A range of design optimisations and construction mitigation measures have been incorporated to reduce disturbance wherever feasible.

Site-specific ESCPs will be implemented to manage soil erosion risks, particularly in areas with dispersive soils. Weed and biosecurity risks will be addressed through pre-clearance surveys, a dedicated weed and pathogen management plan, and vehicle washdown stations. The project area supports extensive areas of gibber stony plains and gypseous cracking clays which are likely to provide suitable habitat for the species on a seasonal basis. These ground cover types typically exhibit high resilience, with natural recovery expected following temporary disturbance associated with pipeline construction.

Potential impacts

Vegetation clearing, soil disturbance and changes to surface structure associated with construction activities may reduce habitat suitability by altering cracking clay substrates, disturbing burrow systems, or modifying the productive run-on areas that support ephemeral vegetation growth. These activities may result in localised and temporary disturbance to individuals where present, as well as direct mortality from vehicle movements and soil stripping, with risks managed through staged construction, fauna management protocols and reinstatement.

Table 7.38 summarises the potential impacts of the project on the plains rat.

Table 7.38 Impacts of the project on the plains rat

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to habitat, with the majority of affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.

Potential impact	Description
Disturbance of breeding places	Direct disturbance of burrow systems may result in short-term localised displacement of individuals where present, with risks managed through staged clearing and fauna management measures.
Fauna injury and/or mortality	Open trenches pose an entrapment risk for ground-dwelling fauna, such as the plains rat. Where clearing intersects riparian belts, there is a low and short-term risk of disturbance or entrapment for ground-dwelling fauna, which will be managed through the use of fauna ramps, daily trench inspections and spotter-catcher protocols. Vehicle movements during works can increase the risk of fauna injury and mortality from vehicle strikes on access tracks. Topsoil stripping, particularly in and around gilgais and drainage features has the potential for direct mortality if not mitigated.
Indirect impacts	
Edge effects and habitat fragmentation	Increased light/wind effects, drying, and simplified understorey along the margins of the CRoW due to the loss of vegetation cover, may facilitate predator/competitor ingress along new linear edges. However, given the buried, linear nature of the pipeline, long-term habitat fragmentation risk is considered low.
Barrier/permeability changes	The compaction of soils may affect the movement of small fauna species.
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing within the CRoW may temporarily increase exposure of ground-dwelling fauna when moving across disturbed areas; however, given the narrow corridor, short duration of works and reinstatement of ground cover, long-term increases in predation pressure are not expected.
Introduction and/or spread of invasive species	The project action may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotesting activities may disturb nocturnal fauna and alter behaviours. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.
Changed fire and grazing dynamics	Construction activities can increase the potential for accidental fire. While the creation of new tracks can permanently increase fire frequencies, this typically occurs where new tracks facilitate an increase in public vehicle movement and associated ignition risks. The remote nature of the location will tend to reduce this risk to low levels. Similarly, while new tracks can increase cattle grazing pressures, this tends to be concentrated around new water sources (which will not be created for the project) and in more structurally complex woodland communities, where cattle access is restricted. The open nature of the landscape means cattle already move freely, limiting the impact the project could have on grazing densities to low levels.

Mitigation measures

Table 7.39 outlines the recommended measures to mitigate the potential impacts of the project on the plains rat.

Table 7.39 Recommended mitigation measures for the plains rat

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features.	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing, with all contractors inducted on approved clearing limits prior to works commencing.	APGA, 2021 DES, 2024 DEWNR, 2012

Potential impact	Mitigation measures	Standards
	– Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	
Barrier/permeability changes	– Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits.	APGA, 2021 DES, 2024
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves.	DEWNR, 2012
Indirect impacts		
Edge effects and habitat fragmentation	– Sensitive habitats are to be protected by erosion and sediment controls during construction works.	IECA, 2008
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat.	APGA, 2021 DES, 2024 DEHP, 2015

Potential impact	Mitigation measures	Standards
	– Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	
Changed fire and grazing dynamics	– Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Control access to the CRoW, with firebreaks managed to Queensland Fire Department and landholder standards. – Include fire contingency/response measures within written contingency procedures.	DEWNR, 2012 APGA, 2021 DES, 2024

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the plains rat as presented in Table 7.40.

Table 7.40 Significant residual impact assessment – plains rat

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will clear approximately 923.1 ha of suitable habitat on gypseous cracking clays and gibber plain depressions, representing a small percentage of habitat available in the greater landscape. Given the linear, temporary nature of construction, retention of extensive adjacent habitat, and the high post-disturbance resilience of these substrates, a long-term decrease in an important population is not expected.
Reduce the extent of occurrence of the species	**Unlikely** The loss of 923.1 ha of suitable run-on habitat is insufficient to reduce the extent of occurrence of the species considering the availability of comparable habitat in the surrounding landscape.
Fragment an existing important population	**Unlikely** The disturbance is a narrow CRoW (typically <40 m), with surrounding suitable habitat remaining contiguous. The species' movements occur within extensive cracking-clay/gibber mosaics that remain connected; no barriers to dispersal are expected.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Given the demonstrated resilience and anticipated natural recovery of these ground surfaces post-construction, genetic isolation is not anticipated.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Standard weed/pest hygiene (vehicle washdown, declared weed controls, waste management) will be implemented. No invasive species specifically threatening plains rat are expected to establish beyond current background levels due to the project.
Introduce disease that may cause the population to decline	**Unlikely** No diseases are known to pose a material risk to the plains rat in the project context. With biosecurity protocols in place, disease introduction is unlikely.
Interfere with the recovery of the species	**Unlikely** Recovery focuses on maintaining intact cracking-clay/gibber systems and connectivity across run-on landscapes. Given the small proportional disturbance, expected natural recovery of substrates, and retention of broad habitat connectivity, substantial interference with recovery is unlikely.

Impact criteria	Description
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** While 923.1 ha of run-on cracking clays and gibber depressions will be disturbed, this represents a small percentage of habitat available in the greater landscape. Further, footprint refinement and construction management will minimise soil profile damage. Given the demonstrated resilience and anticipated natural recovery of these ground surfaces post-construction, adverse effects to habitat and population-scale breeding disruption is not expected.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the plains rat.

Short-beaked echidna (Tachyglossus aculeatus)

Avoidance

Targeted impact avoidance measures were not practicable, as suitable habitat for the species occurs extensively across the pipeline alignment. However, impact avoidance has been applied wherever practicable through alignment refinement, footprint minimisation through sensitive areas and design optimisation to include extra workspaces, access tracks and laydown yards outside of vegetated, higher-values areas.

Potential impacts

Construction activities, including vegetation clearing, temporary disturbance and habitat modification within the CRoW and associated infrastructure areas, may result in localised and temporary disturbance to echidna habitat and movement pathways.

Table 7.41 summarises the potential impacts of the project on the short-beaked echidna.

Table 7.41 Impacts of the project on the short-beaked echidna

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to habitat, with the majority of affected areas reinstated post-construction. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Disturbance of breeding places	Direct disturbance of mounds may result in short-term localised displacement of individuals where present, with risks managed through staged clearing and fauna management measures.
Fauna injury and/or mortality	Open trenches pose an entrapment risk for ground-dwelling fauna, such as the echidna. Where clearing intersects riparian belts, there is a low and short-term risk of disturbance or entrapment for ground-dwelling fauna, which will be managed through the use of fauna ramps, daily trench inspections and spotter-catcher protocols. Vehicle movements during works can increase the risk of fauna injury and mortality from vehicle strikes on access tracks.
Indirect impacts	
Edge effects and habitat fragmentation	Increased light/wind effects, drying, and simplified understorey along the margins of the CRoW due to the loss of vegetation cover, may facilitate predator/competitor ingress along new linear edges. However, given the buried, linear nature of the pipeline, long-term habitat fragmentation risk is considered low.
Barrier/permeability changes	The compaction of soils may affect the movement of small fauna species.
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.

Potential impact	Description
Increased predation pressure	Clearing within the CRoW may temporarily increase exposure of ground-dwelling fauna when moving across disturbed areas; however, given the narrow corridor, short duration of works and reinstatement of ground cover, long-term increases in predation pressure are not expected.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotesting activities may disturb nocturnal fauna and alter behaviours. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.42 outlines the recommended measures to mitigate the potential impacts of the project on the plains rat.

Table 7.42 Recommended mitigation measures for short-beaked echidna

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features.	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns), and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing, with all contractors inducted on approved clearing limits prior to works commencing. – Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DEWNR, 2012
Barrier/permeability changes	– Clearing to proceed sequentially to allow fauna to disperse into adjacent habitat. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, and undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits.	APGA, 2021 DES, 2024
Fauna injury and/or mortality	– Pre-clearance surveys for potential breeding places to be supervised by suitably qualified fauna spotter-catchers, with relocation of fauna to the nearest safe habitat. – Install fauna ramps every 500 m and fauna refuge bags every 100–200 m, undertake inspections of trenches daily. – Any fauna handling must be conducted under the relevant permits. – Prepare and implement incident response protocols for any wildlife injury or mortality during construction. – Implement trench management measures including daily trench inspections and twice daily in the event of extreme heat waves.	DEWNR, 2012

Potential impact	Mitigation measures	Standards
Indirect impacts		
Edge effects and habitat fragmentation	– Sensitive habitats are to be protected by erosion and sediment controls during construction works.	IECA, 2008
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Deploy active feral cat management devices (i.e. Felixer grooming traps) along the alignment during construction. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the short-beaked echidna as presented in Table 7.43.

Table 7.43 Significant residual impact assessment – short-beaked echidna

Impact criteria	Assessment
An action is likely to have a significant impact on a special least concern (non-migratory) animal if it is likely that it will:	
Result in a long-term decrease in the size of a local population	**Unlikely** The project will result in the clearance of 1117.6 ha of general habitat for the short-beaked echidna. Habitat for the species is widespread and abundant in the region. The project does pose a short-term risk in terms of the increase in vehicle movements which may lead to an increase in roadkill mortality, this will be mitigated by establishing and enforcing vehicle speed limits and traffic protocols. Given these factors, the project is unlikely to cause a long-term decrease in the local echidna population.
Result in a reduced extent of occurrence of the species	**Unlikely** The project will result in a localised loss of habitat, but this will not affect the availability of local or regional habitat. As such, the project is unlikely to reduce the extent of occurrence of the species.

Impact criteria	Assessment
Result in fragmentation of an existing population	**Unlikely** The short-beaked echidna is capable of foraging widely across a broad range of environments within the project site. The localised clearing of a linear project site unlikely to fragment the population, as large areas of suitable habitat remain adjacent to the project site.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The species' ability to move locally and regionally will not be limited by the localised land clearing. Therefore, the project will not cause the loss of gene transfer or result in the formation of genetically distinct populations.
Result in disruption to ecologically significant locations (breeding, feeding, or nesting sites)	**Unlikely** The short-beaked echidna does not have any specific ecologically significant locations. The project's impact on habitat for the species will only be temporary. The loss of 1117.6 ha of habitat is a small proportion of the habitat in the local landscape, which includes extensive areas of remnant vegetation. The project is unlikely to disrupt ecologically significant locations for the species, as the echidna is likely to use habitats adjacent to the project site.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the short-beaked echidna.

Fork-tailed swift

Avoidance

As the species is exclusively aerial and not reliant on terrestrial habitats, species-specific avoidance measures are not proposed. The project site is restricted to the minimum area required to safely and efficiently construct and operate the project.

Potential impacts

Potential impacts are limited to short-term, negligible disturbance where individuals may occasionally forage within the airspace above the project site during construction activities.

Table 7.44 summarises the potential impacts of the project on the fork-tailed swift.

Table 7.44 Impacts of the project on the fork-tailed swift

Potential impact	Impact description
Direct impacts	
Fauna injury and/or mortality	The risk of direct injury or mortality to this almost entirely aerial species has been assessed as low.
Indirect impacts	
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may cause short-term disturbance to aerial fauna passing through the area.

Mitigation measures

Table 7.45 outlines the recommended measures to mitigate the potential impacts of the project on the fork-tailed swift.

Table 7.45 Recommended mitigation measures for the fork-tailed swift

Potential impact	Mitigation measures	Standards
Direct impacts		
Fauna injury and/or mortality	The risk of direct injury or mortality to this almost entirely aerial species has been assessed as low and not relevant to this species	APGA, 2021 DES, 2024 DEHP, 2015 DCCEEW, 2022
Indirect impacts		
Minimisation of incidental disturbance to aerial fauna from increased dust, light, noise and vibration	– Direct lighting away from sensitive habitats where possible. – Limit onsite construction and maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the fork-tailed swift as presented in Table 7.46.

Table 7.46 Significant residual impact assessment – fork-tailed swift

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will result in the loss of 1117.6 ha of ground-based habitat, the airspace above considered potential foraging habitat. As the species is exclusively aerial in Australia, feeding while in flight and using a wide range of landscapes, this loss of habitat is unlikely to lead in a long-term decrease in the size of the local population.
Reduce the extent of occurrence of the species	**Unlikely** The loss of 1117.6 ha of ground-based habitat, the airspace above considered potential foraging habitat is not anticipated to reduce the extent of the occurrence of the species given the species high mobility and use of a wide range of landscapes.
Fragment an existing population	**Unlikely** The project will result in the temporary disturbance within 1117.6 ha of airspace used opportunistically for foraging. As the species is exclusively aerial in Australia, and uses a wide range of habitats (DoE, 2015b), this small-scale loss of habitat is unlikely to have a measurable impact on the species.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Genetic isolation is not anticipated given the species mobility and presence in Australia. The project site does not support critical breeding or other key life-cycle stages.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Given the fork-tailed swift's aerial ecology, the project has negligible potential to introduce invasive species that could impact the species' foraging or migratory behaviour.

Impact criteria	Description
Introduce disease that may cause the population to decline	**Unlikely** No diseases have been identified as a key threat to fork-tailed swift in Australia. Standard biosecurity protocols will be adopted to prevent incidental disease transmission.
Interfere with the recovery of the species	**Unlikely** Given the localised opportunistic loss of overfly habitat, the project is unlikely to interfere with recovery efforts.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The project site does not support breeding or roosting habitat for the fork-tailed swift (DoE, 2013; DoE, 2015b). While the species may overfly the area for foraging purposes, the loss of 1117.6 ha of general overfly habitat is not expected to influence feeding, migration, or resting behaviour to the extent that it will impact an ecologically significant proportion of the population.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the fork-tailed swift.

Caspian tern

Avoidance

The footprint has been refined to avoid deeper high value channels at one key riparian location, the Wilson River, HDD will be used to pass beneath these high-value habitats, reducing direct disturbance to surface hydrology, downstream habitats, and foraging areas.

Potential impacts

The Caspian tern forages over aquatic environments, including rivers, floodplain waterholes, reservoirs, and other open water areas. The species does not rely on terrestrial habitat and is highly mobile, capable of foraging across large distances. As a result, the likelihood of direct injury or mortality from construction activities is extremely low. Potential impacts are therefore limited to temporary disturbance of flight or foraging paths due to noise, vehicle movement, or temporary water turbidity.

There is no suitable breeding habitat within the project site. The project site intersects ephemeral and perennial floodplain channels that may provide occasional foraging habitat, but these habitats do not support an ecologically significant proportion of the population.

Table 7.47 summarises the potential impacts of the project on the Caspian tern.

Table 7.47 Impacts of the project on the Caspian tern

Potential impact	Impact description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised disturbance to terrestrial surroundings but will not remove habitat relied upon by the Caspian tern, which forages over open water. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts.
Altered hydrology at creek/floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works.

Potential impact	Impact description
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' aerial and aquatic foraging ecology, the Caspian tern has very limited interaction with terrestrial predators, accept when roosting at night. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.48 outlines the recommended measures to mitigate the potential impacts of the project on the Caspian tern.

Table 7.48 Recommended mitigation measures for the Caspian tern.

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CRoW boundary using highly visible pegs or markers. – Locate storage areas (e.g. stockpiles, laydowns) and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – Physical demarcation (e.g. fencing or flagging) will be applied locally where required at sensitive environmental features or exclusion zones. – Use GPS-defined clearing boundaries (e.g. geofencing) to control vegetation clearing. All contractors and operators will be inducted on the approved GPS clearing limits prior to works commencing Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2025b
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2025b
Altered hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank, and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works once subsurface is achieved. – Design crossings to maintain floodplain connectivity and natural hydrology. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008).	IECA, 2008 DES, 2024

Potential impact	Mitigation measures	Standards
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Altered hydrological function and flood behaviour	– Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Place stripped soils outside waterways and stabilise using erosion controls. – Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	IECA, 2008 DCCEEW, 2025b
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders. – Prepare and implement a weed management plan, including: • hygiene protocols and ‘weed-free’ certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	DES, 2024 DEHP, 2015 DCCEEW, 2025b
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit onsite construction and maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise. – Stabilise disturbed areas promptly following completion of works.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the Caspian tern as presented in Table 7.49.

Table 7.49 Significant residual impact assessment – Caspian tern

Impact criteria	Assessment
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will clear 281.3 ha of terrestrial landscape adjacent to waterways that may be opportunistically overflown or used for foraging during periods of inundation however lacks suitable breeding habitat. Given the species' wide distribution and patchy presence in Australia, the project is unlikely to lead to a long-term decrease in size of a local population.
Reduce the extent of occurrence of the species	**Unlikely** The loss of 281.3 ha of terrestrial landscape adjacent to waterways that may be opportunistically overflown or used for foraging is not anticipated to reduce the extent of the occurrence of the species given the species is widely distributed in Australia.
Fragment an existing population	**Unlikely** The area does not support critical life-cycle stages or an ecologically significant proportion of the species' population. The project will result in the localised removal of 281.3 ha of potential foraging habitat. This small-scale loss of habitat is unlikely to have any measurable impact on the species due to their wide distribution.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Genetic isolation is not anticipated given the species mobility and presence in Australia. The project site does not support critical breeding or other key life-cycle stages.
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Feral animal control programs for foxes, cats, and pigs are active in the region, and no new vectors for invasive species establishment will be created by the project. Ongoing weed and pest management will be implemented through the project's Environmental Management Plan.
Introduce disease that may cause the population to decline	**Unlikely** No diseases have been identified as a key threat to Caspian tern in Australia. Standard biosecurity protocols will be adopted to prevent incidental disease transmission.
Interfere with the recovery of the species	**Unlikely** Given the localised habitat loss, wide distribution and absence of breeding in the area, the project is unlikely to interfere with recovery efforts.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The project site may be used by Caspian terns for foraging in river channels, floodplain waterholes, and reservoirs with open water. However, there are no records of breeding within the area, and suitable breeding habitats like sandspits and islands are absent from the project site. The closest known breeding site is Lake Bindegolly, 165 km south-east (BirdLife Australia, 2023). Given the limited use of the area and absence of key life-cycle stages, the project is unlikely to seriously disrupt an ecologically significant proportion of the Caspian tern population.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the Caspian tern.

Glossy ibis

Avoidance

The footprint has been refined to avoid a deeper high value channel at a key riparian location, the Wilson River. HDD will be used to pass beneath this high-value habitat, reducing direct disturbance to surface hydrology, downstream habitats, and foraging areas. While the pipeline alignment may still traverse the broadly suitable habitat areas, locally important channel features were largely able to be avoided.

Given the species' broad habitat tolerances, all areas containing channels and floodplains are considered suitable locations for foraging. No significant residual impacts are anticipated, as the buried pipeline will allow habitat to naturally regenerate following completion of construction activities and construction activities will occur outside of the wet.

Potential impacts

The glossy ibis forages in shallow wetlands, floodplain channels, ephemeral waterholes, and other seasonally inundated habitats within the project area. The species does not rely on terrestrial habitat for foraging or breeding within the project site, and it is highly mobile, able to move across large distances to access suitable waterbodies. As a result, the likelihood of direct injury or mortality from construction activities is extremely low.

Potential impacts are therefore limited to temporary disturbance of flight paths or foraging activity caused by vehicle movements, noise, or localized sedimentation and water turbidity. No suitable breeding habitat occurs within the project site. The project site intersects ephemeral and permanent floodplain channels that may provide occasional foraging habitat, but these do not support an ecologically significant proportion of the population.

Table 7.50 summarises the potential impacts of the project action on the glossy ibis.

Table 7.50 Impacts of the project on the glossy ibis

Potential impact	Description
Direct impacts	
Vegetation/habitat removal	Removal of native vegetation within the trench, working width, and access tracks, will result in localised and temporary disturbance to terrestrial surroundings, but will not remove habitat essential to the glossy ibis, which relies on shallow open water for foraging. Above ground infrastructure is minimal (e.g. main line valves, vents, connection facilities, etc.); however, clearing for the 40 m CRoW, extra workspaces, temporary accommodation facility (10–12 ha), stockpiles (~8–10 ha), and up to eight 15 ML hydrotest water dams will create localised disturbance. Where the CRoW is reinstated and revegetated post-construction, such disturbance is expected to be temporary.
Loss of habitat features	Vegetation clearing will include the removal of logs, ground cover and other microhabitats, reducing shelter and foraging opportunities for fauna.
Pollution and waste	Hydrotest water quality exceedances, accidental spills of contaminants (e.g. fuels, oils), concrete washout, and dust generation can lead to the degradation of adjacent vegetation/soil crusts.
Altered hydrology at creek/floodout crossings	Temporary diversions, trenching and ramps may impede low-flow paths or concentrate runoff. Post-construction reinstatement must match pre-disturbance bed/bank profiles to avoid scouring or ponding.
Erosion, sedimentation, and turbidity pulses	Exposed soils on channel banks and floodouts are vulnerable to rainfall events, increasing the risk of sediment delivery to wetlands/ephemeral waterholes during works.
Indirect impacts	
Dust and sediment drift	Road and track activity may degrade adjacent vegetation within approximately 40 m of disturbance edges, affecting habitat quality and species composition.
Increased predation pressure	Clearing the CRoW may expose fauna to predation by raptors, cats and wild dogs when moving across gaps. Given the species' highly mobile behaviour and reliance on open wetland environments, the glossy ibis has a reduced vulnerability to feral predators, compared to ground-dwelling birds. Accordingly, the project has limited capacity to exacerbate predation pressures for the species.

Potential impact	Description
Introduction and/or spread of invasive species	The project may result in the importation and/or spread of pest animals and weeds along access tracks and stockpile margins due to the operation of vehicles and machinery, particularly if hygiene controls are not adequately implemented. Disturbed/cleared areas can be more susceptible to colonisation by weeds and feral fauna species, which can further alter ecological communities.
Altered hydrological function and flood behaviour	Crossings in braided channels can subtly redirect flows, changing floodplain inundation frequency and productivity patches used by waterbirds, if banks/levees are not restored to pre-disturbance forms.
Disturbance of fauna from increased dust, light, noise and vibration	Temporary increases in exposure to light, noise and vibration during localised night works, HDD compounds or hydrotest activities may disturb nocturnal fauna and alter behaviour. Visual and noise disturbance is generally low for buried pipelines during operation; however, localised ongoing maintenance can re-open edges and disturb fauna during visits.

Mitigation measures

Table 7.51 outlines the recommended measures to mitigate the potential impacts of the project on the glossy ibis.

Table 7.51 Recommended mitigation measures for the glossy ibis

Potential impact	Mitigation measures	Standards
Direct impacts		
Vegetation/habitat removal and loss of habitat features	– Clearly define approved clearing extents using detailed spatial mapping, with vegetation clearing constrained through marking of the CROW boundary using highly visible pegs or markers with all contractors inducted on approved clearing boundaries. – Locate storage areas (e.g. stockpiles, laydowns) and access tracks/passing locations outside of vegetated areas, to minimise vegetation removal required. – GPS-enabled machinery and geofenced construction boundaries. – Limit disturbance to the CRoW and approved access tracks to protect retained vegetation and support reinstatement. – Undertake progressive reinstatement as soon as practicable following completion of works.	APGA, 2021 DES, 2024 DCCEEW, 2025b
Pollution and waste	– Locate spill kits at fuel storage/transfer points. – Remove regulated waste to appropriately licensed facilities. – Implement responsible waste management protocols, including the use of secure temporary containers and offsite disposal of all wastes.	DES, 2024 DEHP, 2015 DCCEEW, 2025b
Altered hydrology at creek/floodout crossings	– Sensitive habitats are to be protected by erosion and sediment controls during construction works. – All stripped topsoil and sub-soils are to be placed outside of waterways in designated stockpiling areas located above the top of bank. and secured by erosion and sediment controls. – Undertake bed and bank stabilisation within 14 days of completion of works. – Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008).	IECA, 2008 DES, 2024
Indirect impacts		
Dust and sediment drift	– Use water carts to manage dust generation on the CRoW and access tracks. – Incorporate measures to minimise dust emissions and potential amenity impacts into the CEMP, to be implemented where dust from traffic movements associated with the project is impacting, or has the potential to impact, sensitive receptors. These measures will include increased frequency of dust suppression as required.	IECA, 2008
Introduction and/or spread of invasive species	– Prohibit construction staff from bringing domestic animals on site. – Record sightings/evidence of pest animals during construction. If increased densities of pest animals are observed, or new pest animals are identified, humane pest controls will be implemented to manage numbers. – Implement procedures for vehicle washdowns, weed-free materials, and feral animal control coordinated with landholders.	DES, 2024 DEHP, 2015 DCCEEW, 2025b

Potential impact	Mitigation measures	Standards
	– Prepare and implement a weed management plan, including: • hygiene protocols and 'weed-free' certification for machinery at commencement • monitoring and adaptive management of weed spread • requirement that weed-infested vegetation is not mulched for reuse on site, and infested material disposed of at approved facility • requirement for secure storage of food and waste, with offsite disposal, to avoid attracting feral predators.	
Altered hydrological function and flood behaviour	– Develop a site-specific ESCP in accordance with IECA standards (IECA, 2008). – Place stripped soils outside waterways and stabilise using erosion controls. – Design crossings to maintain pre-works flood hydrology, with no net diversion of overland flow or floodwater retention on adjacent properties. – Incorporate flood/storm contingency procedures to protect environmental values during severe weather.	IECA, 2008 DCCEEW, 2025b
Disturbance of fauna from increased dust, light, noise and vibration	– Use water carts to manage dust on the CRoW and access tracks. – Use broadband reversing alarms instead of tonal beepers. – Direct lighting away from sensitive habitats where possible. – Limit onsite construction and maintenance to daylight hours wherever feasible to reduce light/noise impacts on nocturnal fauna. – Minimise night works and artificial light to safety requirements to reduce spill into adjacent habitat. – Maintain equipment to keep noise within acceptable limits, with regular monitoring of dust and noise.	APGA, 2021 DES, 2024 DEHP, 2015

Significant residual impact assessment

The project is **unlikely** to result in a significant residual impact on the glossy ibis as presented in Table 7.52.

Table 7.52 Significant residual impact assessment – glossy ibis

Impact criteria	Description
An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:	
Lead to a long-term decrease in the size of a local population	**Unlikely** The project will clear 281.3 ha of terrestrial landscape adjacent to waterways that may be opportunistically overflown or used for foraging during periods of inundation however lacks key breeding habitat. Given the species' wide distribution and patchy presence in Australia, the project is unlikely to lead to a long-term decrease in size of a local population.
Reduce the extent of occurrence of the species	**Unlikely** The loss of 281.3 ha of terrestrial landscape adjacent to waterways that may be opportunistically overflown or used for foraging is not anticipated to reduce the extent of the occurrence of the species given the species is widely distributed in Australia.
Fragment an existing population	**Unlikely** The project site does not contain habitat of critical importance for the glossy ibis, nor does it support an ecologically significant portion of the population. While the area may provide occasional foraging habitat, it lacks key breeding habitat and is not located at the species' range limit or within a region of decline. Therefore, the project is unlikely to fragment an existing population of the glossy ibis as the species is highly mobile.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** Genetic isolation is not anticipated given the species mobility and presence in Australia. The project site does not support critical breeding or other key life-cycle stages.

Impact criteria	Description
Result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat	**Unlikely** Feral animal control programs for foxes, cats, and pigs are active in the region, and no new vectors for invasive species establishment will be created by the project. Ongoing weed and pest management will be implemented through the project's Environmental Management Plan.
Introduce disease that may cause the population to decline	**Unlikely** No diseases have been identified as a key threat to glossy ibis in Australia. Standard biosecurity protocols will be adopted to prevent incidental disease transmission.
Interfere with the recovery of the species	**Unlikely** Given the localised opportunistic habitat loss and absence of breeding impacts, the project is unlikely to interfere with recovery efforts.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The project area may provide occasional foraging habitat for the glossy ibis, primarily in inundated floodplain wetlands following rainfall. However, there are no records of breeding or critical resting sites within the area, and suitable breeding habitat is absent. Given the species' wide distribution and patchy presence in Australia, the project site does not support an ecologically significant proportion of the population. Therefore, the proposed activities are unlikely to seriously disrupt the breeding, feeding, migration, or resting behaviour of the glossy ibis.
Conclusion	Based on the above assessment outcomes, the project is considered **unlikely** to have a significant residual impact on the glossy ibis.

7.3 Matters of national environmental significance

An assessment has been undertaken against the EPBC Act *Significant impact guidelines 1.1* (DoE, 2013) for each MNES value confirmed present, likely to occur, or with potential to occur within the project site to identify whether a significant residual impact will occur and if offsets will be required under the EO Act.

A summary of the outcomes of this significant impact assessment is provided below in Table 7.53. The assessment determined that the project has the potential to result in a significant residual impact on one MNES species, the plains-wanderer. However, it is important to note that this represents a preliminary assessment that will be revised once more information is available.

Table 7.53 Summary of likelihood of occurrence and significant impact assessment results for MNES

MNES	EPBC Act status	Likelihood of occurrence	Habitat usage	Impact area (disturbance footprint) (ha)	Significant impact assessment
Threatened flora species					
Sclerolaena walkeri	LC	Potential to occur	-	206	Unlikely
Threatened fauna species					
Plains-wanderer	CE	Confirmed present	Foraging and breeding	620.7	Potential
Southern whiteface	V	Confirmed present	Foraging, breeding and roosting	688.4	Unlikely
Pink cockatoo (eastern)	E	Likely to occur	Nesting and foraging	210.1	Unlikely
Blue-winged parrot	V	Confirmed present	Foraging, roosting and dispersal	1117.6	Unlikely
Painted honeyeater	V	Likely to occur	Foraging and nesting	330.9	Unlikely
Sharp-tailed sandpiper	V	Likely to occur	Foraging and roosting	281.3	Unlikely

MNES	EPBC Act status	Likelihood of occurrence	Habitat usage	Impact area (disturbance footprint) (ha)	Significant impact assessment
Curlew sandpiper	CE	Likely to occur	Foraging and roosting	281.3	Unlikely
Common greenshank	E	Likely to occur	Foraging and breeding	281.3	Unlikely
Grey falcon	V	Likely to occur	Foraging and breeding	1117.6	Unlikely
Latham's snipe	V	Likely to occur	Foraging and roosting	281.3	Unlikely
Red goshawk	E	Potential to occur	Foraging	670.4	Unlikely
Plains rat	V	Potential to occur	Foraging and breeding	923.1	Unlikely
Migratory species					
Fork-tailed swift	SL	Potential to occur	Foraging, aerial	1117.6	Unlikely
Caspian tern	SL	Likely to occur	Foraging, aerial	281.3	Unlikely
Glossy ibis	SL	Likely to occur	Foraging, aerial	281.3	Unlikely

8. Conclusion

Three terrestrial ecological field surveys have been undertaken for the project to confirm the environmental values identified in the desktop assessment. This included detailed flora and fauna surveys across the project area and targeted habitat assessments to identify high-value resources and ESAs that should be avoided.

A protected plants flora survey trigger area is mapped over part of an on an existing vehicle access track between Warri Gate Road and the pipeline alignment at KP 83. Where clearing cannot be contained to the existing track disturbance the relevant necessary approvals and permits will be obtained.

Category C ESAs impacted as a result of the project include:

– of concern REs 5.5.1 and 5.5.1x2.

No Category A or Category B EASs are present within the project site.

Sixteen fauna species (and/or habitat) listed as critically endangered, endangered, vulnerable or special least concern under the NC Act were confirmed present, likely to occur or with the potential to occur within the project site. Under the EO Act, these protected wildlife habitats constitute MSES. All but one of the fauna species (being short-beaked echidna) are also listed as critically endangered, endangered, vulnerable and/or migratory under the EPBC Act. A separate EPBC Act referral (EPBC 2026/10534) was lodged on 28 May 2026. The proposed action is a controlled action, and the project will be assessed by preliminary documentation.

Two MSES values, regulated vegetation (defined watercourse) and regulated vegetation (wetland), were also confirmed present within the project site.

Avoidance measures prioritised the avoidance of areas of high-value and particularly slow-growing resources such as HBTs that would take substantial time to reinstate following construction, if impacted. This prioritisation was relevant, given much of the receiving environment is sparse, low-lying natural grasslands that are highly dynamic, experiencing substantial changes in vegetation cover over time, in response to seasonal rainfall levels.

Substantial impact avoidance has been achieved by refining the pipeline alignment, reducing the loss of HBTs to only nine trees (that support pink cockatoo (eastern) sized hollows) along the length of the project. HDD has also been proposed to avoid direct impact on high-value habitat for species along the Wilson River. These refinements reflect the early adoption of the hierarchy of avoidance and represent a considered response to survey recommendations.

Further, a suite of mitigation and management measures have been recommended for incorporation into the detailed design and project's construction, operations and decommissioning phases to avoid and minimise impacts to sensitive habitats, threatened species, and ecological connectivity.

Due to the avoidance and mitigation measures proposed and the relative abundance and ubiquity of species habitats in the surrounding regional landscape, the project is considered unlikely to have a significant residual impact on all but the following MSES:

– protected wildlife habitat for the plains-wanderer
– regulated vegetation (defined watercourse).

The assessment determined that the project is likely to result in a significant residual impact on regulated vegetation (defined watercourse) for which an offset under the EO Act is likely to be required. A potentially significant residual impact is predicted in relation to protected wildlife habitat for plains-wanderer.

MNES are prescribed environmental matters under the EO Act, however, offset conditions for MNES cannot be imposed, delivered or legally secured under the EO Act. The EO Act indicates that the preference is for offset conditions to be imposed by the Commonwealth rather than the State. On this basis any potential offsets determined to be required for impacts to plains-wanderer or its habitat are proposed to be imposed under the EPBC Act.

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Appendices

Appendix A

Likelihood of occurrence

A-1 Threatened flora species

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records (AVH)	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Frankenia plicata	Sea heath	E	LC	PMST	*Frankenia plicata* is a densely branched prostrate shrub around 25 cm tall, the species has green-grey foliage with pink flowers. The species flowers between September and October (DCCEEW, 2025b). *F. plicata* is endemic to South Australia from north of Port Augusta along the Stuart Highway to the Northern Territory border, and from Port Augusta north-east to Mare. The species grows in a range of habitats including small hillside channels, in swales of loamy sands to clay, and within vegetation communities with good drainage (DCCEEW, 2025b).	No	No – Records are restricted to South Australia.	No – The species is associated with buloke (*Allocasuarina luehmannii*) woodlands, iron-grasses (*Lomandra multiflora ssp. dura* and *L. effusa)* temperate grasslands and Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia (DoE, 2025).	No	No – *Frankenia* are detectable vegetatively. *F. serpyllifolia* was observed in flower with scattered occurrences between KP 236 and KP 255. No additional species of *Frankenia* were observed within the project area.	**Unlikely to occur** The project site is located outside of the species typical distribution; there are no nearby records.
Grevillea kennedyana	Flame spider-flower	V	V	PMST, WildNet	*Grevillea kennedyana* is an erect, multi-branched shrub growing 1–1.5 m high. The species has bright red inflorescence and silver-green foliage that are narrow and rigid. The species flowers in later winter through to spring (TSSC, 2016a). *G. kennedyana* occurs from a restricted distribution in north-west NSW and far south-west Queensland, and is associated with low sparse arid shrubland. The species is found on scree slopes of mesas and rocky drainage lines, and is locally restricted to the eastern escarpment of the Grey Range (TSSC, 2016a; AVH, 2025).	**Yes**	**Yes** – However records are >10 km from the project site, and are restricted to the Grey Range in a unique habitat type.	No – *Grevillea kennedyana* habitat is locally restricted to the receding eastern escarpment of the Grey Range, where it occurs amongst silcrete scree on the foot slopes of the range (AVH, 2025). This habitat type is not present within the project site.	No	No – The species is readily detectable vegetatively. Additionally, the species was within peak flowering during the survey period.	**Unlikely to occur** No suitable habitat occurs within the project site, and the species has a specific ecological niche that it is unlikely to occur within the project site.
Rhodanthe rufescens	–	NL	NT	WildNet, AVH	*Rhodanthe rufescens* is a small herbaceous plant with capitula 2.8–4 mm across; and longest leaves up to 6–15 mm long, 5–15 times longer than they are wide (Bean, 2017). *R. rufescens* is associated with acacia woodlands on low rocky ridges with gibber in alluvial channels (AVH, 2025).	N/A – Species does not have a SPRAT.	**Yes** – Two records (1987 and 2021) near Noccundra, with one record within 5 km of the project site.	**Yes** – Suitable habitat is present across the project site in RE 5.5.1 as mulga (*Acacia aneura*) woodlands, and RE 5.5.1x2 as gidgee (*A. cambagei*) woodlands.	No	**Yes** – The species is considered cryptic due to being less than 10 cm tall, and is often hidden amongst other herbaceous plants or where fallen timber restricts grazing pressure.	**Potential to occur** Suitable habitat for the species occurs within the project site as RE 5.5.1 and RE 5.5.1x2. Nearby specimen records exist.
Sclerolaena walkeri	–	V	LC	PMST	*Sclerolaena walkeri* is a small shrub 30 cm high known from central Queensland within the Desert Channels and Southwest Queensland Natural Resource Management Regions (DEWHA, 2008a). The species has been collected in river areas including the Diamantina River, Paroo River and Norley Range near the Bulloo River. *S. walkeri* has been observed on floodplains with Queensland bluebush (*Chenopodium auricomum*) and yapunyah (*Eucalyptus ochrophloia*) communities (DEWHA, 2008a).	**Yes**	No – Recent records are >70 km from the project site.	**Yes** – Queensland bluebush (*Chenopodium auricomum*) is present within RE 5.3.21, located on a floodplain within the project site. Yapunyah (*Eucalyptus ochrophloia*) is also present within RE 5.3.5, as subdominant to *E. coolabah*.	No	No – *Sclerolaena* are readily identifiable vegetatively and by their fruit which are retained on the long-lived plant. Additionally, 11 species of *Sclerolaena* were observed within the project site.	**Potential to occur** Suitable habitat for the species occurs within the project site as RE 5.2.21 and RE 5.3.5.
Xerothamnella parvifolia	–	V	LC	PMST	*Xerothamnella parvifolia* is a small shrub with opposite leaves, and leafless on the lower portion of the base. The species flowers opportunistically, dependent on rainfall; however, flowering has been recorded from October to April for Queensland populations (DEWHA, 2008b). *X. parvifolia* is found in minimally vegetated areas on skeletal clay soils and mesas. The species has been recorded in mulga woodlands, and *Acacia cambagei* woodland with *Senna* understorey; however, there are no associations with species established in literature (DEWHA, 2008b).	**Yes**	No – Closest records are ~28–49 km east of the centre of the project site.	No – The species is associated with minimally vegetated skeletal soils on scarp retreats, and adjacent crests of dissected tablelands of the Grey Range. This habitat type is not present within the project site.	No	No	**Unlikely to occur** No suitable habitat occurs within the project site, and the species has a specific ecological niche that it is unlikely to occur within the project site.

Notes: *E = endangered, V = vulnerable, NT = near threatened, NL = not listed, LC = least concern.*

A-2 Threatened fauna species

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Birds											
Actitis hypoleucos	Common sandpiper	Mig	SL	PMST	The common sandpiper is a highly-mobile sea bird that has a widespread distribution across Australia. The species is a non-breeding migrant to Australia, and inhabits coastal and sometimes inland wetlands (DCCEEW, 2025b). The species forages in shallow waters and soft mud edges in wetlands, typically roosting in branches or roots of vegetation, mostly in mangroves. They are primarily carnivorous, eating crustaceans, bivalves and insects (DCCEEW, 2025b).	**Yes**	No – Closest record ~46 km east of the project site, with additional records within 50 km.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable seasonal foraging habitat for the species. Channels retaining water throughout the year may also serve as habitat for the species.	No	**Yes** – Migrates to Australia from October to April.	**Unlikely to occur** Some seasonally suitable habitat is present within the project site; however the species has not been recorded within the project site.
Amytornis barbatus barbatus	Bulloo grey grasswren	E	E	PMST	The Bulloo grey grasswren is endemic to the floodplain of the Bulloo River on the Queensland–NSW border. Their distribution includes the Bulloo River overflow, and Caryapundy and Jerrara Swamps. The species' primarily habitat is swampy floodplains dominated by tall dense lignum (*Muehlenbeckia cunninghamii*) (DoE, 2014). They are also found occupying stands of swamp canegrass (*Eragrostis australasica*) when forming dense thickets. They forage for seeds and insects on or near dense vegetation, particularly the previously mentioned lignum and canegrass (DoE, 2014).	**Yes**	**Yes** – 1990 record ~2 km south-west of KP 236.	No – True lignum and/or canegrass swamps were not observed within the project site. Only a few scattered lignum plants were recorded; but not in the dense, swamp-like formations required by the species. Accordingly, suitable lignum swamp habitat for the Bulloo grey grasswren is absent from the project site.	No	No	**Unlikely to occur** Although the subspecies has been recorded in the broader region, it is restricted to dense, specialised habitats that are not present within the project site.
Aphelocephala leucopsis	Southern whiteface	V	V	PMST, WildNet	The southern whiteface occurs across mainland Australia south of the tropics to the south coast of mainland Australia. The species is found in a range of open woodlands and shrublands where an understorey of grasses and/or shrubs are present. Habitat for the species is dominated by acacias or eucalypts on ranges, foothills, lowlands and plains (DCCEEW, 2023c). The species forages at ground-level on insects, spiders and seeds from bare ground or leaf litter. The species nests and roosts in dead trees with hollows and crevices (DCCEEW, 2023c).	**Yes**	**Yes**	**Yes** – Habitat is present across the project site in acacia/mulga woodlands, as well as riparian ecosystems. Suitable nesting and roosting sites were also present in HBTs across the project site.	**Yes**	No	**Confirmed present** The species was confirmed present from four locations during field surveys, and suitable habitat occurs across the project site. Numerous recent and historic records for the species also occur within and adjacent to the project site.
Apus pacificus	Fork-tailed swift	Mig	SL	PMST	The species is a non-breeding migrant to Australia, arriving around October and leaving in mid-April. Within Queensland, there are sporadic records of the species from the Gulf Country, Cape York Peninsula, Great Divide, Townsville and Brisbane (DCCEEW, 2025b). The species is almost exclusively aerial, and found over inland plains, foothills and coastal areas; most commonly over dry and open habitats, such as riparian woodlands and tea-tree swamps (DCCEEW, 2025b).	**Yes**	**Yes** – 2017 and 2010 records ~4 km west of KP 84.	**Yes** – As an almost exclusively aerial species, the majority of the project site is considered suitable foraging habitat for the species.	No	**Yes** – Migrates to Australia from October to April.	**Potential to occur** Some suitable habitat is present within the project site, and the species has been recorded within the project site.
Calidris acuminata	Sharp-tailed sandpiper	V, Mig	V	PMST, WildNet	The sharp-tailed sandpiper occurs across Australia, and within Queensland, is widely spread coastally with scattered populations found inland. The species migrates to Australia during their non-breeding season (August) and departs in April prior to winter (DCCEEW, 2023e). The species prefers muddy edges of shallow, fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation (DCCEEW, 2023e).	**Yes**	**Yes** – 2018 record ~3 km from KP 231, and 2018 record ~1.5 km from KP 212.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable habitat for the species during migration periods.	No	**Yes** – Migrates to Australia from August to April.	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Calidris ferruginea	Curlew sandpiper	CE, Mig	CE	PMST	The curlew sandpiper is distributed around most of the Australian coastline; occurring along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are likely mainly of birds pausing for a few days during migration. The species breeds in Siberia and migrates to Australia for their non-breeding period, arriving between August and November, and departing between March and mid-April (DCCEEW, 2023f). The species generally occupies littoral and estuarine habitats, and is mainly found in intertidal mudflats of sheltered coasts in NSW. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. The species forages in or at the edge of shallow water, occasionally on exposed algal mats or waterweed, or on banks of beach-cast seagrass or seaweed (DCCEEW, 2023f).	**Yes**	**Yes** – 2018 record ~5 km from KP 84, and 2018 record ~50 km from KP 207.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable habitat for the species during migration periods.	No	**Yes** – Migrates to Australia from August to April.	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Calidris melanotos	Pectoral sandpiper	Mig	SL	PMST	The pectoral sandpiper is a non-breeding migrant to Australia, where it favours coastal areas, with some scattered records throughout inland Australia (DCCEEW, 2025b). The species prefers shallow fresh and saline wetlands, particularly coastal lagoons, estuaries, bays, swamps, lakes, grasslands, saltmarshes, and creeks. The species is omnivorous, consuming a variety of algae, seeds, crustaceans, insects and arachnids (DCCEEW, 2025b).	**Yes**	No – Closest record ~150 km east of the project site.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable seasonal foraging habitat for the species. Channels retaining water throughout the year may also serve as habitat for the species.	No	No	**Unlikely to occur** Some seasonally suitable habitat is present within the project site; however, the species has not been recorded within the project area.
Epthianura crocea crocea	Yellow chat (gulf)	NL	V	WildNet	The yellow chat (gulf) is distributed across northern Western Australia, throughout the Northern Territory, northern South Australia and western Queensland. The gulf sub-species has limited literature available, but in general, the species' habitat consists of swamp canegrass and lignum wetlands on artesian bore drains, as well as saltbush and blue bush on plains (Pizzey & Knight, 1991). It appears that the structure of the sedge, grass or shrub dominated vegetation, and not the floristic composition, is important for the survival of the species (Pizzey & Knight, 1991).	N/A – Species does not have a SPRAT.	No – Closest record ~77 km west of the project site in 2012.	No – Suitable wetland and floodplain habitats (e.g. swamp canegrass, lignum wetlands, or salt/bluebush plains) required by the species are not present within the project site.	No	No	**Unlikely to occur** No suitable habitat occurs within the project site, and the closest record is ~77 km from the project site.
Erythrotriorchis radiatus	Red goshawk	E	E	PMST	The red goshawk has a known distribution from across coastal Queensland and the Northern Territory, as well as within more central locations in Western Australia, central Australia and as far south as Sydney (DCCEEW, 2023g). The species inhabits a variety of ecosystems, including coastal and sub-coastal forests and woodlands, tropical savannas, edges of rainforests, and alongside rivers. The species typically nests in tall trees, within 1 km of a permanent water source (DCCEEW, 2023g).	**Yes**	No – Closest record ~143 km from the project site in 2025.	**Yes** – The project site lacks woodland structures (>14 m canopy height) typically required for nesting. The surrounding region could provide foraging habitat for the species, with open floodplains, riparian corridors, and wetlands supporting prey species.	No	No	**Potential to occur** Suitable foraging habitat for the species is present within the project site. Although the closest record is ~143 km away, the species has large home ranges (200–300 km²). As such, the species has been conservatively assessed as having the potential to occur within the project site.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Falco hypoleucos	Grey falcon	V	V	PMST, WildNet	The grey falcon is endemic to Australia, occurring at low densities across the country. The species occurs in arid to semi-arid areas where annual rainfall is less than 500 mm. It frequents timbered lowland plains, particularly acacia shrublands crossed by tree-lined watercourses, treeless areas, tussock grassland and open woodland (TSSC, 2020). The species breeds between June and November in mature *Eucalyptus camaldulensis* and *E. coolabah*, utilising nests made by other raptors and corvids (TSSC, 2020).	**Yes**	**Yes** – 2021 record ~5 km from KP 231, 2011 record ~3 km from KP 71, and 2017 record ~3 km from KP 60.	**Yes** – The Channel Country meets the species' climatic envelope (i.e. annual rainfall <500 mm); however; the availability of tall, mature nest trees was patchy. The project site serves predominately as foraging habitat for the species.	No	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Gallinago hardwickii	Latham's snipe	V, Mig	V	PMST	Latham's snipe is a migratory species which travels to Australia during their non-breeding season (December–February). Within Australia, the species occurs primarily on the east coast of Australia, as far as Cape York, to south-eastern South Australia (DCCEEW, 2024b). The species is generally observed in small groups or alone in freshwater wetlands on or near the coast, generally among dense cover. It is found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and in saltmarsh, and creek edges on migration. The species is also occasionally observed utilising crops and pasture (DCCEEW, 2024b).	**Yes**	**Yes** – 2005 record ~4 km south-west of KP 84.	**Yes** – Floodplains and ephemeral channels across the project ste likely serve as suitable seasonal habitat for the species. Channels retaining water throughout the year may also serve as habitat for the species.	No	**Yes** – Migrates to Australia from December to February.	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Grantiella picta	Painted honeyeater	V	V	PMST, WildNet	The painted honeyeater is sparsely distributed from south-eastern Australia to north-western Queensland and east of the Northern Territory. The largest population of the species is found inland of the Great Diving Range between the Grampians and Roma (DoE, 2015c). The species inhabits eucalypt woodlands/forest with mistletoes, river red gum, riparian woodlands of black box, acacia dominated woodlands, casuarinas, box-ironbark yellow gum, farmland trees and callitris (DoE, 2015c).	**Yes**	**Yes** – 2021 record ~4 km from KP 84, and 2015 record ~27 km from KP 172.	**Yes** – Habitat for the species occurs within the project site as river red gum along riparian corridors, and mature acacia woodlands are present with preferred mistletoe species. However, given the fragmented and narrow nature of available habitat, the project site is more likely to provide low-quality foraging and shelter opportunities rather than core habitat; as the species prefers larger remnants containing more mature trees.	No	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Hydroprogne caspia	Caspian tern	Mig	SL	WildNet	The Caspian tern is a large species of tern which is distributed along the entire Australian coastline, as well as further inland (apart from inland Western Australia). The species' habitat includes coastal offshore waters, beaches, mudflats, estuaries and sandspit islands (Pizzey & Knight, 1991).	No	**Yes** – 2017 record ~4 km south-west of KP 84.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable seasonal habitat for the species. Channels retaining water throughout the year may also serve as habitat for the species.	No	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Lophochroa leadbeateri leadbeateri	Pink cockatoo (eastern)	E	E	PMST, WildNet	The pink cockatoo (eastern) occurs in the Murray-Darling, Eyre and Bulloo River basins. The subspecies occupies and forages in arid and semi-arid woodlands dominated by *Acacia aneura* (mulga), mallee and box eucalypts, *Callitris gracilis*, or *Casuarina cristata* (DCCEEW, 2023d). The species nests in hollows of relatively large and tall trees in arid to semi-arid woodland (DCCEEW, 2023d).	**Yes**	**Yes**	**Yes** – Semi-arid mulga woodlands within the project site may provide suitable habitat for the species. However, the absence of mallee, box eucalypts, belah, and cypress pine suggests that this habitat is more likely to support foraging and dispersal. Potential breeding habitat in the form of HBTs was identified at major watercourses.	**Yes**	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Motacilla cinerea	Grey wagtail	Mig	SL	PMST	The grey wagtail is a non-breeding migrant to Australia, arriving in November-April, where it generally occurs in northern Australia (Pizzey & Knight, 1999). The species prefers habitat near running water in sandy, rocky streams within escarpments and rainforests; as well as sewage ponds, ploughed fields and airfields (Pizzey & Knight, 1999).	**Yes**	No – Closest record ~456 km east of the project site.	No – Habitat within the project site is not suitable, as the species favours rocky, fast-flowing streams and rainforest escarpments. The project site comprises arid floodplains with ephemeral, low-gradient watercourses lacking persistent rocky riffles.	No	**Yes** – Migrates to Australia from November to April.	**Unlikely to occur** Preferred habitat is not present, and the species has not been recorded within or adjacent to the project area.
Motacilla flava	Yellow wagtail	Mig	LC	PMST	The yellow wagtail is a non-breeding migrant to Australia, arriving in November to April, where it is generally observed in coastal areas. The species occurs in open country near swamps, salt marshes, sewerage ponds, grassed surrounds of airfields, and bare ground; and occasionally on drier inland plains (Pizzey & Knight, 1991). The species roosts in mangroves and other dense vegetation, and is a rare but regular visitor around the Australian coastline; especially the north-west coast, from Broome to Darwin (Pizzey & Knight, 1999).	**Yes**	No – Closest record >500 km from the project site.	No – Habitat within the project site is not suitable, as the species favours coastal/open lowlands with swamps, saltmarsh, sewerage ponds and mangroves for roosting. The inland Channel Country lacks these coastal wetlands and associated roost habitat.	No	**Yes** – Migrates to Australia from November to April.	**Unlikely to occur** Preferred habitat is not present, and the species has not been recorded within or adjacent to the project area.
Neophema chrysostoma	Blue-winged parrot	V	V	PMST, WildNet	The blue-winged parrot is a partial migrant to Australia, breeding on the mainland south of the Great Diving Range, south-east of South Australia and in Tasmania. During their non-breeding season in winter, the species will migrate across the Bass Strait, making a non-stop flight from Tasmania (DCCEEW, 2023b). The species has been recorded in northern Victoria, south-western Queensland, eastern South Australia and western NSW. The species occurs in grasslands and grassy woodlands near coastal and semi-arid regions (DCCEEW, 2023b).	**Yes**	**Yes**	**Yes** – The majority of the project site consists of grasslands and grassy woodlands, serving as good quality foraging habitat for the species.	**Yes**	No	**Confirmed present** The species was confirmed present from three locations during field surveys, and suitable habitat occurs across the project site. Numerous recent and historic records for the species also occur within and adjacent to the project area.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Pedionomus torquatus	Plains-wanderer	CE	CR	PMST, WildNet	The plains-wanderer is a small quail-like bird which is distributed across central Queensland and the Northern Territory, down to southern Victoria (ALA, 2025). The species inhabits sparse grasslands where the ground cover is 50 per cent bare, with vegetation consisting of short plants that are widely spaced (DoE, 2015d).	**Yes**	**Yes** – 2021 record ~16 km west of KP 236, and 1985 record ~1.5 km east of KP 213.	**Yes** – Suitable habitat for this species is present across the project site. The plains-wanderer requires a finely balanced structure of ground cover to persist. In the context of the Channel Country's inherently dynamic landscape, this narrow ecological niche results in a shifting habitat envelope, with the extent and quality of suitable habitat likely fluctuating spatially and temporally throughout the year.	No	**Yes** – Rare species.	**Confirmed present** Suitable habitat is present across the project site. Additionally, records of the species indicate a previous presence of a small, isolated population within the region. The plains-wanderer was confirmed within the project site at five locations through acoustic detections. The species is thought to occur at spatially fluctuating habitat across the project area.
Pezoporus occidentalis	Night parrot	E	CR	PMST	The night parrot is a medium-sized nocturnal ground-feeding parrot with a historically unknown distribution range due to minimal observations of the species. With records and observations of the species being rare, some information is available around habitat requirements. Suitable habitat for the species includes *Triodia* (spinifex) grasslands and/or chenopod shrublands in arid and semi-arid zones (TSSC, 2016b). Other associated species include *Astrebla spp.,* shrubby samphire and chenopod associations, scattered trees and shrubs, *Acacia aneura* (mulga) woodland, treeless areas and bare gibber (TSSC, 2016b).	**Yes**	No – Closest record ~285 km west of the project site.	No – *Triodia* (spinifex) roosting habitat was not recorded within or adjacent to the project site. Although chenopod shrublands occur across the project site, in the absence of suitable roosting habitat, these areas are not considered capable of supporting the species.	No	**Yes** – Rare species.	**Unlikely to occur** No *Triodia* (spinifex) roosting habitat for the species is present within or adjacent to the project site, and the closest verified record of the species is ~285 km west of the project site.
Plegadis falcinellus	Glossy ibis	Mig	SL	WildNet	The glossy ibis is distributed Australia-wide, predominantly in coastal regions and mainland eastern Australia (ALA, 2025). The species forages and breeds in the shallows of fresh water marshes on the edges of lakes and rivers, lagoons, floodplains, wet meadows, swamps and a variety of other water-associated habitats (Pizzey & Knight, 1991). Their diet includes aquatic invertebrates such as freshwater snails, mussels, crabs and crayfish, but they will also consume small vertebrates and aquatic plant seeds. The species breeds in mid-spring to the end of summer, creating nests of twigs and vegetation positioned 1–7 m above water in tall, dense stands of vegetation (Pizzey & Knight, 1991).	N/A – Species does not have a SPRAT.	**Yes** – 2012 record ~10 km east of KP 236; and 2023, 2012, and 2011 records ~5 km south-west of KP 84.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable seasonal habitat for this species. Channels retaining water throughout the year may also serve as habitat for the species.	No	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Rostratula australis	Australian painted snipe	E	E	PMST	The Australian painted snipe is found across all states in Australia, but is most commonly observed in eastern Australia. The species generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps, claypans and waterlogged grasslands (DSEWPC, 2013).	**Yes**	No – Closest record ~50 km south of the Queensland–NSW border.	**Yes** – Floodplains and ephemeral channels across the project site serve as suitable seasonal habitat for the species. Channels retaining water throughout the year may also serve as habitat for the species.	No	No	**Unlikely to occur** Suitable habitat is present for the species within the project site; however, the closest record is ~50 km from the project site.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Tringa nebularia	Common greenshank	E	E	WildNet	The common greenshank is distributed globally, and migrates to Australia during their non-breeding period, where the species is widespread in coastal regions. Within Queensland, the species occurs in both coastal and inland wetland habitats, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops (DCCEEW, 2024a).	**Yes**	**Yes** – 2001 record ~1 km south-east of KP 78.	**Yes** – Floodplains and ephemeral channels across the project site likely serve as suitable seasonal habitat for this species. Channels retaining water throughout the year may also serve as habitat for the species.	No	**Yes** – Migrates to Australia from August to November.	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.
Mammals											
Macroderma gigas	Ghost bat	V	E	PMST	The ghost bat's known distribution is currently a discontinuous geography with disjunct colonies occurring in the Pilbara, Kimberley, northern Northern Territory, Gulf of Carpentaria, and coastal and near-coastal eastern Queensland from Cape York to near Rockhampton and western Queensland (TSSC, 2016c). The species is known to occur in rainforests, vine shrub, open woodlands and arid zones; and roosts in caves, rock crevices and old mine shafts. The species requires multiple roosting sites and moves between several caves seasonally, or as dictated by weather conditions (TSSC, 2016c).	**Yes**	No – Closest record ~36 km west of the northern end of the project site in 1998.	No – Suitable habitat was not observed within or adjacent to the project site. The project site primarily contains open plains and ephemeral creeks, with no rocky areas or caves suitable for the species observed.	No	No	**Unlikely to occur** No suitable habitat was observed within the project site, and the most recent record of the species is >30 km away from 1988.
Notomys fuscus	Dusky hopping-mouse	V	E	PMST	The dusky hopping-mouse is a small nocturnal rodent with a distribution across north-eastern South Australia, north-western NSW and south-western Queensland. Within Queensland, the species has been observed in the Desert Channels in proximity to vegetated areas and national parks (DEWHA, 2008c). The species is found in variety of soft sandy habitats, preferring sand dunes, hills and ridges with vegetation including cane grass (*Ophiuros exaltatus*), sandhill wattle (*Acacia ligulata*), nitrebush (*Nitraria billardiera*), sticky hopbush (*Dodonaea viscosa*) and other annual/perennial shrubs (DEWHA, 2008c).	**Yes**	No – Closest record ~36 km south-east of the Queensland–NSW border.	No – True dunes were not observed within the project site during field surveys. Only minor wind-blown sand accumulations were present, typically forming small mounds or drifts around the bases of *Acacia* spp.	No	No	**Unlikely to occur** Preferred habitat is not present within the project site, and there are no records of the species within or adjacent to the project site.
Petrogale xanthopus celeris	Yellow-footed rock-wallaby (central-western Queensland)	V	V	PMST	The yellow-footed rock-wallaby (central-western Queensland) has a restricted distribution within the rocky ranges of central-western Queensland; which includes the Gowan, Grey Cheviot, Yangang, Macedon, Edinburgh and McGregor Ranges and Mariala National Park (TSSC, 2016d). The species is predominantly nocturnal and shelters during the day in caves and rock crevices. Habitat for the species includes rugged rocky areas along the edges of low sandstone tablelands and hills, typically with low acacia woodlands or shrublands (TSSC, 2016d).	**Yes**	No – Closest records ~60 km east and north of the project site.	No – Suitable habitat was not observed within or adjacent to the project site. The project site primarily contains open plains and ephemeral creeks, with no rocky areas or caves suitable for the species observed.	No	No	**Unlikely to occur** No suitable habitat was observed within the project site, and the most recent records of the species are >50 km away.
Pseudomys australis	Plains rat	V	V	PMST	The plains rat is a small murid rodent which occurs primarily in the Stony Plains bioregion in South Australia. However, there some outlying records present within the Channel Country bioregion in Queensland, specifically as remains detected within owl pellets at Diamantina National Park (Moseby, 2012). The species prefers habitat with cracking clay soils and gilgais in opens plains associated with minor drainage features. The species is primarily herbivorous, feeding mainly on seeds and plant materials, and rarely insects (Moseby, 2012).	**Yes**	No – Closest record ~54 km south of the Queensland–NSW border.	**Yes** – Cracking clay soils and gilgais observed across the project site are suitable for the species, and abundant in the general landscape.	No	**Yes** – Cryptic species in low numbers.	**Potential to occur** The project site contains suitable habitat for the species; however, the closest known record is >50 km away. Hence, the species has been conservatively assessed as having the potential to occur within the project site.

Scientific name	Common name	EPBC Act status	NC Act status	Source	Habitat requirements and distribution	Project area within mapped SPRAT distribution	Nearby historical records	Habitat presence and quality	Species recorded during field surveys	Conservatism needed due to reduced detectability	Likelihood of occurrence
Tachyglossus aculeatus	Short-beaked echidna	NL	SL	WildNet	The short-beaked echidna is distributed throughout Australia. The species thrives in a variety of habitats including open woodlands, savannah, agricultural areas, and semi-arid and arid regions (Augee, 1998). The species occurs in both coastal and highland areas within a range of ecosystems from mild coastal regions to above the snowline. They have a broad altitudinal range from sea level to at least 1,675 m above ground level (Augee, 1998).	N/A – Species does not have a SPRAT.	**Yes** – 2012 record ~12 km east of KP 4, and 2011 record ~15 km west of KP 4.	**Yes** – The majority of the project site is considered suitable habitat for the species.	No	No	**Likely to occur** Suitable habitat is present within the project site, and the species has been recorded within the project area.

Notes: CE/CR = critically endangered, E = endangered, V = vulnerable, NT = near threatened, SL = special least concern, LC = least concern, Mig = migratory, NL = not listed.

Appendix B

Desktop search results

AREA REPORT

Atlas of Living Australia
ala.org.au
sharing biodiversity knowledge
www.ala.org.au

Area: 10,337.76 sq km	Species: 1091	Occurrences: 15255
Endemic species: 2	All threatened species: 211	Migratory species: 0
All invasive species: 4	Iconic species: 17	JournalMap Articles: 2
Animals: 586	Plants: 506	Birds: 253

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Alignment Comb

Area: 10,337.76 sq km

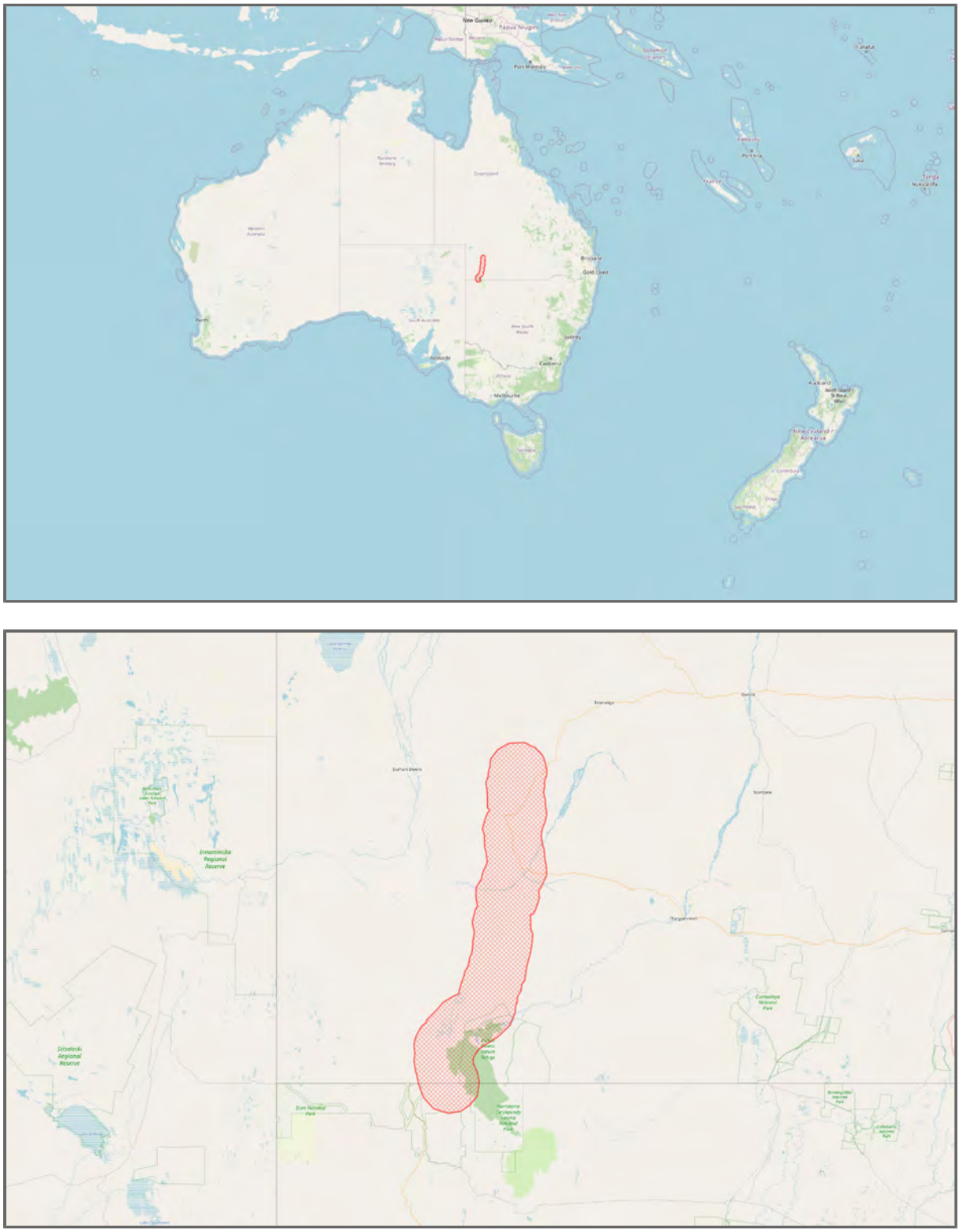


Figure 1 : Map of Alignment Comb

All threatened species

Number of threatened species: **211**

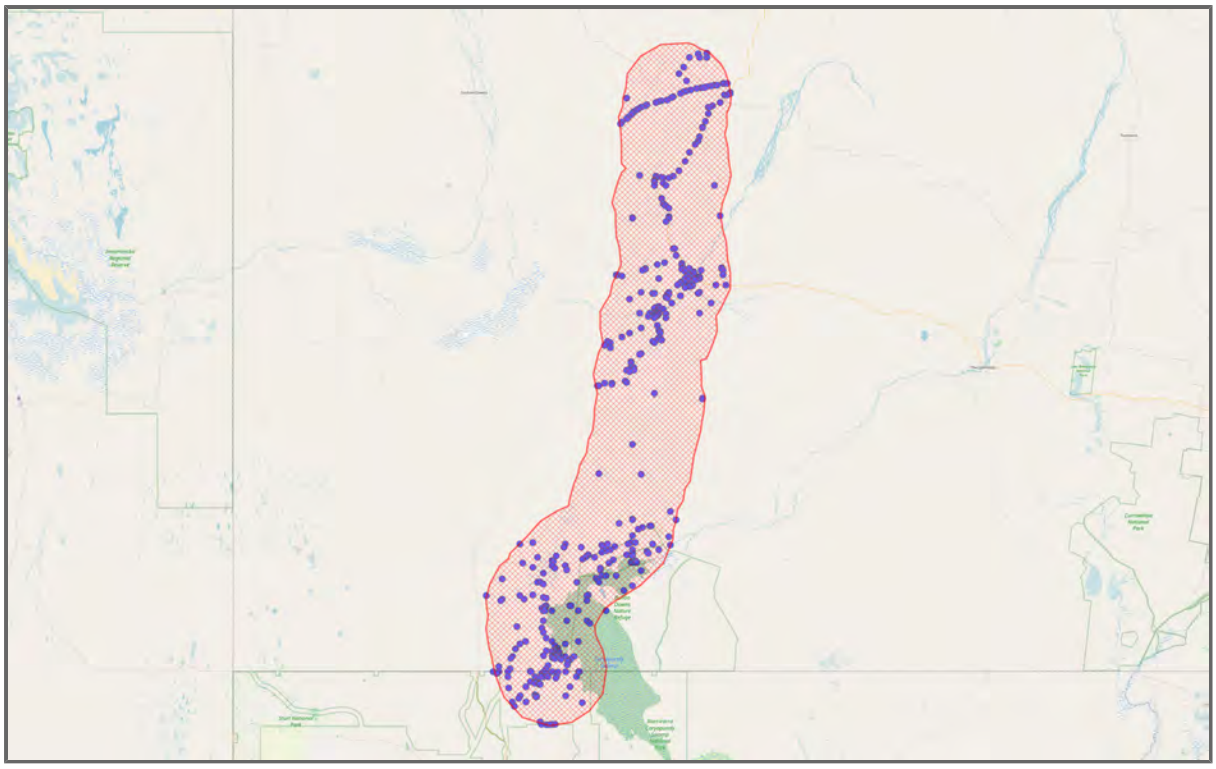


Figure 2 : Map of All threatened species

Table 1: All threatened species (Link to full list)

Family	*Scientific Name*	Common Name	No. Occurrences
Psophodidae	Psophodes (Sphenostoma) cristatus	Chirruping Wedgebill	186
Columbidae	Geopelia cuneata	Diamond Dove	143
Maluridae	Amytornis (Maluropsis) barbatus	Grey Grasswren	133
Gruidae	Antigone rubicunda	Brolga	100
Proteaceae	Grevillea kennedyana	Flame Spider Flower	79
Campephagidae	Lalage (Lalage) tricolor	White-winged Triller	59
Corcoracidae	Struthidea cinerea	Apostlebird	56
Otididae	Ardeotis australis	Australian Bustard	48
Muridae	Rattus villosissimus	Long-haired Rat	48
Monarchidae	Myiagra (Seisura) inquieta	Restless Flycatcher	46
Ardeidae	Ardea alba modesta	Great Egret	44
Accipitridae	Circus assimilis	Spotted Harrier	43
Oreoicidae	Oreoica gutturalis	Crested Bellbird	40
Acanthizidae	Aphelocephala leucopsis	Southern Whiteface	37
Ptilonorhynchidae	Chlamydera maculata	Spotted Bowerbird	37
Meliphagidae	Certhionyx (Certhionyx) variegatus	Pied Honeyeater	33
Climacteridae	Climacteris (Climacteris) picumnus	Brown Treecreeper	31
Chelidae	Emydura macquarii	Macquarie River Turtle	29
Pelodryadidae	Cyclorana cultripes	Knife-footed Frog	26
Petroicidae	Melanodryas (Melanodryas) cucullata	Hooded Robin	24
Threskiornithidae	Plegadis falcinellus	Glossy Ibis	24
Accipitridae	Hieraaetus (Hieraaetus) morphnoides	Little Eagle	23
Columbidae	Phaps (Histriophaps) histrionica	Flock Bronzewing	19
Dasyuridae	Sminthopsis macroura	Stripe-faced Dunnart	18
Charadriidae	Peltohyas australis	Inland Dotterel	16

Muridae	Pseudomys hermannsburgensis	Sandy Inland Mouse	15
Cacatuidae	Calyptorhynchus (Calyptorhynchus) banksii	Red-tailed Black Cockatoo	14
Falconidae	Falco (Hierofalco) subniger	Black Falcon	14
Alaudidae	Mirafra (Mirafra) javanica	Horsfield's Bushlark	14
Meliphagidae	Epthianura (Epthianura) albifrons	White-fronted Chat	13
Scrophulariaceae	Eremophila bignoniiflora	Bignonia Emu-bush	13
Chenopodiaceae	Atriplex holocarpa	Pop Saltbush	12
Campephagidae	Coracina (Pteropodocys) maxima	Ground Cuckoo-shrike	12
Falconidae	Falco (Hierofalco) hypoleucos	Grey Falcon	12
Maluridae	Malurus (Leggeornis) assimilis bernieri	Shark Bay Purple-backed Fairy-wren	12
Macropodidae	Petrogale persephone	Proserpine Rock-wallaby	12
Asteraceae	Brachyscome ciliaris	Variable Daisy	11
Asteraceae	Minuria integerrima	Smooth Minuria	11
Chenopodiaceae	Neobassia proceriflora	Soda Bush	11
Poaceae	Panicum laevinode	Pepper Grass	11
Pomatostomidae	Pomatostomus (Pomatostomus) halli	Hall's Babbler	10
Chenopodiaceae	Sclerolaena lanicuspis	Woolly Copper Burr	10
Poaceae	Eragrostis setifolia	Lovegrass	9
Scrophulariaceae	Eremophila sturtii	Narrow-leaved Emu-bush	9
Falconidae	Falco (Hierofalco) peregrinus	Peregrine Falcon	9
Laridae	Hydroprogne caspia	Caspian Tern	9
Acanthizidae	Pyrrholaemus brunneus	Redthroat	9
Meliphagidae	Grantiella picta	Painted Honeyeater	8
Accipitridae	Hamirostra melanosternon	Black-breasted Buzzard	8
Brassicaceae	Lepidium phlebopetalum	Veined Peppercress	8
Podicipedidae	Podiceps cristatus	Great Crested Grebe	8
Pygopodidae	Pygopus schraderi	Eastern Hooded Scaly-foot	8
Aizoaceae	Trianthema triquetrum	Red Spinach	8
Myobatrachidae	Uperoleia rugosa	Chubby Gungan	8
Maluridae	Amytornis (Maluropsis) barbatus barbatus	Bulloo Grey Grasswren	7
Scincidae	Cyclodomorphus venustus	Saltbush Slender Blue-tongue	7
Poaceae	Eragrostis australasica	Lovegrass	7
Frankeniaceae	Frankenia serpyllifolia	Thyme Sea-heath	7
Malvaceae	Hibiscus brachysiphonius	Low Hibiscus	7
Chenopodiaceae	Salsola australis	Buckbush	7
Chenopodiaceae	Sclerolaena intricata	Tangled Poverty Bush	7
Anatidae	Spatula rhynchotis	Australasian Shoveler	7
Scolopacidae	Calidris (Erolia) acuminata	Sharp-tailed Sandpiper	6
Psittacidae	Neophema (Neonanodes) chrysostoma	Blue-winged Parrot	6
Asteraceae	Rhodanthe stricta	Slender Sunray	6
Santalaceae	Santalum lanceolatum	Northern Sandalwood	6
Chenopodiaceae	Sclerolaena decurrens	Green Copper Burr	6
Malvaceae	Abutilon malvifolium	Mallow-leaf Lantern-flower	5
Fabaceae	Acacia victoriae subsp. victoriae	Bramble Wattle	5
Apodidae	Apus (Apus) pacificus	Fork-tailed Swift	5
Anatidae	Biziura lobata	Musk Duck	5
Scincidae	Ctenotus joanae	Black-soil Ctenotus	5
Poaceae	Dactyloctenium radulans	Button Grass	5
Euphorbiaceae	Euphorbia parvicaruncula	Rough-seeded Caustic Bush	5
Laridae	Gelochelidon nilotica	Gull-billed Tern	5
Muridae	Hydromys chrysogaster	Water-rat	5
Amaranthaceae	Ptilotus obovatus	Silver Tails	5
Asteraceae	Rhodanthe floribunda	Large White Sunray	5
Asteraceae	Senecio gregorii	Fleshy Groundsel	5
Fabaceae	Senna artemisioides subsp. alicia	Cassia	5
Malvaceae	Sida fibulifera	Pin Sida	5

Fabaceae	Swainsona oligophylla	Swainsona	5
Poaceae	Tripogonella loliiformis	Five-minute Grass	5
Pythonidae	Antaresia childreni	Children's Python	4
Poaceae	Astrebla lappacea	Curly Mitchell Grass	4
Cyperaceae	Cyperus dactylotes	Nutgrass	4
Elapidae	Demansia rimicola	Soil-crack Whipsnake	4
Scrophulariaceae	Eremophila polyclada	Lignum Fuchsia Bush	4
Cyperaceae	Fimbristylis dichotoma	Fringe-rush	4
Scolopacidae	Gallinago (Gallinago) hardwickii	Latham's Snipe	4
Asteraceae	Leiocarpa leptolepis	Leiocarpa	4
Chenopodiaceae	Maireana georgei	Satiny Bluebush	4
Strigidae	Ninox (Hieracoglaux) connivens	Barking Owl	4
Anatidae	Oxyura australis	Blue-billed Duck	4
Elapidae	Pseudonaja modesta	Ringed Brown Snake	4
Malvaceae	Abutilon otocarpum	Desert Lantern	3
Fabaceae	Acacia oswaldii	Umbrella Wattle	3
Poaceae	Eragrostis lacunaria	Lovegrass	3
Fabaceae	Glycine canescens	Silky Glycine	3
Goodeniaceae	Goodenia		3
Scincidae	Morethia adelaidensis	Saltbush Morethia Skink	3
Diplodactylidae	Oedura cincta	Inland Marbled Velvet Gecko	3
Meliaceae	Owenia acidula	Sour Apple	3
Asteraceae	Rutidosis helichrysoides subsp. helichrysoides	Grey Wrinklewort	3
Santalaceae	Santalum acuminatum	Sweet Quandong	3
Asteraceae	Senecio lanibracteus	Inland Shrubby Groundsel	3
Dasyuridae	Sminthopsis crassicaudata	Fat-tailed Dunnart	3
Amaranthaceae	Surreya diandra	Mallee Hemichroa	3
Amaranthaceae	Surreya mesembryanthema		3
Poaceae	Triraphis mollis	Needle Grass	3
Turnicidae	Turnix pyrrhothorax	Red-chested Button-quail	3
Fabaceae	Acacia calcicola	Northern Myall	2
Poaceae	Aristida holathera var. holathera	Tall Kerosene Grass	2
Chenopodiaceae	Atriplex angulata	Fan Saltbush	2
Chenopodiaceae	Atriplex lindleyi subsp. conduplicata	Baldoo	2
Canidae	Canis familiaris	Dingo	2
Asteraceae	Centipeda thespidioides	Desert Sneezeweed	2
Climacteridae	Climacteris (Climacterobates) affinis	White-browed Treecreeper	2
Corcoracidae	Corcorax melanorhamphos	White-winged Chough	2
Fabaceae	Crotalaria smithiana	Yellow Rattlepod	2
Fabaceae	Cullen pallidum	Woolly Scurf-pea	2
Brassicaceae	Cuphonotus humistratus	Mother-of-misery	2
Cyperaceae	Cyperus victoriensis	Yelka	2
Neosittidae	Daphoenositta (Neositta) chrysoptera	Varied Sittella	2
Acanthaceae	Dipteracanthus australasicus subsp. corynothecus		2
Euphorbiaceae	Euphorbia stevenii	Bottletree Caustic	2
Euphorbiaceae	Euphorbia tannensis subsp. eremophila	Bottle Tree Caustic	2
Laridae	Gelochelidon nilotica macrotarsa		2
Convolvulaceae	Ipomoea polymorpha	Silky Cow-vine	2
Muridae	Leggadina forresti	Forrest's Mouse	2
Asteraceae	Leucochrysum molle	Hoary Sunray	2
Meliphagidae	Lichmera (Lichmera) indistincta indistincta	Western Brown Honeyeater	2
Asteraceae	Minuria cunninghamii	Bush Minuria	2
Fabaceae	Neptunia dimorphantha	Nervous Plant	2
Pedionomidae	Pedionomus torquatus	Plains Wanderer	2
Brassicaceae	Phlegmatospermum eremaeum	Spreading Cress	2
Elapidae	Pseudonaja guttata	Speckled Brown Snake	2

Meliphagidae	Ptilotula plumula	Grey-fronted Honeyeater	2
Amaranthaceae	Ptilotus nobilis	Yellow-tails	2
Amaranthaceae	Ptilotus stirlingii		2
Asteraceae	Rhodanthe uniflora	Woolly Daisy	2
Diplodactylidae	Rhynchoedura ornata	Western Beaked Gecko	2
Solanaceae	Solanum lacunarium	Lagoon Nightshade	2
Chenopodiaceae	Tecticornia pergranulata subsp. divaricata	Samphire	2
Elapidae	Vermicella annulata	Bandy-bandy	2
Campanulaceae	Wahlenbergia tumidifructa	Swollen-fruit Bluebell	2
Accipitridae	ACCIPITRIDAE		1
Malvaceae	Abutilon fraseri	Dwarf Lantern-flower	1
Fabaceae	Acacia petraea	Lancewood	1
Amaranthaceae	Alternanthera denticulata	Lesser Joyweed	1
Chenopodiaceae	Atriplex limbata	Spreading Saltbush	1
Chenopodiaceae	Atriplex spongiosa	Small Pop Saltbush	1
Nyctaginaceae	Boerhavia coccinea	Scarlet Spiderling	1
Goodeniaceae	Brunonia australis	Blue Pincushion	1
Scolopacidae	Calidris (Erolia) ferruginea	Curlew Sandpiper	1
Amaryllidaceae	Calostemma luteum	Yellow Garland-lily	1
Cacatuidae	Calyptorhynchus (Calyptorhynchus) banksii samueli	Inland Red-tailed Black-cockatoo	1
Capparaceae	Capparis loranthifolia var. loranthifolia	Narrow-leafed Bumble	1
Asteraceae	Centipeda pleiocephala	Tall Sneezeweed	1
Charadriidae	Charadrius (Charadrius) leschenaultii	Greater Sand Plover	1
Pteridaceae	Cheilanthes lasiophylla	Woolly Cloak-fern	1
Cinclosomatidae	Cinclosoma (Malleeavis) castanotum	Chestnut Quail-thrush	1
Scincidae	Coeranoscincus reticulatus	Three-toed Snake-tooth Skink	1
Convolvulaceae	Convolvulus clementii	Desert Bindweed	1
Convolvulaceae	Convolvulus graminetinus	Grassland Bindweed	1
Fabaceae	Crotalaria cunninghamii	Green Bird Flower	1
Scincidae	Ctenotus olympicus	Saltbush Striped Skink	1
Fabaceae	Cullen australasicum	Native Scurf-pea	1
Fabaceae	Cullen cinereum	Annual Scurf-pea	1
Fabaceae	Cullen tenax	Emu-foot	1
Chenopodiaceae	Dissocarpus biflorus var. biflorus	Twin-flower Saltbush	1
Poaceae	Echinopogon ovatus	Common Hedgehog-grass	1
Meliphagidae	Epthianura (Aurepthianura) crocea	Yellow Chat	1
Poaceae	Eragrostis lanicaulis	Lovegrass	1
Scrophulariaceae	Eremophila maculata subsp. maculata	Spotted Fuchsia	1
Asteraceae	Ethuliopsis cunninghamii	Tall Nut-heads	1
Boraginaceae	Euploca geocharis		1
Goodeniaceae	Goodenia collaris		1
Goodeniaceae	Goodenia heteromera	Spreading Goodenia	1
Goodeniaceae	Goodenia lunata	Stiff Goodenia	1
Haloragaceae	Haloragis aspera	Rough Raspwort	1
Malvaceae	Hibiscus krichauffianus	Velvet-leaf Hibiscus	1
Apodidae	Hirundapus caudacutus	White-throated Needletail	1
Cacatuidae	Lophochroa leadbeateri leadbeateri	Major Mitchell's Cockatoo	1
Cacatuidae	Lophochroa leadbeateri	Major Mitchell's Cockatoo	1
Accipitridae	Lophoictinia isura	Square-tailed Kite	1
Diplodactylidae	Lucasium steindachneri	Box-patterned Gecko	1
Chenopodiaceae	Maireana pentagona	Slender Fissure-plant	1
Chenopodiaceae	Malacocera tricornis	Soft Horns	1
Petroicidae	Melanodryas (Melanodryas) cucullata cucullata	South-eastern Hooded Robin	1
Asteraceae	Minuria denticulata	Woolly Minuria	1
Asteraceae	Minuria		1
Pythonidae	Morelia spilota variegata		1

Psittacidae	Neophema (Neonanodes) elegans	Elegant Parrot	1
Psittacidae	Neophema (Neophema) pulchella	Turquoise Parrot	1
Menyanthaceae	Nymphoides crenata	Wavy Marshwort	1
Agamidae	Pogona barbata	Common Bearded Dragon	1
Pomatostomidae	Pomatostomus (Pomatostomus) temporalis	Grey-crowned Babbler	1
Gentianaceae	Schenkia australis	Schenkia	1
Chenopodiaceae	Sclerolaena ventricosa	Salt Bindyi	1
Fabaceae	Senna artemisioides subsp. artemisioides	Cassia	1
Fabaceae	Sesbania cannabina var. cannabina	Sesbania Pea	1
Poaceae	Sporobolus caroli	Yakka Grass	1
Brassicaceae	Stenopetalum lineare	Narrow Thread-petal	1
Anatidae	Stictonetta naevosa	Freckled Duck	1
Fabaceae	Swainsona flavicarinata	Yellow-keel Swainson-pea	1
Phasianidae	Synoicus ypsilophora australis	Swamp Quail	1
Phyllanthaceae	Synostemon trachyspermus	Rough-seed Spurge	1
Scincidae	Tiliqua multifasciata	Centralian Blue-tongue	1
Fabaceae	Trigonella suavissima	Sweet Fenugreek	1
Scolopacidae	Tringa (Glottis) nebularia	Common Greenshank	1

Migratory species

Number of migratory species: **0**

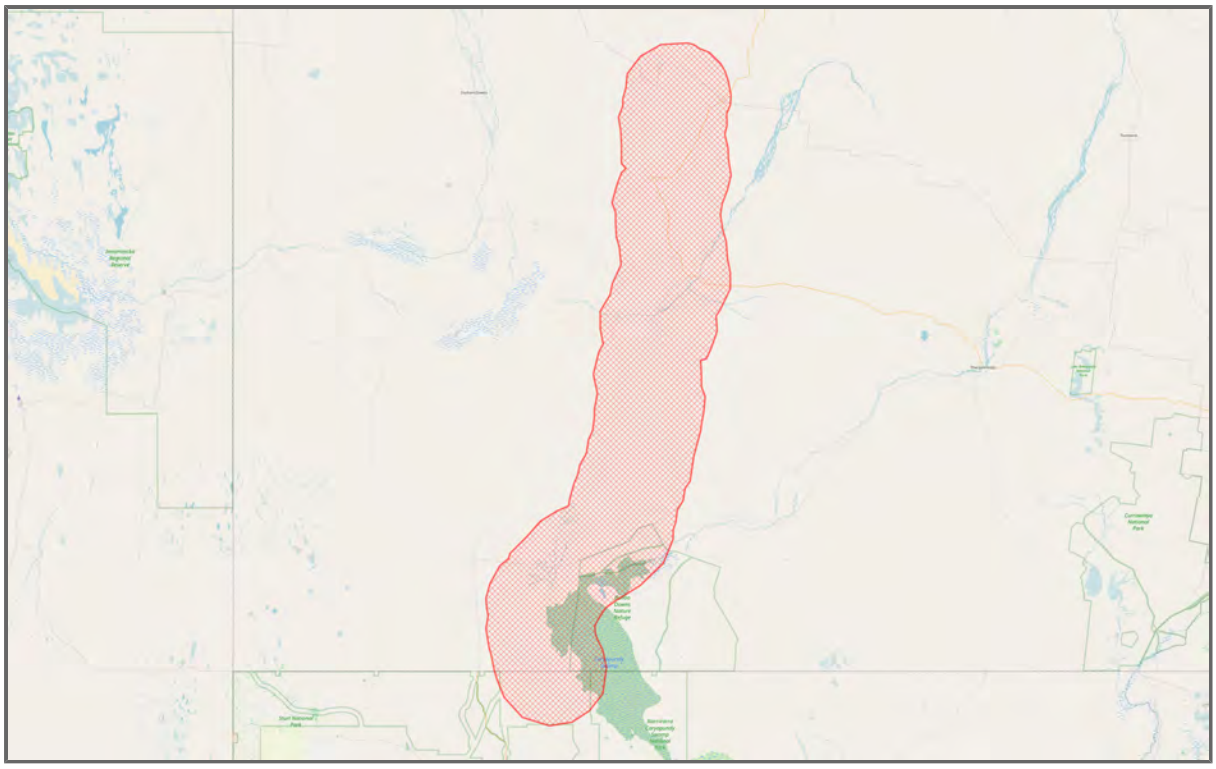


Figure 3 : Map of Migratory species

Table 2: Migratory species (Link to full list)

Family	*Scientific Name*	Common Name	No. Occurrences

Further Links

Geoscience Australia: http://www.ga.gov.au/
Global Biodiversity Information Facility: https://www.gbif.org/
Threatened Species & Ecological Communities: https://www.environment.gov.au/topics/threatened-species-ecological-communities
WWF Ecoregions: https://worldwildlife.org/biomes
Environmental Resources Information Network (ERIN): https://www.environment.gov.au/topics/science-and-research/databases-and-maps/erin
Australian National Fish Expert Distributions: https://collections.ala.org.au/public/show/dr803
Lists of Australian endemic species: http://Intreasures.com/australia.html

Federal

Department of Climate Change, Energy, the Environment and Water: https://www.dcceew.gov.au

State/Territory

Australian Capital Territory

Environment and Sustainable Development Directorate: https://www.act.gov.au/environment

New South Wales

Department of Climate Change, Energy, the Environment and Water: https://www.environment.nsw.gov.au

Northern Territory

Department of Lands, Planning and Environment: https://environment.nt.gov.au

Queensland

Department of the Environment, Tourism, Science and Innovation: https://environment.qld.gov.au

South Australia

Department for Environment and Water: https://www.environment.sa.gov.au

Tasmania

Department of Natural Resources and Environment Tasmania: https://nre.tas.gov.au

Victoria

Department of Energy, Environment and Climate Action: https://www.deeca.vic.gov.au

Western Australia

Department of Biodiversity, Conservation and Attractions: https://www.dbca.wa.gov.au

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Point No.	Latitiude	Longitude	Kingdom	Class	Scientific name	Common name	NC status	EPBC Status	Records	ALA location	Last record
1	-27.0876	142.6699	Animalia	Mammalia	Tachyglossus aculeatus	short-beaked echidna	SL	-	2	-27.1301, 142.7864	Oct-2012
			Plantae	Equisetopsida	Santalum lanceolatum	northern sandalwood	SL	-	1	NA	NA
2	-27.1763	142.6566	Animalia	Mammalia	Tachyglossus aculeatus	short-beaked echidna	SL	-	2	-27.1301, 142.7864	Oct-2012
3	-27.2662	142.6576	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	1	-27.365, 142.6178	NA
			Animalia	Mammalia	Tachyglossus aculeatus	short-beaked echidna	SL	-	1	-27.1301, 142.7864	Oct-2012
4	-27.3548	142.666	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	3	-27.4661, 142.6367	Aug-2004
5	-27.438	142.6375	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	3	-27.4661, 142.6367	Aug-2004
6	-27.5275	142.6383	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	4	-27.6558, 142.6883	May-2024
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	1	-27.68, 142.73	NA
7	-27.6098	142.6547	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	4	-27.6558, 142.6883	May-2024
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-27.7263, 142.7165	Aug-1994
			Animalia	Aves	Tringa nebularia	common greenshank	E	E	1	-27.7667, 142.6333	Oct-2001
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	2	-27.7628, 142.6246	Aug-2024
8	-27.6976	142.6684	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	4	-27.6558, 142.6883	May-2024
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-27.82, 142.5923	Aug-2021
			Animalia	Aves	Falco hypoleucos	grey falcon	V	V	2	-27.7, 142.6	Jul-2017
			Animalia	Aves	Grantiella picta	painted honeyeater	V	V	3	-27.82, 142.5923	Jun-2024
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	3	-27.7628, 142.6246	Aug-2024
			Plantae	Equisetopsida	Rhodanthe rufescens	-	NT	-	1	-27.8068, 142.5929	Aug-1987
			Animalia	Aves	Tringa nebularia	common greenshank	E	E	1	-27.7667, 142.6333	Oct-2001
9	-27.7703	142.6211	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	5	-27.6558, 142.6883	May-2024
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-27.82, 142.5923	Aug-2021
			Animalia	Aves	Falco hypoleucos	grey falcon	V	V	2	-27.7, 142.6	Jul-2017
			Animalia	Aves	Grantiella picta	painted honeyeater	V	V	3	-27.82, 142.5923	Jun-2024
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	2	-27.8651, 142.5346	May-1977
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	3	-27.7628, 142.6246	Aug-2024
			Plantae	Equisetopsida	Rhodanthe rufescens	-	NT	-	1	-27.8068, 142.5929	Aug-1987
			Animalia	Aves	Tringa nebularia	common greenshank	E	E	1	-27.7667, 142.6333	Oct-2001
10	-27.8568	142.6191	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	4	-27.8, 142.5833	Aug-2007
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-27.82, 142.5923	Aug-2021
			Animalia	Aves	Falco hypoleucos	grey falcon	V	V	2	-27.7, 142.6	Jul-2017
			Animalia	Aves	Grantiella picta	painted honeyeater	V	V	3	-27.82, 142.5923	Jun-2024
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	2	-27.8651, 142.5346	May-1977
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	2	-27.7628, 142.6246	Aug-2024
			Plantae	Equisetopsida	Rhodanthe rufescens	-	NT	-	1	-27.8068, 142.5929	Aug-1987
			Animalia	Aves	Tringa nebularia	common greenshank	E	E	1	-27.7667, 142.6333	Oct-2001
11	-27.9363	142.5795	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	3	-27.8, 142.5833	Aug-2007
			Animalia	Aves	Falco hypoleucos	grey falcon	V	V	2	-27.9, 142.6	NA
			Animalia	Aves	Grantiella picta	painted honeyeater	V	V	3	-27.82, 142.5923	Jun-2024
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	2	-27.8651, 142.5346	May-1977
			Animalia	Aves	Plegadis falcinellus	glossy ibis	SL	-	1	-27.7628, 142.6246	Aug-2024
			Plantae	Equisetopsida	Rhodanthe rufescens	-	NT	-	1	-27.8068, 142.5929	Aug-1987
			Animalia	Aves	Tringa nebularia	common greenshank	E	E	1	-27.7667, 142.6333	Oct-2001
12	-28.0214	142.5609	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	1	-27,91, 142.41	Aug-1978
			Animalia	Aves	Falco hypoleucos	grey falcon	V	V	1	-27.9, 142.6	NA
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	2	-27.8651, 142.5346	May-1977
			Plantae	Equisetopsida	Santalum lanceolatum	northern sandalwood	SL	-	1	-28.0569, 142.3689	Apr-2008
13	-28.1115	142.5696				NA					
14	-28.1996	142.5553				NA					
15	-28.2875	142.5326				NA					
16	-28.3711	142.4989	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	1	-28.5247, 142.5386	Jul-1999
			Plantae	Equisetopsida	Wahlenbergia tumidifructa	-	SL	-	2	NA	NA
17	-28.456	142.4652	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	1	-28.5247, 142.5386	Jul-1999
			Plantae	Equisetopsida	Wahlenbergia tumidifructa	-	SL	-	2	-28.5509, 142.5026	NA
18	-28.5449	142.4486	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	5	-28.63, 142.3164	Jul-1999
			Animalia	Aves	Hydroprogne caspia	caspian tern	SL	-	1	-28.6827, 142.4006	Aug-1994
			Plantae	Equisetopsida	Lobelia darlingensis	-	SL	-	1	-28.636, 142.5135	Aug-2023
			Plantae	Equisetopsida	Wahlenbergia capillaris	-	SL	-	2	-28.6389, 142.5151	Aug-2022
			Plantae	Equisetopsida	Wahlenbergia graniticola	granite bluebell	SL	-	1	-28.691, 142.3621	Aug-2022
			Plantae	Equisetopsida	Wahlenbergia tumidifructa	-	SL	-	2	-28.5509, 142.5026	NA
19	-28.599	142.371	Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	7	-28.63, 142.3164	Jul-1999
			Animalia	Aves	Cacatua leadbeateri leadbea	pink cockatoo	E	E	1	-28.7068, 142.2929	Jun-1975
			Animalia	Aves	Hydroprogne caspia	caspian tern	SL	-	1	-28.6827, 142.4006	Aug-1994
			Plantae	Equisetopsida	Lobelia darlingensis	-	SL	-	1	-28.636, 142.5135	Aug-2023
			Plantae	Equisetopsida	Santalum lanceolatum	northern sandalwood	SL	-	1	-28.5914, 142.2425	Apr-2008
			Plantae	Equisetopsida	Wahlenbergia capillaris	-	SL	-	2	-28.6389, 142.5151	Aug-2022
			Plantae	Equisetopsida	Wahlenbergia graniticola	granite bluebell	SL	-	1	-28.691, 142.3621	Aug-2022
			Plantae	Equisetopsida	Wahlenbergia tumidifructa	-	SL	-	2	-28.5509, 142.5026	Aug-2022
20	-28.6421	142.2829	Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	1	-28.8, 142.2	Sep-1985
			Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	8	-28.6827, 142.3829	Aug-1994
			Animalia	Aves	Cacatua leadbeateri leadbea	pink cockatoo	E	E	2	-28.7068, 142.2929	Jun-1975
			Animalia	Aves	Hydroprogne caspia	caspian term	SL	-	1	-28.6827, 142.4006	Aug-1994
			Plantae	Equisetopsida	Lobelia darlingensis	-	SL	-	1	-28.6991, 142.3621	Aug-2022
			Plantae	Equisetopsida	Santalum lanceolatum	northern sandalwood	SL	-	1	-28.5914, 142.2425	Apr-2008
			Plantae	Equisetopsida	Wahlenbergia graniticola	granite bluebell	SL	-	1	-28.691, 142.3621	Aug-2022
21	-28.709	142.2161	Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	6	-28.8, 142.3	Apr-2025
			Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	8	-28.63, 142.3164	Jul-1999
			Animalia	Aves	Cacatua leadbeateri leadbea	Pink Cockatoo	E	E	2	-28.7068, 142.2929	Jun-1975
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-28.7833, 142.1754	Oct-2018
			Plantae	Equisetopsida	Grevillea kennedyana	-	V	V	1	-28.7614, 142.0958	Oct-1998
			Animalia	Aves	Hydroprogne caspia	caspian tern	SL	-	1	-28.7614, 142.0958	Oct-1998
			Plantae	Equisetopsida	Lobelia darlingensis	-	SL	-	1	-28.691, 142.3621	Aug-2022
			Animalia	Aves	Pedionomus torquatus	plains wanderer	CR	CE	1	-28.7943, 142.1721	Aug-1985
			Plantae	Equisetopsida	Santalum lanceolatum	northern sandalwood	SL	-	1	-28.5914, 142.2425	Apr-2008
			Plantae	Equisetopsida	Wahlenbergia graniticola	granite bluebell	SL	-	1	-28.691, 142.3621	Aug-2022

			Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	264	-28.8, 142.3	Apr-2025
			Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	4	-28.9397, 142.2131	Aug-2002
			Animalia	Aves	Cacatua leadbeateri leadbea	pink cockatoo	E	E	2	-28.7068, 142.2929	Jun-1975
22	-28.7688	142.1575	Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-28.7833, 142.1754	Oct-2018
			Plantae	Equisetopsida	Grevillea kennedyana	-	V	V	3	-28.8504, 142.0676	Dec-2013
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	2	-28.9283, 142.2208	Aug-1999
			Animalia	Aves	Pedionomus torquatus	plains wanderer	CR	CE	1	-28.7943, 142.1721	Aug-1985
			Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	270	-29, 142.2	Aug-2025
			Animalia	Aves	Aphelocephala leucopsis	southern whiteface	V	V	2	-28.9397, 142.2131	Aug-2002
			Animalia	Aves	Cacatua leadbeateri leadbea	pink cockatoo	E	E	1	NA	NA
23	-28.8589	142.1545	Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	2	-28.948, 142.2112	Oct-2018
			Animalia	Aves	Epthianura crocea crocea	yellow chat (gulf)	V	-	1	NA	NA
			Plantae	Equisetopsida	Grevillea kennedyana	-	V	V	4	-29.0349, 142.1336	Jun-2017
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	3	-28.9475, 142.2111	Apr-2018
			Animalia	Aves	Pedionomus torquatus	plains wanderer	CR	CE	1	-28.7943, 142.1721	Aug-1985
			Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	271	-29, 142.2	Aug-2025
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	2	-28.948, 142.2112	Oct-2018
24	-28.947	142.1753	Animalia	Aves	Epthianura crocea crocea	yellow chat (gulf)	V	-	1	NA	NA
			Plantae	Equisetopsida	Grevillea kennedyana	-	V	V	3	-29.0407, 142.1512	Jun-2017
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	3	-28.9475, 142.2111	Apr-2018
			Animalia	Aves	Pedionomus torquatus	plains wanderer	CR	CE	1	-29, 142	Apr-2021
			Animalia	Aves	Amytornis barbatus	grey grasswren	NT	-	265	-29, 142.2	Aug-2025
			Animalia	Aves	Calidris acuminata	sharp-tailed sandpiper	V	V	1	-28.948, 142.2112	Oct-2018
25	-28.999	142.2001	Animalia	Aves	Epthianura crocea crocea	yellow chat (gulf)	V	-	1	NA	NA
			Plantae	Equisetopsida	Grevillea kennedyana	-	V	V	2	-29.0407, 142.1512	Jun-2017
			Animalia	Aves	Neophema chrysostoma	blue-winged parrot	V	V	3	-28.9475, 142.2111	Apr-2018

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 20-Mar-2026

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	20
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	1

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Coongie lakes	100 - 150km upstream from Ramsar site	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Amytornis barbatus barbatus Bulloo Grey Grasswren, Grey Grasswren (Bulloo) [67065]	Endangered	Species or species habitat known to occur within area	In feature area
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Grantiella picta](#)			
Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Lophochroa leadbeateri leadbeateri](#)			
Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat known to occur within area	In feature area
[Neophema chrysostoma](#)			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Pedionomus torquatus](#)			
Plains-wanderer [906]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
[Pezoporus occidentalis](#)			
Night Parrot [59350]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
[Notomys fuscus](#)			
Dusky Hopping-mouse, Wilkiniti [125]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Petrogale xanthopus celeris](#)			
Yellow-footed Rock-wallaby (central-western Queensland) [87608]	Vulnerable	Species or species habitat may occur within area	In feature area
[Pseudomys australis](#)			
Plains Rat, Palyoora, Plains Mouse [108]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
[Frankenia plicata](#)			
[4225]	Endangered	Species or species habitat likely to occur within area	In feature area
[Grevillea kennedyana](#)			
Flame Spider-flower [6974]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sclerolaena walkeri [16152]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerothamnella parvifolia [3141]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Bulloo Downs	Nature Refuge	QLD	In feature area
Narriearra Caryapundy Swamp	National Park	NSW	In buffer area only
Sturt	National Park	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
QSN3 Project, expand 935km gas pipeline and supporting infrastructure	2009/5072	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
ATP 732 Petroleum Exploration Program, SW QLD	2012/6335	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Bioregional Assessments

[Resource Information]

SubRegion	BioRegion	Website	Buffer Status
Cooper	Lake Eyre Basin	BA website	In feature area

Geological and Bioregional Assessments

[Resource Information]

Name	State	Website	Buffer Status
Cooper GBA region	QLD, SA, NSW	GBA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix C

Species lists

C-1 Flora

Family	Scientific name	NC Act status	EPBC Act status
Acanthaceae	*Rostellularia adscendens*	Not listed	Not listed
Aizoaceae	*Tetragonia moorei*	Not listed	Not listed
Amaranthaceae	*Alternanthera angustifolia*	Not listed	Not listed
Amaranthaceae	*Alternanthera denticulata*	Not listed	Not listed
Amaranthaceae	*Ptilotus latifolius*	Not listed	Not listed
Amaranthaceae	*Ptilotus macrocephalus*	Not listed	Not listed
Amaranthaceae	*Ptilotus nobilis*	Not listed	Not listed
Amaranthaceae	*Ptilotus obovatus*	Not listed	Not listed
Amaranthaceae	*Ptilotus polystachyus*	Not listed	Not listed
Amaryllidaceae	*Crinum flaccidum*	Special least concern	Not listed
Apocynaceae	*Cynanchum floribundum*	Not listed	Not listed
Apocynaceae	*Cynanchum viminale subsp. australe*	Not listed	Not listed
Asclepiadaceae	*Sarcostemma viminale*	Not listed	Not listed
Asphodelaceae	*Bulbine alata*	Not listed	Not listed
Asphodelaceae	*Bulbine semibarbata*	Not listed	Not listed
Asteraceae	*Brachyscome ciliaris*	Not listed	Not listed
Asteraceae	*Calotis ancyrocarpa*	Not listed	Not listed
Asteraceae	*Calotis inermis*	Not listed	Not listed
Asteraceae	*Centipeda thespidioides*	Not listed	Not listed
Asteraceae	*Eriophyllum elderi*	Not listed	Not listed
Asteraceae	*Gnephosis arachnoidea*	Not listed	Not listed
Asteraceae	*Gnephosis eriocarpa*	Not listed	Not listed
Asteraceae	*Minuria integerrima*	Not listed	Not listed
Asteraceae	*Polycalymma stuartii*	Not listed	Not listed
Asteraceae	*Pterocaulon sphacelatum*	Not listed	Not listed
Asteraceae	*Rhodanthe floribunda*	Not listed	Not listed
Asteraceae	*Rhodanthe gossypina*	Not listed	Not listed
Asteraceae	*Rhodanthe moschata*	Not listed	Not listed
Asteraceae	*Rhodanthe stricta*	Not listed	Not listed
Asteraceae	*Senecio gregorii*	Not listed	Not listed
Asteraceae	*Senecio lanibracteus*	Not listed	Not listed
Asteraceae	*Sonchus oleraceus**	Not listed	Not listed
Asteraceae	*Streptoglossa adscendens*	Not listed	Not listed
Asteraceae	*Xanthium occidentale**	Not listed	Not listed
Boraginaceae	*Trichodesma zeylanicum var. zeylanicum*	Not listed	Not listed
Brassicaceae	*Harmsiodoxa blennodioides*	Not listed	Not listed
Brassicaceae	*Harmsiodoxa puberula*	Not listed	Not listed
Brassicaceae	*Lepidium muelleri-ferdinandi*	Not listed	Not listed
Brassicaceae	*Lepidium phlebopetalum*	Not listed	Not listed

Family	Scientific name	NC Act status	EPBC Act status
Brassicaceae	*Sisymbrium erysimoides**	Not listed	Not listed
Brassicaceae	*Stenopetalum nutans*	Not listed	Not listed
Campanulaceae	*Wahlenbergia capillaris*	Special least concern	Not listed
Capparaceae	*Capparis lasiantha*	Not listed	Not listed
Capparaceae	*Capparis mitchellii*	Not listed	Not listed
Chenopodiaceae	*Atriplex angulata*	Not listed	Not listed
Chenopodiaceae	*Atriplex eardleyae*	Not listed	Not listed
Chenopodiaceae	*Atriplex holocarpa*	Not listed	Not listed
Chenopodiaceae	*Atriplex leucoptera*	Not listed	Not listed
Chenopodiaceae	*Atriplex lobativalvis*	Not listed	Not listed
Chenopodiaceae	*Atriplex nummularia*	Not listed	Not listed
Chenopodiaceae	*Atriplex spongiosa*	Not listed	Not listed
Chenopodiaceae	*Chenopodium auricomum*	Not listed	Not listed
Chenopodiaceae	*Dissocarpus paradoxus*	Not listed	Not listed
Chenopodiaceae	*Dysphania glomulifera subsp. eremaea*	Not listed	Not listed
Chenopodiaceae	*Einadia nutans*	Not listed	Not listed
Chenopodiaceae	*Enchylaena tomentosa*	Not listed	Not listed
Chenopodiaceae	*Maireana aphylla*	Not listed	Not listed
Chenopodiaceae	*Maireana appressa*	Not listed	Not listed
Chenopodiaceae	*Maireana campanulata*	Not listed	Not listed
Chenopodiaceae	*Maireana georgei*	Not listed	Not listed
Chenopodiaceae	*Maireana triptera*	Not listed	Not listed
Chenopodiaceae	*Maireana villosa*	Not listed	Not listed
Chenopodiaceae	*Osteocarpum acropterum*	Not listed	Not listed
Chenopodiaceae	*Osteocarpum dipterocarpum*	Not listed	Not listed
Chenopodiaceae	*Rhagodia spinescens*	Not listed	Not listed
Chenopodiaceae	*Salsola australis*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena bicornis*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena birchii*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena calcarata*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena cuneata*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena diacantha*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena glabra*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena lanicuspis*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena longicuspis*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena minuta*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena muricata var. muricata*	Not listed	Not listed
Chenopodiaceae	*Sclerolaena tricuspis*	Not listed	Not listed
Chenopodiaceae	*Tecticornia pergranulata subsp. divaricata*	Not listed	Not listed
Convolvulaceae	*Convolvulus graminetinus*	Not listed	Not listed
Convolvulaceae	*Evolvulus alsinoides*	Not listed	Not listed

Family	Scientific name	NC Act status	EPBC Act status
Cucurbitaceae	*Citrullus amarus*	Not listed	Not listed
Cyperaceae	*Cyperus dactylotes*	Not listed	Not listed
Cyperaceae	*Cyperus difformis*	Not listed	Not listed
Cyperaceae	*Cyperus exaltatus*	Not listed	Not listed
Cyperaceae	*Cyperus victoriensis*	Not listed	Not listed
Cyperaceae	*Eleocharis pallens*	Not listed	Not listed
Cyperaceae	*Fimbristylis dichotoma*	Not listed	Not listed
Euphorbiaceae	*Euphorbia stevenii*	Not listed	Not listed
Frankeniaceae	*Frankenia serpyllifolia*	Not listed	Not listed
Geraniaceae	*Erodium cygnorum*	Not listed	Not listed
Goodeniaceae	*Goodenia fascicularis*	Not listed	Not listed
Goodeniaceae	*Goodenia lunata*	Not listed	Not listed
Goodeniaceae	*Scaevola spinescens*	Not listed	Not listed
Juncaceae	*Juncus usitatus*	Not listed	Not listed
Lamiaceae	*Teucrium racemosum*	Not listed	Not listed
Leguminosae	*Acacia aneura*	Not listed	Not listed
Leguminosae	*Acacia cambagei*	Not listed	Not listed
Leguminosae	*Acacia murrayana*	Not listed	Not listed
Leguminosae	*Acacia oswaldii*	Not listed	Not listed
Leguminosae	*Acacia salicina*	Not listed	Not listed
Leguminosae	*Acacia sibirica*	Not listed	Not listed
Leguminosae	*Acacia stenophylla*	Not listed	Not listed
Leguminosae	*Acacia tetragonophylla*	Not listed	Not listed
Leguminosae	*Acacia victoriae*	Not listed	Not listed
Leguminosae	*Crotalaria dissitiflora*	Not listed	Not listed
Leguminosae	*Cullen australasicum*	Not listed	Not listed
Leguminosae	*Glycine canescens*	Not listed	Not listed
Leguminosae	*Indigofera leucotricha*	Not listed	Not listed
Leguminosae	*Indigofera psammophila*	Not listed	Not listed
Leguminosae	*Lysiphyllum gilvum*	Not listed	Not listed
Leguminosae	*Senna artemisioides subsp filifolia*	Not listed	Not listed
Leguminosae	*Senna artemisioides subsp. helmsii*	Not listed	Not listed
Leguminosae	*Senna artemisioides subsp. oligophylla*	Not listed	Not listed
Leguminosae	*Senna artemisioides subsp. sturtii*	Not listed	Not listed
Leguminosae	*Senna phyllodinea*	Not listed	Not listed
Leguminosae	*Swainsona burkei*	Not listed	Not listed
Leguminosae	*Swainsona campylantha*	Not listed	Not listed
Leguminosae	*Swainsona oligophylla*	Not listed	Not listed
Leguminosae	*Vachellia farnesiana**	Not listed	Not listed
Loranthaceae	*Amyema preissii*	Not listed	Not listed
Loranthaceae	*Amyema quandang*	Not listed	Not listed

Family	Scientific name	NC Act status	EPBC Act status
Loranthaceae	*Lysiana exocarpi*	Not listed	Not listed
Loranthaceae	*Lysiana subfalcata*	Not listed	Not listed
Lythraceae	*Ammannia multiflora*	Not listed	Not listed
Malvaceae	*Abutilon fraseri*	Not listed	Not listed
Malvaceae	*Abutilon leucopetalum*	Not listed	Not listed
Malvaceae	*Abutilon macrum*	Not listed	Not listed
Malvaceae	*Abutilon otocarpum*	Not listed	Not listed
Malvaceae	*Gossypium sturtianum*	Not listed	Not listed
Malvaceae	*Malva parviflora*	Not listed	Not listed
Malvaceae	*Malvastrum americanum*	Not listed	Not listed
Malvaceae	*Sida ammophila*	Not listed	Not listed
Malvaceae	*Sida fibulifera*	Not listed	Not listed
Marsileaceae	*Marsilea drummondii*	Not listed	Not listed
Meliaceae	*Owenia acidula*	Not listed	Not listed
Molluginaceae	*Glinus lotoides*	Not listed	Not listed
Myrtaceae	*Corymbia terminalis*	Not listed	Not listed
Myrtaceae	*Eucalyptus camaldulensis*	Not listed	Not listed
Myrtaceae	*Eucalyptus coolabah*	Not listed	Not listed
Myrtaceae	*Eucalyptus ochrophloia*	Not listed	Not listed
Myrtaceae	*Eucalyptus papuana*	Not listed	Not listed
Phyllanthaceae	*Synostemon trachyspermus*	Not listed	Not listed
Pittosporaceae	*Pittosporum angustifolium*	Not listed	Not listed
Plantaginaceae	*Plantago cunninghamii*	Not listed	Not listed
Poaceae	*Aristida contorta*	Not listed	Not listed
Poaceae	*Aristida holathera*	Not listed	Not listed
Poaceae	*Aristida latifolia*	Not listed	Not listed
Poaceae	*Aristida psammophila*	Not listed	Not listed
Poaceae	*Astrebla lappacea*	Not listed	Not listed
Poaceae	*Astrebla pectinata*	Not listed	Not listed
Poaceae	*Cenchrus ciliaris**	Not listed	Not listed
Poaceae	*Chloris pectinata*	Not listed	Not listed
Poaceae	*Chrysopogon fallax*	Not listed	Not listed
Poaceae	*Cymbopogon bombycinus*	Not listed	Not listed
Poaceae	*Dactyloctenium radulans*	Not listed	Not listed
Poaceae	*Dichanthium sericeum*	Not listed	Not listed
Poaceae	*Enneapogon polyphyllus*	Not listed	Not listed
Poaceae	*Enteropogon acicularis*	Not listed	Not listed
Poaceae	*Eragrostis lacunaria*	Not listed	Not listed
Poaceae	*Eragrostis setifolia*	Not listed	Not listed
Poaceae	*Eragrostis tenellula*	Not listed	Not listed
Poaceae	*Eragrostis xerophila*	Not listed	Not listed

Family	Scientific name	NC Act status	EPBC Act status
Poaceae	*Eulalia aurea*	Not listed	Not listed
Poaceae	*Paspalidium jubiflorum*	Not listed	Not listed
Poaceae	*Sporobolus actinocladus*	Not listed	Not listed
Poaceae	*Sporobolus caroli*	Not listed	Not listed
Poaceae	*Themeda triandra*	Not listed	Not listed
Polygonaceae	*Duma florulenta*	Not listed	Not listed
Portulacaceae	*Portulaca oleracea*	Not listed	Not listed
Proteaceae	*Grevillea striata*	Not listed	Not listed
Proteaceae	*Hakea leucoptera*	Not listed	Not listed
Pteridaceae	*Cheilanthes sieberi*	Not listed	Not listed
Rutaceae	*Citrus glauca*	Not listed	Not listed
Santalaceae	*Anthobolus leptomerioides*	Not listed	Not listed
Santalaceae	*Santalum lanceolatum*	Special least concern	Not listed
Sapindaceae	*Atalaya hemiglauca*	Not listed	Not listed
Sapindaceae	*Dodonaea viscosa subsp. angustissima*	Not listed	Not listed
Scrophulariaceae	*Eremophila bignoniiflora*	Not listed	Not listed
Scrophulariaceae	*Eremophila dalyana*	Not listed	Not listed
Scrophulariaceae	*Eremophila duttonii*	Not listed	Not listed
Scrophulariaceae	*Eremophila freelingii*	Not listed	Not listed
Scrophulariaceae	*Eremophila gilesii*	Not listed	Not listed
Scrophulariaceae	*Eremophila latrobei*	Not listed	Not listed
Scrophulariaceae	*Eremophila maculata*	Not listed	Not listed
Scrophulariaceae	*Eremophila polyclada*	Not listed	Not listed
Scrophulariaceae	*Eremophila sturtii*	Not listed	Not listed
Scrophulariaceae	*Myoporum acuminatum*	Not listed	Not listed
Solanaceae	*Nicotiana megalosiphon*	Not listed	Not listed
Solanaceae	*Nicotiana velutina*	Not listed	Not listed
Solanaceae	*Solanum callosum*	Not listed	Not listed
Solanaceae	*Solanum ellipticum*	Not listed	Not listed
Solanaceae	*Solanum sturtianum*	Not listed	Not listed
Zygophyllaceae	*Roepera ammophila*	Not listed	Not listed

Note: *Non-native species.

C-2 Fauna

Scientific name	Common name	Total number observed	NC Act status	EPBC Act status
Amphibians				
Colleeneremia rubella	Desert tree frog	3	Least concern	Not listed
Limnodynastes tasmaniensis	Spotted marsh frog	1	Least concern	Not listed
Birds				
Acanthagenys rufogularis	Spiny-cheeked honeyeater	12	Least concern	Not listed
Acanthiza apicalis	Inland thornbill	16	Least concern	Not listed
Acanthiza chrysorrhoa	Yellow-rumped thornbill	4	Least concern	Not listed
Acanthiza uropygialis	Chestnut-rumped thornbill	6	Least concern	Not listed
Accipiter cirrocephalus	Collared sparrowhawk	1	Least concern	Not listed
Aegotheles cristatus	Australian owlet-nightjar	1	Least concern	Not listed
Aidemosyne modesta	Plum-headed finch	2	Least concern	Not listed
Anas gracilis	Grey teal	5	Least concern	Not listed
Anas superciliosa	Pacific black duck	5	Least concern	Not listed
Anhinga novaehollandiae	Australasian darter	3	Least concern	Not listed
Anseranas semipalmata	Magpie goose	2	Least concern	Not listed
Anthus australis	Australian pipit	13	Least concern	Not listed
Antigone rubicunda	Brolga	11	Least concern	Migratory
Aphelocephala leucopsis	Southern whiteface	4	Least concern	Not listed
Aquila audax	Wedge-tailed eagle	9	Least concern	Not listed
Ardea alba	Great egret	4	Least concern	Not listed
Ardea intermedia plumifera	Intermediate egret	3	Least concern	Not listed
Ardea pacifica	White-necked heron	4	Least concern	Not listed
Ardeotis australis	Australian bustard	1	Least concern	Not listed
Artamus cinereus	Black-faced woodswallow	25	Least concern	Not listed
Artamus leucorynchus	White-breasted woodswallow	18	Least concern	Not listed
Artamus personatus	Masked woodswallow	32	Least concern	Not listed
Artamus superciliosus	White-browed woodswallow	41	Least concern	Not listed
Ashbyia lovensis	Gibberbird	2	Least concern	Not listed
Barnardius zonarius	Australian ringneck	3	Least concern	Not listed
Cacatua sanguinea	Little corella	134	Least concern	Not listed
Cacomantis flabelliformis	Fan-tailed cuckoo	3	Least concern	Not listed
Cacomantis pallidus	Pallid cuckoo	2	Least concern	Not listed
Certhionyx variegatus	Pied honeyeater	2	Least concern	Not listed
Chalcites basalis	Horsfield's bronze cuckoo	3	Least concern	Not listed
Chalcites osculans	Black-eared cuckoo	2	Least concern	Not listed
Chenonetta jubata	Maned duck	1	Least concern	Not listed
Chlamydera maculata	Spotted bowerbird	1	Least concern	Not listed
Cincloramphus cruralis	Brown songlark	13	Least concern	Not listed

Scientific name	Common name	Total number observed	NC Act status	EPBC Act status
Cincloramphus mathewsi	Rufous songlark	24	Least concern	Not listed
Cinclosoma cinnamomeum	Cinnamon quail-thrush	9	Least concern	Not listed
Circus approximans	Swamp harrier	1	Least concern	Not listed
Circus assimilis	Spotted harrier	6	Least concern	Not listed
Cisticola exilis	Golden-headed cisticola	3	Least concern	Not listed
Climacteris picumnus	Brown treecreeper	1	Least concern	Not listed
Colluricincla harmonica	Grey shrikethrush	12	Least concern	Not listed
Coracina novaehollandiae	Black-faced cuckooshrike	15	Least concern	Not listed
Corvus bennetti	Little crow	3	Least concern	Not listed
Corvus coronoides	Australian raven	1	Least concern	Not listed
Corvus orru	Torresian crow	24	Least concern	Not listed
Coturnix ypsilophora	Brown quail	1	Least concern	Not listed
Cracticus nigrogularis	Pied butcherbird	6	Least concern	Not listed
Cracticus torquatus	Grey butcherbird	3	Least concern	Not listed
Dacelo novaeguineae	Laughing kookaburra	8	Least concern	Not listed
Dendrocygna eytoni	Plumed whistling duck	3	Least concern	Not listed
Dicaeum hirundinaceum	Mistletoebird	2	Least concern	Not listed
Dromaius novaehollandiae	Emu	10	Least concern	Not listed
Egretta novaehollandiae	White-faced heron	1	Least concern	Not listed
Elanus axillaris	Black-shouldered kite	2	Least concern	Not listed
Elanus scriptus	Letter-winged kite	1	Least concern	Not listed
Elseyornis melanops	Black-fronted dotterel	7	Least concern	Not listed
Eolophus roseicapilla	Galah	47	Least concern	Not listed
Epthianura aurifrons	Orange chat	2	Least concern	Not listed
Epthianura tricolor	Crimson chat	9	Least concern	Not listed
Eurostopodus argus	Spotted nightjar	1	Least concern	Not listed
Falco berigora	Brown falcon	13	Least concern	Not listed
Falco cenchroides	Nankeen kestrel	18	Least concern	Not listed
Falco longipennis	Australian hobby	1	Least concern	Not listed
Falco subniger	Black falcon	3	Least concern	Not listed
Gavicalis virescens	Singing honeyeater	13	Least concern	Not listed
Gelochelidon macrotarsa	Australian tern	15	Least concern	Not listed
Geopelia cuneata	Diamond dove	3	Least concern	Not listed
Geopelia humeralis	Bar-shouldered dove	12	Least concern	Not listed
Geopelia placida	Peaceful dove	15	Least concern	Not listed
Gerygone fusca	Western gerygone	3	Least concern	Not listed
Grallina cyanoleuca	Magpie-lark	7	Least concern	Not listed
Gymnorhina tibicen	Australian magpie	13	Least concern	Not listed
Haliastur sphenurus	Whistling kite	14	Least concern	Not listed
Hieraaetus morphnoides	Little eagle	1	Least concern	Not listed

Scientific name	Common name	Total number observed	NC Act status	EPBC Act status
Himantopus himantopus	Black-winged stilt	10	Least concern	Not listed
Hirundo neoxena	Welcome swallow	1	Least concern	Not listed
Lalage tricolor	White-winged triller	4	Least concern	Not listed
Lichmera indistincta	Brown honeyeater	3	Least concern	Not listed
Malacorhynchus membranaceus	Pink-eared duck	5	Least concern	Not listed
Malurus lamberti	Variegated fairywren	8	Least concern	Not listed
Malurus leucopterus	White-winged fairywren	17	Least concern	Not listed
Manorina flavigula	Yellow-throated miner	14	Least concern	Not listed
Melopsittacus undulatus	Budgerigar	46	Least concern	Not listed
Merops ornatus	Rainbow bee-eater	10	Least concern	Not listed
Microcarbo melanoleucos	Little pied cormorant	1	Least concern	Not listed
Microeca fascinans	Jacky winter	3	Least concern	Not listed
Milvus migrans	Black kite	24	Least concern	Not listed
Mirafra javanica	Singing bush lark	3	Least concern	Not listed
Myiagra inquieta	Restless flycatcher	2	Least concern	Not listed
Neophema chrysostoma	Blue-winged parrot	3	Vulnerable	Not listed
Neopsephotus bourkii	Bourke's parrot	17	Least concern	Not listed
Ninox novaeseelandiae	Southern boobook	1	Least concern	Not listed
Northiella haematogaster	Eastern bluebonnet	6	Least concern	Not listed
Nymphicus hollandicus	Cockatiel	17	Least concern	Not listed
Ocyphaps lophotes	Crested pigeon	7	Least concern	Not listed
Oreoica gutturalis	Crested bellbird	3	Least concern	Not listed
Pachycephala rufiventris	Rufous whistler	16	Least concern	Not listed
Pardalotus rubricatus	Red-browed pardalote	5	Least concern	Not listed
Pedionomus torquatus	Plains-wanderer	Calls identified via acoustic analysis at five locations.	Critically endangered	Critically endangered
Pelecanus conspicillatus	Australian pelican	3	Least concern	Not listed
Peltohyas australis	Inland dotterel	5	Least concern	Not listed
Petrochelidon ariel	Fairy martin	46	Least concern	Not listed
Petroica goodenovii	Red-capped robin	3	Least concern	Not listed
Phalacrocorax sulcirostris	Little black cormorant	1	Least concern	Not listed
Phalacrocorax varius	Pied cormorant	2	Least concern	Not listed
Phaps chalcoptera	Common bronzewing	1	Least concern	Not listed
Phaps histrionica	Flock bronzewing	33	Least concern	Not listed
Platalea flavipes	Yellow-billed spoonbill	8	Least concern	Not listed
Poliocephalus poliocephalus	Hoary-headed grebe	3	Least concern	Not listed
Pomatostomus ruficeps	Chestnut-crowned babbler	5	Least concern	Not listed
Pomatostomus superciliosus	White-browed babbler	9	Least concern	Not listed
Poodytes gramineus	Little grassbird	1	Least concern	Not listed

Scientific name	Common name	Total number observed	NC Act status	EPBC Act status
Psephotellus varius	Mulga parrot	9	Least concern	Not listed
Psephotus haematonotus	Red-rumped parrot	12	Least concern	Not listed
Psophodes cristatus	Chirruping wedgebill	5	Least concern	Not listed
Ptilotula penicillata	White-plumed honeyeater	18	Least concern	Not listed
Rhipidura albiscapa	Grey fantail	5	Least concern	Not listed
Rhipidura leucophrys	Willie wagtail	17	Least concern	Not listed
Stiltia isabella	Australian pratincole	70	Least concern	Not listed
Struthidea cinerea	Apostlebird	24	Least concern	Not listed
Sugomel niger	Black honeyeater	1	Least concern	Not listed
Tachybaptus novaehollandiae	Australasian grebe	8	Least concern	Not listed
Taeniopygia castanotis	Australian zebra finch	61	Least concern	Not listed
Threskiornis spinicollis	Straw-necked ibis	14	Least concern	Not listed
Todiramphus pyrrhopygius	Red-backed kingfisher	3	Least concern	Not listed
Todiramphus sanctus	Sacred kingfisher	3	Least concern	Not listed
Tribonyx ventralis	Black-tailed native-hen	12	Least concern	Not listed
Turnix velox	Little buttonquail	3	Least concern	Not listed
Tyto javanica	Eastern barn owl	3	Least concern	Not listed
Vanellus tricolor	Banded lapwing	4	Least concern	Not listed
Mammals				
Austronomus australis	White-striped free-tailed bat	–	Least concern	Not listed
Canis lupus	Dingo	2	Least concern	Not listed
Chalinolobus gouldii	Gould's wattled bat	–	Least concern	Not listed
Chalinolobus picatus	Little pied bat	–	Least concern	Not listed
*Equus caballus**	Feral horse	15	Not listed	Not listed
*Felis catus**	Feral cat	–	Not listed	Not listed
Nyctophilus geoffroyi	Lesser long-eared bat	–	Least concern	Not listed
*Oryctolagus cuniculus**	European rabbit	1	Not listed	Not listed
Osphranter robustus	Common wallaroo	1	Least concern	Not listed
Osphranter rufus	Red kangaroo	9	Least concern	Not listed
Pseudomys hermannsburgensis	Sandy inland mouse	1	Least concern	Not listed
Scotorepens balstoni	Inland broad-nosed bat	–	Least concern	Not listed
Scotorepens greyii	Little broad-nosed bat	–	Least concern	Not listed
*Sus scrofa**	Feral pig	1	Not listed	Not listed
Reptiles				
Amphibolurus burnsi	Burns dragon	1	Least concern	Not listed
Ctenophorus nuchalis	Central netted dragon	1	Least concern	Not listed
Egernia stokesii	Gidgee skink	2	Least concern	Not listed
Morelia spilota	Murray Darling carpet python	1	Least concern	Not listed
Pogona barbata	Eastern bearded dragon	3	Least concern	Not listed
Pogona vitticeps	Inland bearded dragon	1	Least concern	Not listed

Scientific name	Common name	Total number observed	NC Act status	EPBC Act status
Pseudechis australis	Mulga snake	1	Least concern	Not listed
Pseudonaja aspidorhyncha	Strap snouted brown snake	2	Least concern	Not listed
Varanus gouldii	Sand goanna	2	Least concern	Not listed

Note: *Non-native species.

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The Power of Commitment