NGP ANNUAL COMPLIANCE REPORT - 2024

Revision Number: 1
Revision Date: 4/07/2024

AUTHORISATION

Approved by

Name	Job Title	Signature	Date
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INTERNAL

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DOCUMENT HISTORY

Revision	Date	Author	Description of Changes
1.0	4/07/2024	Annette Comerford	New Document

OWNING FUNCTIONAL GROUP & DEPARTMENT / TEAM

People, Safety & Legal : Environment and Sustainability

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1 INTRODUCTION

Jemena Northern Gas Pipeline Pty Ltd (referred to herein as *Jemena*) gained approval under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) in 2017 as the approval holder to construct and operate the Jemena Northern Gas Pipeline, from Tenant Creek, Northern Territory to Mt Isa, Queensland (EPBC 2015/7569). The Northern Gas Pipeline involves the construction of a new, underground, natural gas transmission pipeline, approximately 622 km in length and the associated facilities.

This Annual Compliance report will cover compliance against each of the EPBC conditions issued to Jemena between 21 May 2022 and 20 May 2023 period.

1.1 EPBC APPROVAL KEY INFORMATION SUMMARY

EPBC Number	EPBC 2015/7569
Project Name	Jemena Northern Gas Pipeline
Approval Holder and ACN	Jemena Northern Gas Pipeline Pty Ltd (ACN: 607 928 790)
Approved Action	Construct and Operate a buried 622 km high-pressure gas pipeline from Tennant Creek (Northern Territory) to Mount Isa (Queensland)
Location of the Project	Tennant Creek (Northern Territory) to Mount Isa (Queensland)
Project Commencement Date	20 May 2017
Person accepting responsibility of this report	Sonia Fourie
Dates for the reporting period of this report	21 May 2022 to 20 May 2023

1.2 EPBC APPROVAL CONDITIONS – COMPLIANCE STATUS

A total of 15 environmental approval conditions were placed on the project. The compliance status of these 15 approval conditions is detailed below:

Condition Number	Condition	Is the Project compliant with this condition?	Evidence/ Comments
1	The approval holder must only take the proposed action within the **project area**.	Compliant	All operations during this period have been within the designated project area as described in the final public environment report. This is inclusive of: • 30 metre construction right-of-way; • work spaces; • camp sites; • operational facilities; • dams; and, • access tracks.
2	To protect the EPBC Act listed Plains Death Adder (*Acanthophis hawkei*), the approval holder must not: a) **disturb** more than 791 hectares of **suitable Plains Death Adder habitat**; and, b) **remove** more than 36 hectares of **suitable Plains Death Adder habitat**.	Compliant	Since the commencement of the action, as per Table 3 below, the following occurred concerning the Plains Death Adder (*Acanthophis hawkei*): a) 692 hectares of **suitable Plains Death Adder habitat** has been **disturbed**; and, b) 4.8 hectares of **suitable Plains Death Adder habitat has been removed** to allow for one (1) mainline valve and three (3) cathodic protection stations. All construction work subject to the final public environment report and regulatory approval are complete. No further disturbance or removal of **Plains Death Adder habitat** is proposed.
3	For the protection of the **EPBC Act** listed Plains Death Adder, Carpentarian Antechinus (*Pseudantechinus mimulus*) and Greater Bilby (*Macrotis lagotis*), the approval holder must undertake open trench inspection activities in accordance with the **Trench Inspection Procedure (Procedure)**.	Compliant	All open trench inspections have been in accordance with the **Trench Inspection Procedure** (version 2) as provided to the Department on 23 February 2017. This version of the Trench Inspection Procedure is available on Jemena's Northern Gas Pipeline Website: https://jemena.com.au/pipelines/northern-gas-pipeline

			All construction work subject to the final public environment report and regulatory approval are complete. No further disturbance or removal of Plains Death Adder habitat is proposed.
4	Within five (5) years of the completion of **construction**, the approval holder must **rehabilitate** no less than 791 hectares of **suitable Plains Death Adder habitat**.	Compliant (ongoing)	Completion of construction occurred during 2018-2019 reporting period. Rehabilitation has commenced as per the approved Rehabilitation Management Plan. A Transitional Rehabilitation Monitoring Report (2024) has been prepared and provided in Appendix A of this report.
5	The approval holder must submit a Rehabilitation Management Plan for the Minister's approval in writing. The Rehabilitation Management Plan must include: a) **rehabilitation acceptance criteria**; b) procedures, including contingency measures, that will be undertaken to achieve the **rehabilitation acceptance criteria**; and, c) a monitoring program to determine the success of **rehabilitation** procedures implemented by the approval holder over the duration of the approval.	Compliant	The Rehabilitation Management Plan was issued to the Minister for approval on 31 March 2017. The Rehabilitation Management Plan is available on Jemena's Northern Gas Pipeline Website: https://jemena.com.au/pipelines/northern-gas-pipeline This document is confirmed to contain: a) rehabilitation acceptance criteria; b) procedures, including contingency measures, that will be undertaken to achieve the rehabilitation acceptance criteria; and, c) a monitoring program to determine the success of rehabilitation procedures implemented by the approval holder. A Transitional Rehabilitation Monitoring Report (2024) has been prepared and provided in Appendix A of this report.
6	The approval holder must not **commence** the action until the Rehabilitation Management Plan has been approved by the **Minister** in writing. The approved Rehabilitation Management Plan must be implemented by the approval holder.	Compliant	The Rehabilitation Management Plan was approved on behalf of the Minister on 19 April 2017. No action was commenced until the plan was approved.

7	Within 10 days after the **commencement** of the action, the approval holder must advise the **Department** in writing of the actual date of **commencement**.	Compliant	The date of commencement of the Project was 20 May 2017. This was communicated to the Department on 29 May 2017. Refer to Appendix B of this report.
8	The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the **Procedure** and management plan required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.	Complaint	All records have been accurately maintained and may be made available to the Department should there be any request to do so. This includes the current 2024 Northern Gas Pipeline Transitional Rehabilitation Monitoring Report which is the basis for this EPBC Annual Report.
9	Within three (3) months of every 12 month anniversary of the **commencement** of the action, the approval holder must publish a report (the Annual Compliance Report) on its website describing compliance with each of the conditions of this approval, during the previous 12 months. The approval holder must also provide in this report: a) a reconciliation of actual **disturbance** and **removal** of **suitable Plains Death Adder habitat** (in hectares) on the **project area** against the **disturbance** and **removal** limits specified in condition 2; and b) progress against the **rehabilitation acceptance criteria** required at condition 5. Documentary evidence providing proof of the date of the publication must be provided to the **Department** at the same time as the Annual Compliance Report is published. The approval holder must continue to publish the Annual Compliance Report each year until such time as agreed to in writing by the **Minister**.	Complaint	a) Reconciliation of actual disturbance and removal of suitable Plains Death Adder habitat (in hectares) on the project area against the disturbance and removal limits specified in condition 2 is provided in Section 1.3 of this report. b) Progress against the Rehabilitation Acceptance Criteria is detailed in Appendix A of this report. The Annual Compliance Report is available on Jemena's Northern Gas Pipeline Website: https://jemena.com.au/pipelines/northern-gas-pipeline

10	The approval holder must report any potential or actual contravention of the conditions of this approval to the **Department** in writing within two (2) days of the approval holder becoming aware of a contravention.	Not applicable	There has been no contravention to the conditions of this approval to date.
11	Upon the written direction of the **Minister**, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The approval holder must not commence the audit until the **Minister** approves the independent auditor and audit criteria in writing. The audit report must address the criteria to the satisfaction of the **Minister**.	Not applicable	This did not occur during the reporting period.
12	The approval holder may choose to revise the **Procedure** or management plan approved by the **Minister** under conditions 3 and 5 without submitting it for approval under section 143A of the **EPBC Act,** if the taking of the action in accordance with the revised **Procedure** or management plan would not be likely to have a **new or increased impact**. If the approval holder makes this choice they must: a) notify the **Department** in writing that the approved **Procedure** or management plan has been revised and provide the **Department**, at least four weeks before implementing the revised **Procedure** or management plan, with: i. an electronic copy of the revised **Procedure** or management plan; ii. an explanation of the differences between the revised **Procedure** or management plan and the approved **Procedure** or management plan; and the reasons the approval holder considers that the taking of the action in accordance with the revised **Procedure** or management plan would not be likely to have a **new or increased impact**.	Not applicable	This did not occur during the reporting period.

12A	The approval holder may revoke its choice under condition 12 at any time by notice to the **Department**. If the approval holder revokes the choice to implement the revised **Procedure** or management plan, without approval under section 143A of the **EPBC Act**, the **Procedure** or management plan approved by the **Minister** must be implemented.	Not applicable	This did not occur during the reporting period.
12B	If the **Minister** gives a notice to the approval holder that the **Minister** is satisfied that the taking of the action in accordance with the revised **Procedure** or management plan would be likely to have a **new or increased impact**, then: a) condition 12 does not apply, or ceases to apply, in relation to the revised **Procedure** or management plan; and b) the approval holder must implement the **Procedure** or management plan approved by the **Minister**. To avoid any doubt, this condition does not affect any operation of conditions 12 and 12A in the period before the day the notice is given. At the time of giving the notice, the Minister may also notify the approval holder that for a specified period of time that condition 12 does not apply for the Procedure or management plan required under the approval.	Not applicable	This did not occur during the reporting period.
13	Conditions 12, 12A and 128 are not intended to limit the operation of section 143A of the **EPBC Act** which allows the approval holder to submit a revised **Procedure** or management plan to the **Minister** for approval.	Not applicable	This did not occur during the reporting period.
14	If, at any time after five (5) years from the date of this approval, the approval holder has not **commenced** the action, then the approval holder must not **commence** the action without the written agreement of the **Minister**.	Not applicable	The date of commencement of the Project was 20 May 2017. This was communicated to the Department on 29 May 2017. Refer to Appendix B of this report.

15	Unless otherwise agreed to in writing by the **Minister**, the approval holder must publish the **Procedure** and Rehabilitation Management Plan on its website. The **Procedure** and Rehabilitation Management Plan must be published on the website within one (1) month of being approved by the **Minister** or being submitted under condition 12. The published **Procedure** and Rehabilitation Management Plan must remain on the website for the lifetime of the approval unless otherwise agreed to in writing by the **Minister**.	Compliant	The approved rehabilitation management plan has been published on Jemena's Northern Gas Pipeline Website: https://jemena.com.au/pipelines/northern-gas-pipeline

1.3 PLAINS DEATH ADDER HABITAT DISTURBANCE AND REMOVAL

Table 3 below demonstrates the currently reconciled areas of suitable Plains Death Adder habitat disturbed and removed during the reporting period and since project commencement. To date, these are within the permitted thresholds of this EPBC decision.

Please note that the removal of Plains Death Adder habitat was associated with the construction of the following:

- one mainline valve; and
- three cathodic protection stations.

During this reporting period (20th May 2023 to 19th May 2024), there was no further Plains Death Adder habitat disturbed or removed.

Table 3: Plains Death Adder disturbed and removed habitat

	Maximum Permitted Quantity[1]	Previously Reported Reconciled Quantity	Additional Reconciled Quantity for Current Reporting Period	Total Reconciled Quantity Since Project Commencement
Plains Death Adder Habitat Area Disturbed	791 ha	692 ha	0 ha	692 ha
Plains Death Adder Habitat Area Removed	36 ha	4.8 ha	0 ha	4.8 ha

Note 1: *Maximum limit as set out in EPBC Decision 2015/7569*

2 APPENDICES

2.1 APPENDIX A – TRANSITIONAL REHABILITATION MONITORING REPORT - 2024

JEMENA

NORTHERN GAS PIPELINE

TRANSITIONAL REHABILITATION ASSESSMENT

REPORT 2024

Report prepared for Jemena Ltd.

July 2024

Prepared by:

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1. INTRODUCTION

1.1. Background

The Northern Gas Pipeline (NGP) is a 622 km buried gas pipeline linking existing gas pipelines in the Northern Territory (NT) and Queensland (Qld). Construction of the pipeline commenced on 20th May 2017, with Jemena Ltd. taking control of the site from the construction contractors in June 2018, and the pipeline becoming operational on 3rd January 2019.

The NGP commences at the Phillip Creek Compressor Station, approximately 45 km north-west of Tennant Creek, and terminates 7 km south-west of Mt Isa at the Mt Isa Compression Station. The NGP project area comprises of a 30 m wide Right of Way (ROW), temporary workspaces and camp sites, operational facilities, dams, and access tracks.

Approval for the NGP was dependent on the development and implementation of a Rehabilitation Management Plan (RMP) that incorporated the requirements of the three interested jurisdictions – NT, Qld, and the Commonwealth. Of particular interest to the Commonwealth was the restoration of habitat for the threatened Plains Death Adder (*Acanthophis hawkei*) found between key points (KP) KP 355 - KP 561 of the NGP ROW.

The RMP states that the ROW and all temporary facilities will be progressively rehabilitated on completion of the construction phase. The only components to be retained long term are permanent facilities (compressor stations, main line valve (MLV) and cathodic protection (CP) stations) and their associated access tracks and any access tracks or dams requested by the landholder.

The RMP defined three phases to rehabilitation:

- ***Reinstatement****: The process of bulk earthworks and structural replacement of pre-existing conditions of a site (i.e. backfilling of trench, reinstating soil surface topography including scouring or ripping, watercourse lines, culverts, fences and gates and other landscape features). It also includes placing cleared vegetation across disturbed areas. Reinstatement occurs during the construction phase and is the responsibility of the Construction Contractor.*

- ***Transitional rehabilitation****: The process of returning disturbed areas to a stable, non-polluting landform, the return of native species and the control of weed species. It differs from the reinstatement phase in that it generally does not involve bulk earthworks, but instead monitors the progress of rehabilitation ensuring that it is transitioning towards final rehabilitation, where an issue is found it is to be rectified. Transitional rehabilitation monitoring will focus on areas where failure risk is high. These include erosion at watercourse crossings; weeds at construction weed hygiene locations and preventing any weed incursion.*

- ***Rehabilitation****: The process of returning a site's structural habitat complexity, and ecosystem processes and services to that of the pre-existing conditions at the site or an analogue site.*

Meeting the transitional rehabilitation criteria is the responsibility of Jemena. The RMP states that monitoring of the transitional rehabilitation phase is to be conducted annually for the first 5 years and then every 5 years following the transitional rehabilitation criteria being met for 3 consecutive years. If the rehabilitation criteria are not met within 5 years of the transitional rehabilitation period finishing, the RMP is to be reviewed taking into consideration the monitoring results to ensure rehabilitation criteria are eventually met. Once the rehabilitation criteria are met, two additional rehabilitation monitoring events will be undertaken to ensure that the rehabilitation is stable. That is, three consecutive annual surveys must demonstrate that the rehabilitation criteria have been attained/maintained before cessation of rehabilitation condition monitoring may be considered. Following the rehabilitation criteria being met over a 3-year period, a final rehabilitation report will be prepared, published and submitted to regulators.

The NGP is currently in the fifth year of the transitional rehabilitation phase. The first transitional rehabilitation assessment was undertaken by EcOz Environmental Consultants in January 2020 following below average rainfall at the Tennant Creek (western) end of the pipeline in the summer of 2018-19 (EcOz, 2020). This first assessment focused on land stability and revegetation. The second transitional rehabilitation assessment was undertaken by Low Ecological Services in 2021 and focused on weeds, land stability, and revegetation (LES, 2021). The third transitional rehabilitation assessment was undertaken by Jemena and focused on weeds and land stability (Jemena, 2022). The fourth transitional rehabilitation assessment was undertaken by Low Ecological Services with a focus on weeds, land stability, and revegetation (LES, 2023). The current and fifth transitional rehabilitation assessment was undertaken by Low Ecological Services with a focus on weeds, land stability, and revegetation.

1.2. Scope

The scope of this report is to assess the current status of transitional rehabilitation across the NGP project area. In this assessment, the focus is on weeds, land stability, and revegetation with reference to the RMP transitional rehabilitation criteria, as discussed in Section 5 of this report. In areas where the criteria are not met, remediation recommendations are provided in Section 7.

1.3. Regulatory framework

1.3.1. AS 2885: Australian Standard for High Pressure Pipeline Systems (2022)

AS 2885 was adopted by the Council of Australian Governments in its communiqué of 25th February 1994 in which it agreed to adopt AS 2885 to achieve uniform national pipeline construction standards by the end of 1994. AS 2885 provides an authoritative source of fundamental principles and practical guidelines for use by responsible and competent persons or organisations. It is the foundation on which the high-pressure pipelines sector provides assurance to itself, policy makers, regulators and the wider community that the pipelines that carry very hazardous materials at high pressure (i.e. hydrocarbons, hydrogen, CO_2 and other fluids) are safe, environmentally benign and reliable. AS 2885 is considered to be 'single and sufficient' for design, construction, maintenance and operations of pipeline systems carrying fluid at high pressures, because it is comprehensive in the matters that need to be covered by pipeline technical regulation and there is no need for the State technical regulators to make further or additional technical regulations.

1.3.2. Pipeline Integrity Management Plan (GAS-300-PA-IN-002) (2022)

The Pipeline Integrity Management Plan (PIMP) outlines the integrity requirements and controls as determined by the NGP design and Jemena's integrity management process and includes references to procedures, plans and other documentation. Jemena manages the integrity of the NGP in compliance with AS 2885.

1.3.3. Northern Territory Environment Protection Authority Assessment Report 79 (2017)

The Northern Territory Environment Protection Authority (NT EPA) prepared Assessment Report 79 in accordance with section 7(2)(g) of the EA Act and clause 14(3) of the Environmental Assessment Administrative Procedures. The purpose of this report is to ensure that matters affecting the environment to a significant extent are fully examined and reported. The report was provided to the Northern Territory Ministers for Environment and Natural Resources (the Minister) and Primary Industry and Resources (the responsible Minister) to be considered in decisions made by the Northern Territory Government; it does not provide an environmental approval.

1.3.4. Rehabilitation Management Plan (GAS-399-PA-EV-002) (2017)

The Rehabilitation Management Plan (RMP) was developed to fulfil the requirements of the environmental approvals processes for the NGP project, in particular condition 5 of the EPBC approval dated 9th March 2017. The RMP covers the entire length of the pipeline including all areas within the project area in both the Northern Territory (NT) and Queensland (Qld).

The primary objective of the RMP is to return the land to comparable state to the pre-construction condition such that it can support a suitable land use and function as Plains Death Adder habitat. The RMP describes the rehabilitation management measures that will be

implemented to mitigate identified environmental impacts and meet the relevant rehabilitation criteria. There are three phases to the RMP: reinstatement, transitional rehabilitation, and rehabilitation.

1.3.5. APGA Code of Environmental Practice 2013

The APGA Code of Environmental Practice (CoEP) provides industry accepted guidance on environmental management through the planning and asset acquisition, construction, operational and decommissioning phases of a pipelines' lifecycle. This Code is focused on the key activities conducted during these different pipeline lifecycle phases, and the potential environmental risks that arise from these activities. This Code has been developed by APGA in consultation with its membership, the former Australian Gas Association, the Australian Petroleum Production and Exploration Association and pipeline regulating authorities in each Australian State and Territory.

2. EXISTING ENVIRONMENT

2.1. Rainfall

The NGP project area is in an arid climate characterised by low (<380 mm/year on average) and highly variable rainfall. Rainfall affects rehabilitation through plant recruitment and erosional processes. The rainfall pattern across the project area is driven by monsoonal or cyclonic events to the north resulting in higher rainfalls in summer. La Niña has also affected rainfall in the NGP project area with a significant increase during the 2023 and 2024 summer periods in comparison to previous years. The large amount of rain has resulted in extensive vegetation growth along the pipeline, particularly shrubs in the desert and mountain country, and perennial and annual grasses in the black soil country. This rainfall has also exacerbated erosion issues and assisted in the spread and proliferation of weed species.

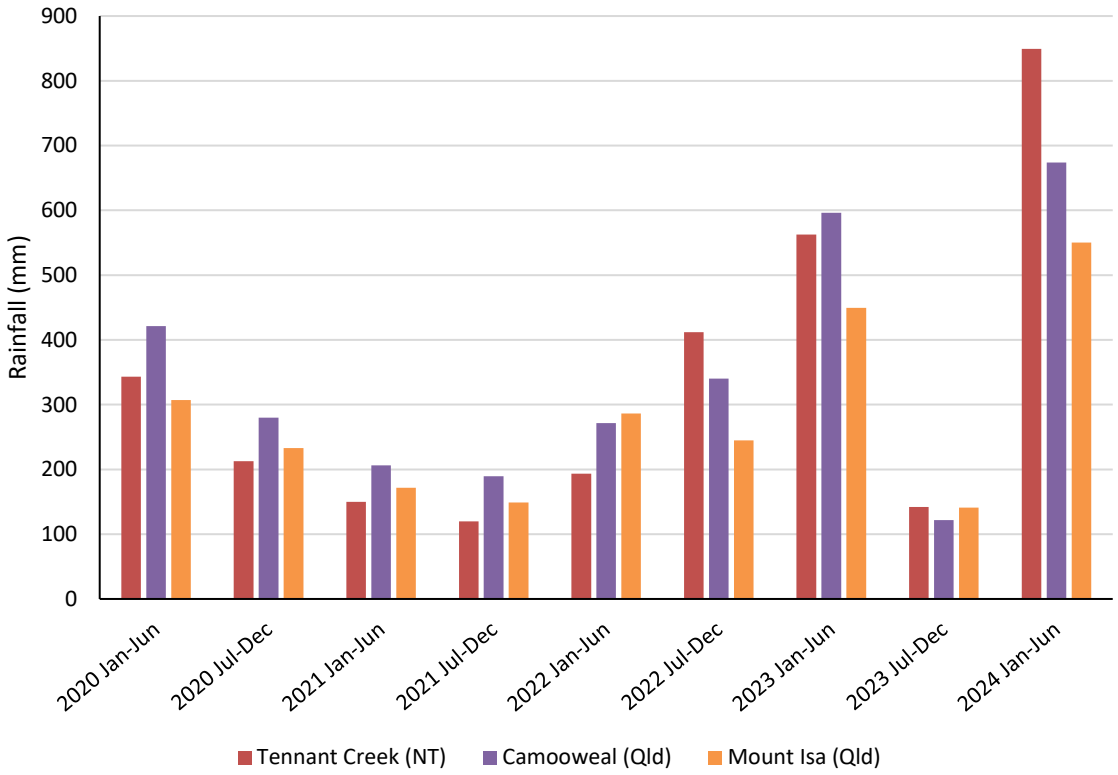

Figure 2-1. Total rainfall in Tennant Creek (NT), Camooweal (Qld) and Mount Isa (Qld) from 2020 to 2024.

2.2. Fire History

Australia's biggest bushfire season in more than a decade occurred in 2023. Between September and October 2023 more than 18 million hectares burnt in the Barkly, Tanami and Great Sandy Deserts of the Northern Territory and Western Australia. La Niña was the major driver of these fires. The high rainfall increased vegetation growth, resulting in a greater fuel load. Fires caused by lightning strikes increase when weather conditions are extreme, and fuel is dry. Fire removes the plants and organic material that naturally stabilises soil, therefore making it more prone to erosion (Natural Resources SA, 2015). Large areas of the NGP were affected by the 2023 fires (Figure 2-2).

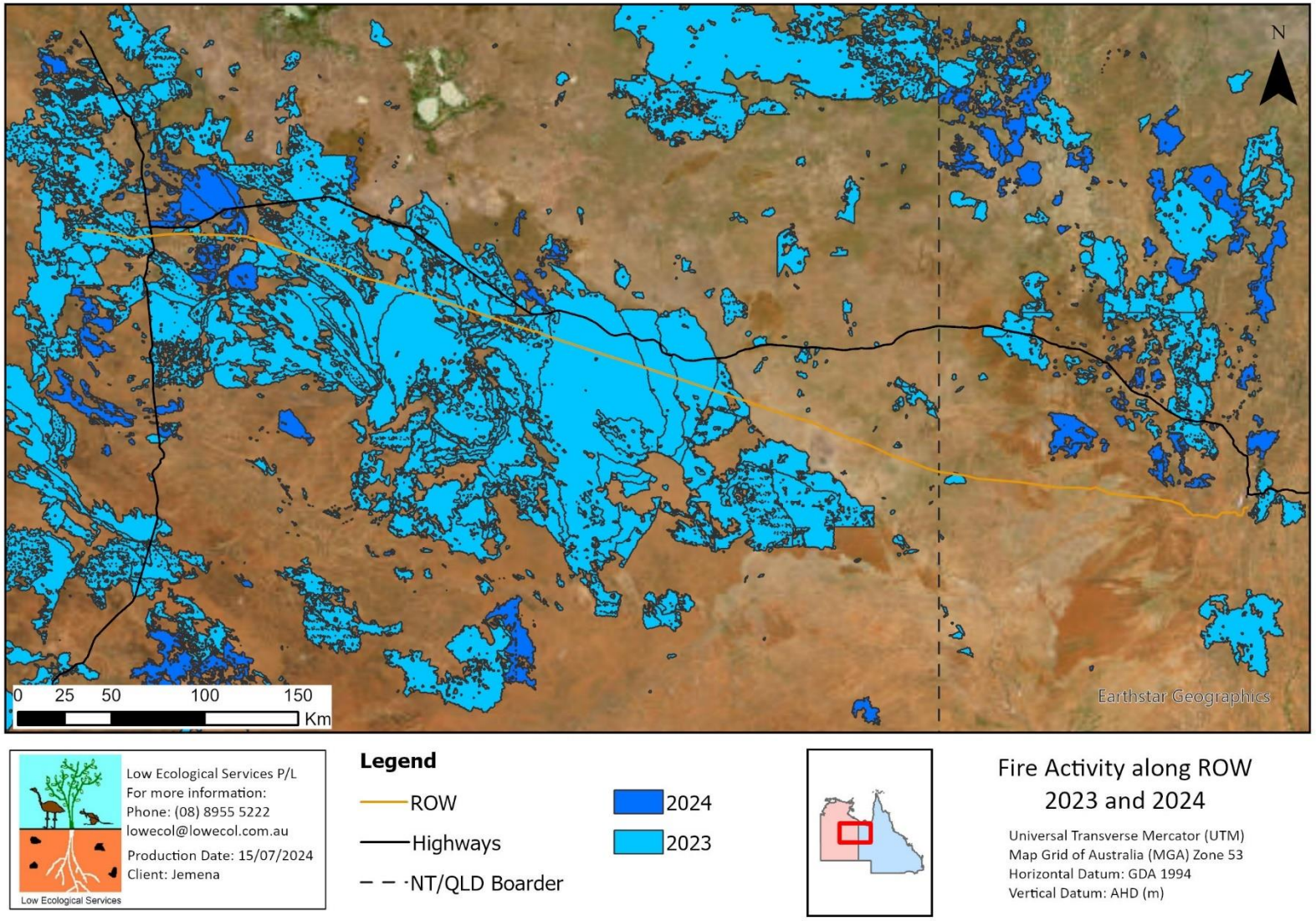

Figure 2-2. Fire activity along NGP ROW between 2023 and 2024.

2.3. Biogeographic regions

The Interim Biogeographic Regionalisation of Australia (IBRA) provides a division of Australia in geographically distinct bioregions based on common climate, geology, landform, native vegetation, and species information (Thackway & Cresswell, 1995). The NGP ROW falls within four biogeographic regions described in Table 2-1.

Table 2-1. Biogeographic regions intersecting the NGP ROW.

Region	Description
Davenport Murchison Ranges (NT)	Area: 58,050 km^2, characterised by a chain of rocky ranges surrounded by lowland plains. Vegetation is predominantly eucalypt low, open woodland and acacia-sparse shrubland over hummock grassland. Semiarid to subtropical climate, most rainfall occurs in summer and is higher in the north of the bioregion. Spatially averaged median (1890–2005) rainfall is 289 mm.
Tanami (NT)	Area: 259,970 km^2, characterised by featureless sand plains with small areas of alluvial plains, low ridges and stony rises. Vegetation is predominantly spinifex hummock grassland with a tall-sparse shrub overstorey. Climate is semiarid with a monsoonal influence. Rainfall is summer dominant and the spatially averaged median (1890–2005) rainfall is 298 mm.
Mitchell Grass Downs (Qld)	Area: 335,320 km^2, characterised by largely treeless plains with some occasional ridges, rivers and gorges. The dominant vegetation type is Mitchell tussock grasslands. Dry monsoonal to semiarid climate in the south and subhumid tropical climate in the north. Spatially averaged median (1890–2005) rainfall is 332 mm, but some parts receive more than 500 mm each year.
Mount Isa Inlier (Qld)	Area: 66,640 km^2, characterised by rugged hills and mountain ranges separated by undulating valleys. The predominant vegetation is low open woodland over spinifex hummock grassland. Hot and semiarid climate with summer-dominant rainfall. Spatially averaged median (1890–2005) rainfall is 388 mm.

2.4. Land Systems

Land systems have long been used as classification units and are suggested as effectively representing broad patterns of different biological assemblages across the landscape (Oliver, 2004). The NGP ROW intersects several land systems which are described in Table 2-2 and mapped in Figure 2-3.

Table 2-2. Land systems intersecting the NGP ROW.

Land System	Description
Austral	Several small areas of gently undulating Mitchell grass plains near Brunette Downs homestead in the Barkley Basin and between Austral Downs and Carandotta Homesteads in the Georgina Basin.
Barkly	Very gently undulating to nearly flat Mitchell grass plains covering much of the area commonly referred to as the Barkly Tableland.
Bundella	Undulating, sandy, low-scrub country extending from Barkly Downs Homestead and south towards Admore Homestead.
Camil	This gently undulating country with spinifex and low shrubs has leached limestone soils; it occurs as one large and several small areas west of Lake Nash Homestead.
Camilrock	Several small areas of gently undulating country with numerous limestone outcrops and carrying spinifex and low shrubs to the west and north-west of Lake Nash Homestead.
Georgina	Flat to gently undulating plains and alluvial plains. Slopes 0-4% and mainly <2%.
Gosse	Several small, scattered areas of sandy, seasonally flooded flats in the south-west '"desert" portion of the region.
Kalalla	Flat to very gently undulating plains with occasional internal drainage depression. Slopes <2%.
Mt Isa	This lightly timbered, rugged, hilly country with north-south ridges extend from the south-east corner of the area to about 193 km north and west of Lawn Hill Homestead.
Prentice	Gently undulating country carrying scrubby vegetation and occurring between Wonorah and Frewina on the Barkly Highway.
Tennant Creek	An area of lightly timbered flat-topped hills and broad valleys in the south-west corner of the region.
Waverly	A broken strip of hilly lightly timbered granite country with mostly steep to moderate slopes which extends from the south-east corner of the region to the north of Mt. Isa.
Wonardo	Irregular areas of gently undulating to nearly flat Mitchell grass plains confined to the Georgina valley in the south-east portion of the region.
Wonorah	Gently undulating country with deep lateritic soil and low scrubby vegetation. There is one large area in the south-west and numerous scattered areas in the central and eastern portions.
Wonorah-Barkly	Gently undulating country with deep lateritic soil and low scrubby vegetation. There is one large area in the south-west and numerous scattered areas in the central and eastern portions.
Yelvertoft	Numerous widely separated areas of undulating timbered country in the south half of the region with gravelly and stony lateritic soils.

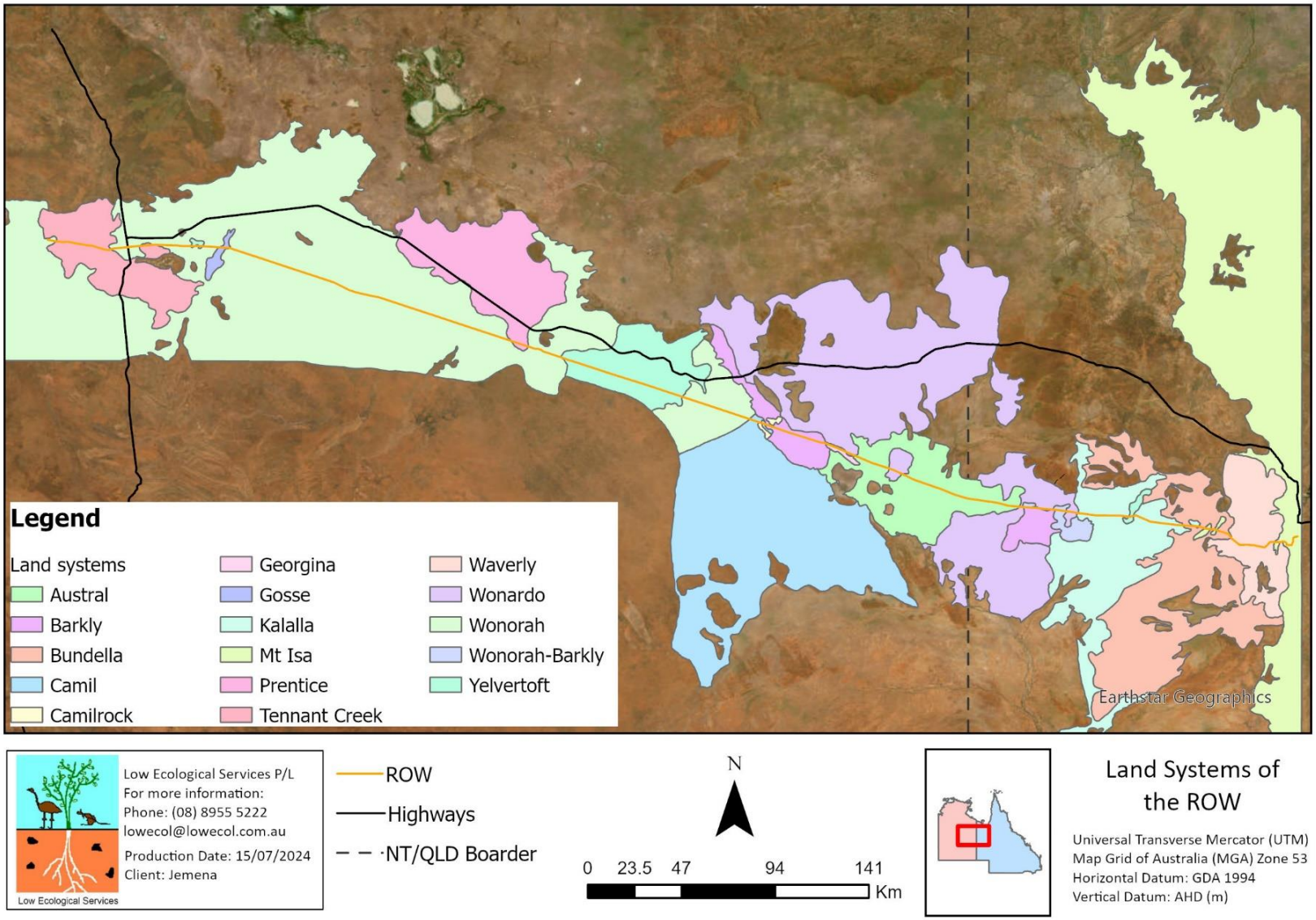

Figure 2-3. Land systems intersecting the NGP ROW.

3. METHODOLOGY

The NGP ROW was traversed from west to east in 4WD vehicles. The survey was conducted over 7 days from the 24th - 30th June 2024. Key Point (KP) locations along the pipeline are the distance (km) from the western end of the NGP, starting at the gate to the Phillip Creek Compressor Station. Locations inspected during the survey included the ROW, construction areas, waterway crossings, and areas of works conducted since the completion of the pipeline. Locations identified in previous transitional rehabilitation assessments as not meeting the criteria were also assessed. Observations, photos and notes were recorded on tablets using Avenza mapping application and GPS devices and were subsequently analysed using ArcGIS mapping tools.

The assessment focused on three key rehabilitation factors; weed infestation land stability, and revegetation. Assessment methodologies for each rehabilitation factor are outlined below.

3.1. Weeds

Identified weed species and locations were recorded with a description and classification of density within the NGP ROW and the adjacent land. Weeds recorded were both declared species and non-declared species. Photos were taken to demonstrate density for declared species. All previously recorded weed locations were assessed and compared where relevant.

3.2. Land Stability

Land stability issues, such as erosion, subsidence, and compromised berms were recorded with a description of the instability that had occurred as well as remediation recommendations.

All issues were given a score between 1-5 reflecting the severity of the issue:

1. Significant issues that require remediation.
2. Moderate issues that could become significant and require remediation.
3. Moderate issues that require remediation.
4. Minor issues that require monitoring.
5. Very minor issues that require monitoring.

Previously recorded land stability issues were assessed and compared where relevant.

3.3. Revegetation

Revegetation condition was recorded along the entirety of the pipeline easement. The assessment focused on the level of vegetation cover to identify the efficacy of revegetation methods, particularly in assisting land stability and ensuring suitable native species were regenerating. The similarity of revegetation species composition to surrounding remnant vegetation and the relevant land systems was broadly considered however species compositions were not assessed in detail.

All areas were given a score between 1-5 reflecting the state of revegetation:

1. No revegetation evident in any stratum.
2. Vegetation cover is sparse and limited to one or two strata, is in poor condition and/or has weed infestations.
3. Moderate vegetation cover and condition in either ground or shrub stratum, may include sparse vegetation in other relevant stratum, species composition broadly suitable to relevant land system.
4. Moderate to dense vegetation cover in two or more stratum, species composition suitable to relevant land system.
5. Excellent vegetation cover in all relevant strata, condition, and species composition comparable to adjacent vegetation and relevant land system.

All previously recorded revegetation classifications and comments were assessed and compared where relevant.

4. FIELD SURVEY RESULTS

4.1. Weeds

The assessment of weeds along the pipeline easement was similar to the 2023 assessment. On a few occasions the presence of weeds recorded in 2023 could not be found in 2024 and these may have been removed during grading of the ROW or fires. Several new areas were identified with weeds that were not recorded in 2023, *Parkensonia aculeata* (Parkensonia) and *Caltropis procera* (Rubber Bush) were weeds observed within the ROW this year compared to 2023. Observations of *Hyptis suaveolens* (Horehound) and *Trichodesma zeylanicum* (Cattle Bush) were not made this year but were noted in 2023. A map of the introduced flora species observed during the survey is presented in Figure 4-1, and refer to Appendix A, Table 9-3 for weed locations.

Table 4-1 lists the species of introduced flora identified on the rehabilitation assessment in 2024, their status in NT and Qld, and whether they are classified as a Weed of National Significance (WONS). Recommendations for weed management are discussed later in Section 7.1, and refer to Appendix A, Table 9-3 for a summary table with weed locations.

Overall, the ROW maintained a low burden of weeds over most of the area and weeds were typically in low density. Often, where weeds did occur, the same species was established over the surrounding pastoral area enabling continued encroachment into the easement. This suggests that reestablishment of weeds is likely in most areas even if Jemena undertake actions to remove weeds from the easement. As discussed in the 2023 transitional rehabilitation assessment, the exception to this is the persistence of *Aerva javanica* (Kapok bush) populations within the most eastern 40 km stretch of the pipeline easement. The spread of Kapok Bush from the easement into surrounding areas was noted in 2023, however, Figure 4-2 shows a more extensive record of the species than 2023. This suggests that this dense population is spreading further along the pipeline easement and into surrounding land. This is of note as the RMP states '*No weed incursion or spread within the NGP footprint'* as a performance indicator of transitional rehabilitation. A patch of Kapok bush was also identified in close proximity to a Cathodic Protection site at KP 566.4. This Kapok Bush patch was not recorded in the assessment in 2023 and due to the lack of Kapok Bush in the vicinity of the ROW facilities, is likely to have been transported to the site via vehicles checking the ROW. This would be another instance where the above performance indicator of the transitional rehabilitation has not been met. This patch in particular should be treated and removed before spread occurs.

Table 4-1: Introduced flora species observed during the survey.

Common Name	Scientific Name	NT Weed Category	Qld Weed Category	WONS
Mesquite	*Prosopsis sp.*	Class A and Class C	Prohibited and Restricted	Yes
Parkinsonia	*Parkensonia aculeata*	Class B and Class C	Other	No
Rubber Bush	*Calotropis procera*	Class B and Class C	Other	No
Noogoora Burr	*Xanthium strumarium*	Class B and Class C	Other	No
Buffel Grass	*Cenchrus ciliaris*	Declared (unclassified)	Not Listed	No
Paddy Melon	*Cucumis myriocarpus*	Not Declared	Not Listed	No
Spiked Malvastrum	*Malvastrum americanum*	Not Declared	Not Listed	No
Mimosa sp.	*Mimosa sp.*	Not Declared	Not Listed	No
Kapok Bush	*Aerva javanica*	Not Declared	Not Listed	No
Farnesiana	*Vachellia farnesiana*	Not Declared	Not Listed	No

Calotropis procera (Rubber bush)

Rubber bush was only recorded on three occasions. One individual was recorded at KP 234 in the Prentice land system. This was an isolated individual and no other individuals were identified. A population of eight individuals was recorded in the Bundella land system between KP 579 and KP 580, and a final small population was recorded 200 m west of the Mt Isa Jemena building in which some individuals were present on the easement.

Cenchrus ciliaris (Buffel grass)

A dense patch of Buffel grass was recorded between KP 210 and KP 238 in the NT as found in 2023, although some spread may have occurred as it was recorded as far as KP 246 in 2024. Isolated high-density patches were also recorded this year surrounding the ROW in the railway corridor at KP 16 and Warrego Road KP 21. The recent NT Government decision to declare Buffel grass as a weed in the Northern Territory (Weeds Management Act, 2001), increases the importance of these populations and the upcoming classification of Buffel grass will determine required controls for these populations. Dense growth of Buffel grass was also present in the last 40 km of the eastern end of the pipeline which contained dense Kapok Bush. Unlike the Kapok bush, this encroachment was likely due to spread from the surrounding land. Tennant Creek, Wonorah, Kalalla, Bundella, Waverly and Mt Isa land systems were affected by Buffel grass.

Parkensonia aculeata (Parkensonia)

Parkensonia was identified in two riparian areas suggesting they were spread to these areas due to water flow. This species was not recorded during the 2023 survey. One individual was recorded in the Barkley land system in the Northern Territory and the other was growing in the Austral land system in Queensland.

Poposis sp. (Mesquite)

Over the entire pipeline easement, the records of declared weeds (NT), listed weeds (Qld), and WONS were low and patchy. Mesquite was recorded at three locations this year. Within the ROW and railway corridor (KP 15.6) as found in 2023, and additional records of two plants at KP 16.4 and KP 16.7. These appeared to be isolated individuals with the record at KP 16.7 occurring off the easement and were not associated with larger populations. The plant

recorded at KP 7.8 in 2023 was not found in this survey and may have been removed in the clearing of the easement.

***Xanthium strumarium* (Noogoora burr)**

The records of Noogoora burr increased this year from 21 (in 2023) to 29 separate records. Records showed high density populations occurred in riparian corridors and areas of high cattle activity, and occasional remote locations of individual plants where cattle may have transported burrs. Pastoral land within the Barkley, Austral, Kalalla and Georgina land systems sustained Noogoora burr populations similar to 2023. However, the assessment this year recorded an additional isolated high-density population within a riverbed in the Mt Isa land system, and low-density presence in the Bundella and Waverly land systems. The high-density populations of Noogoora burr are found from KP 367 to KP 370, KP 382 to KP 393, KP 471 to KP 480 and two small patches at KP 544 and KP 617. Low density isolated patches should be a priority to control and eliminate.

***Hyptis suaveolens* (Horehound)**

Horehound was identified along the ROW in 2023; however no records of Horehound were recorded this year. This may be a result of fires having been active in the areas this weed was recorded in 2023, but growth of this annual species may have been masked/inhibited by superb growth of ground storey species (see Figure 2-2). While Horehound was not identified in the 2024 survey, its presences in 2023 suggests efforts should be made to identify and manage it after rainfall.

Malvastrum *americanum* (Spiked Malvastrum)

Spiked Malvastrum was the most widespread weed species throughout the easement, found in sporadic, low-density populations along the ROW. Its density increases over areas of high cattle disturbance. While the observations increased from 2023 to this year, it is likely as this is not a declared or listed weed, it was not a focus of the assessment in 2023 and therefore not noted in areas.

***Vachellia farnesium* (Farnesiana)**

As in 2023, Farnesiana was identified in localised patches along the easement associated with drainage depressions or creek lines, and frequently associated with other populations in the adjacent pastoral land outside of the easement. This suggests that it had encroached on the easement from surrounding populations. While more individuals were identified in 2024 then 2023, this may have been a result of individuals growing larger and becoming more apparent in the surrounding native vegetation.

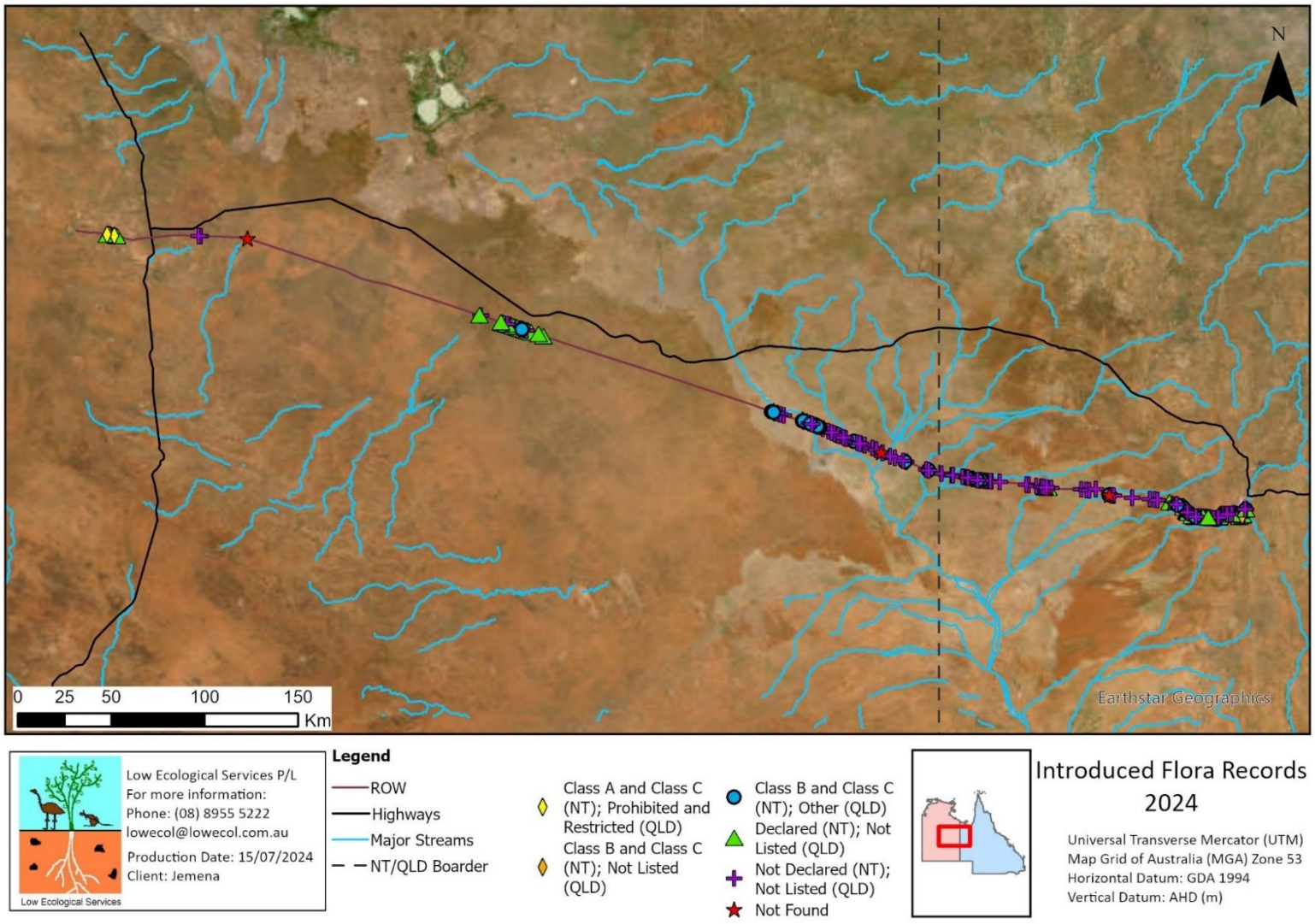

Figure 4-1. Introduced flora species observed during the survey displayed by weed classification. Refer to Table 4-1 for state and territory categories. Weeds designated 'Not Found' were identified in 2023 but were not found in this survey (2024).

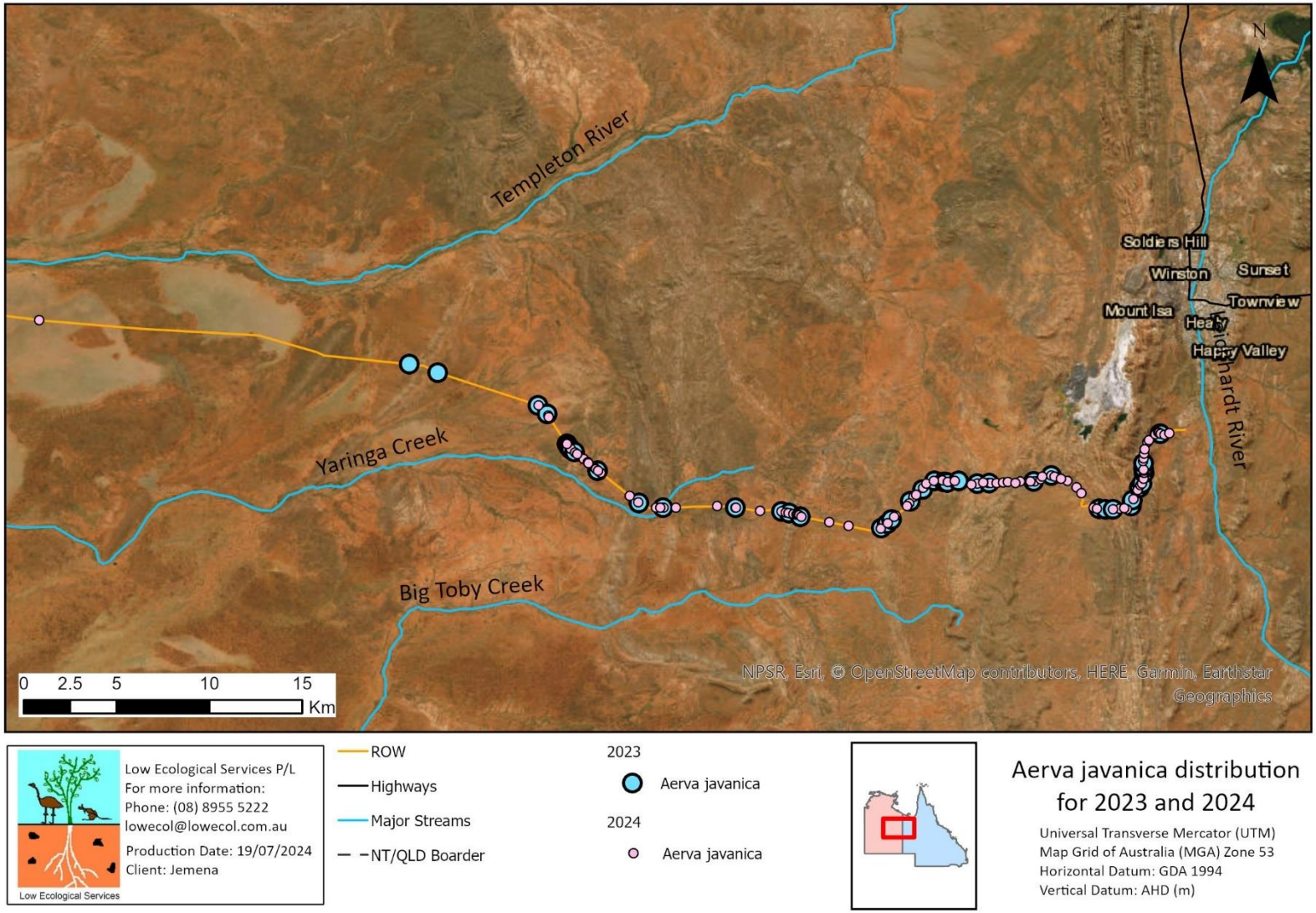

Figure 4-2. Comparison of *Aerva javanica* (Kapok bush) distribution along the NGP ROW 2023 vs 2024.

Photo 4-1. A patch of *Cenchrus ciliaris* (Buffel grass) found at KP 15.7

Photo 4-2. *Poposis sp*. (Mesquite) found at KP 15.6

Photo 4-3. *Calotropis procera* (Rubber bush) found at KP 234

Photo 4-4. *Cenchrus ciliaris* (Buffel grass) and *Aerva javanica* (Kapok bush) within 40 km of the eastern end of the ROW.

4.2. Land Stability

4.2.1. Erosion

The level of erosion over the extent of the ROW is low. Occurrences of erosion were numerous, however around 75% of those occurrences were minor erosion, and under 5% of records were classed as moderate to severe erosion. Most of the erosion recorded was confined to the access track of the ROW as limited vegetation along the track increased the likelihood of erosion. Much of the erosion is rill erosion occurring where sheet flow is too rapid, while gully erosion has predominantly occurred leading into and along drainage lines. Cattle tracking along the access track of the pipeline has caused or intensified erosion in some locations. Significant portions of the ROW had high coverage of vegetation making it difficult to accurately assess those areas for erosion. This may mean erosion is more common than reported.

Locations of erosion issues where remediation actions are recommended are presented in Figure 4-3. Refer to Appendix A, Table 9-1 for a summary table with locations and recommended actions.

Since the 2023 transitional rehabilitation report the first 50 km, starting from the western Phillip Creek Compressor Station, has been cleared and graded. This has filled in and improved some of the erosion recorded previously. There are still several moderate to significant erosion issues between KP 24 and KP 41 within the Tennant Creek and Wonorah land systems and KP 265 to KP 322 encompassed in the Yelvertoft and Wonorah land systems. Several of the observed erosion areas were downgraded from 2023 to 2024 as there was little to no evidence that the areas of erosion had worsened throughout the year while still being subject to higher-than-average rainfall events. This suggests they have a level of stability to them reducing their severity classification. However, if they were to worsen, they would be considered significant. This is particularly true for several areas of erosion between KP 609 and KP 621. While they have been assessed as moderate erosion this year, there is high potential for them to develop into significant erosion problems in the future and therefore should be rectified as soon as possible (refer to Section 7.3).

Along the ROW there were sections where the surface of the easement was lower than the surrounding landscape. These sections are likely to alter the natural waterflow in the area and cause water to pool and flow down the easement. Erosion was found on the edge of these low areas extending into the easement due to the difference in ground level. Windrows were also observed along large sections of the ROW. These windrows have the potential to cause altered water flow and encourage erosion by preventing water from leaving the easement.

There were seven records of erosion classified as significant (Level 1) including rill and gully erosion which ranged from 500-1100 mm deep and extended as far as 1 km in length.

There were 28 records of erosion classified as moderate/significant (Level 2) including a mix of rill and gully erosion. Instances varied from a few metres in length to 100 m in length. Depths

varied between 200-500 mm. A few instances were part of a longer stretch of erosion with differing classification levels along the stretch.

There were 66 records of erosion classified as moderate (Level 3) with a mix of gully and rill erosion.

There were 270 records of erosion classified as minor (Level 4) including rill and gull erosion. These minor occurrences are mostly 50-150 mm deep and run for less than 50 m. Most of these occurrences are caused by cattle tracks or windrows from grading preventing water from running off the easement.

There were 19 records of erosion classified as risk of erosion (Level 5). Including areas with windrows and piled up substrate potentially affecting natural water flow.

There is a particular stretch of erosion around KP 294 about 1 km long consisting of mostly Level 1 and 2 erosion, with rill and gully erosion 1 m deep and up to 4 m wide in some places. The erosion was likely caused by a lack of water diversion berms along that section and windrows along the edge and centre of the easement concentrating water flow and channelling water along the ROW. During the survey it was noted that remediation work had begun in this area in the form of erosion control berms. However, these berms were constructed of small rocks with very little soil. This may reduce the effectiveness of the berms and allow the erosion to continue. If this substrate is used further to construct berms it is recommended to use tines to create drainage to the level of the bottom of the erosion and then place berms with this gravel above to further channel the water off the affected area. Erosion control berms along KP 293 to KP 295 should be installed to help prevent the same erosion occurring again.

Just after KP 272, there is an unmarked access track (unknown use) that seems to have diverted water along it, causing a large amount of sheet flow onto and down the ROW, causing Level 3 erosion. Erosion control berms along that access road would help to prevent future erosion.

Between KP 620 and KP 621 the ROW runs along the side of a steep slope, next to the Boulia Mt Isa Highway, with many naturally occurring drainage gullies. Some of these gullies have erosion matting laid on them which are starting to deteriorate in places, and two of the gullies are starting to erode above and underneath the matting. These have been classified as Level 3 erosion due to the potential of increased erosion. Deteriorated matting should be replaced and extended up the slope to prevent it from flowing under the matting.

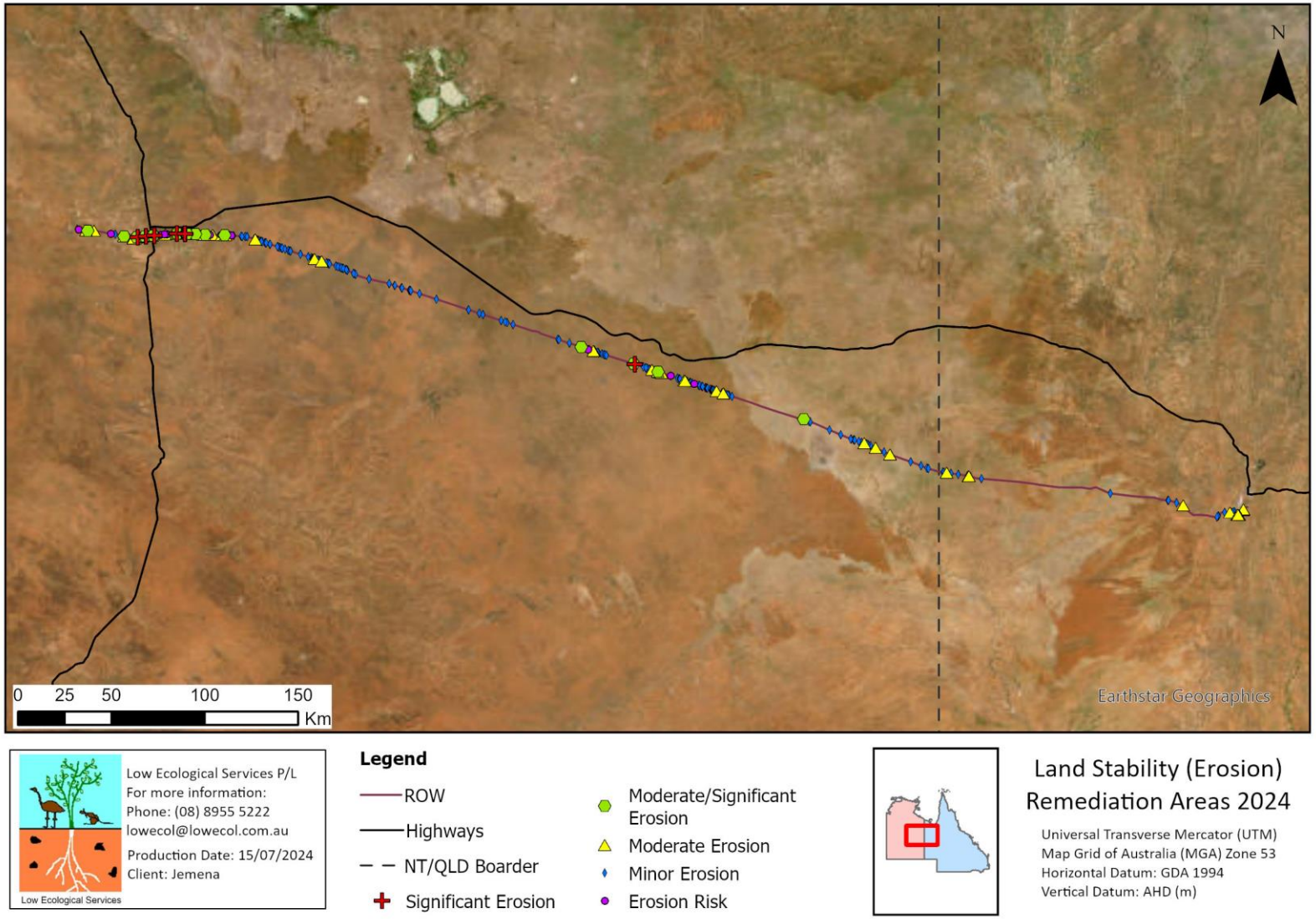

Figure 4-3. Location of significant, moderate/ significant, moderate, and minor erosion along the NGP ROW.

Photo 4-5. Rill erosion scored as the highest severity, Level 1. Erosion had a maximum depth of 1000 mm and the total length of the erosion was approximately 900 m.

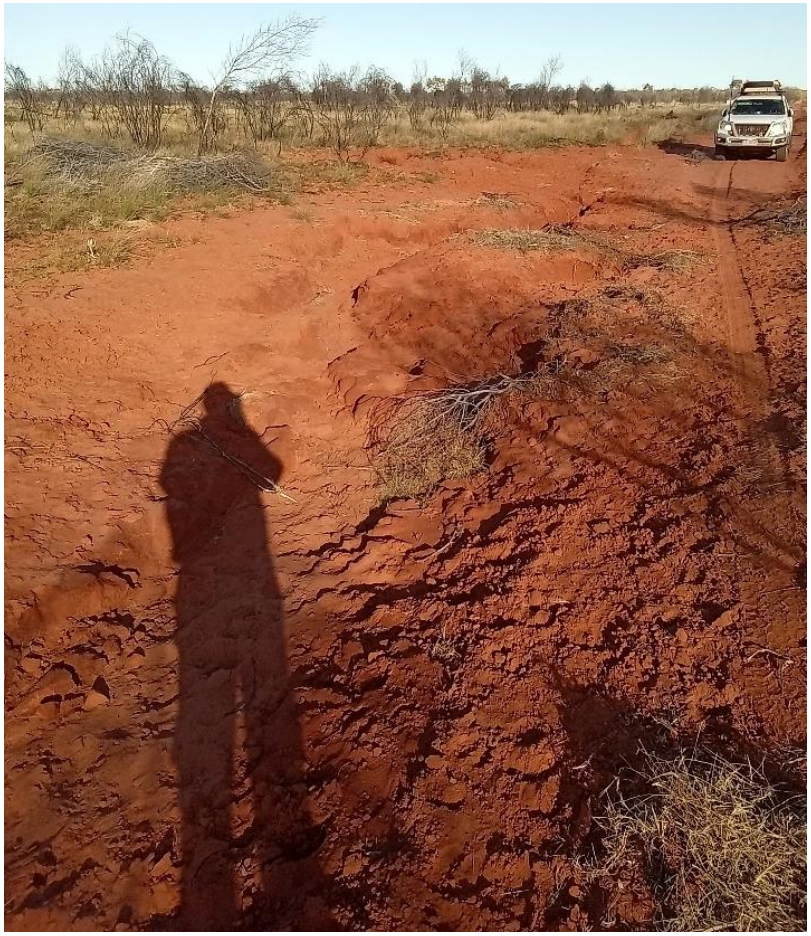

Photo 4-6. Gully erosion scored as moderate, Level 3.

Photo 4-7. Minor wash out from the access road to the CP station at KP 211.5

4.2.2. Compromised Berms

Three times as many compromised erosion control berms were observed and are no longer serving their purpose compared to the 2023 survey. A total of 65 berms across the ROW were considered compromised or ineffective. All compromised berms were assessed as either significant (13 instances), moderate/significant (21 instances) or moderate (31 instances), compared to a total of 28 berms (4 significant, 8 moderate/significant, 15 moderate) in 2023.

Locations of observed compromised berms along the NGP ROW are presented in Figure 4-4. Refer to Appendix A, Table 9-2 for summary table with locations and recommendations regarding compromised berms and additional berms.

Damage was most often due to water erosion resulting in erosion channels through the berms or the berms being washed out. There were several occurrences of water flowing around the ends of berms and back onto the ROW rather than diverting outwards into adjacent land. This was often due to berms not extending far enough at the edges of the ROW. Cattle tracking has also caused erosion of berms in some instances, as well as vehicle activity along the access track of the ROW. Nine berms had been removed during grading operations for vegetation clearing. A few berms were ineffective due to their orientation on the ROW where the construction of the berm did not follow the natural lay of the land and caused water to flow directly back onto the ROW.

Many of the berms would be more effective if they extended beyond the disturbed area of the ROW easement to divert and disperse water out onto adjacent undisturbed land. This may have occurred due to heritage buffers restricting the construction of berms to inside the ROW. These berms that do not extend beyond the ROW do not divert water off the easement completely allowing water to flow around the end of the berm and continue channelling downslope along the ROW increasing the risk of erosion.

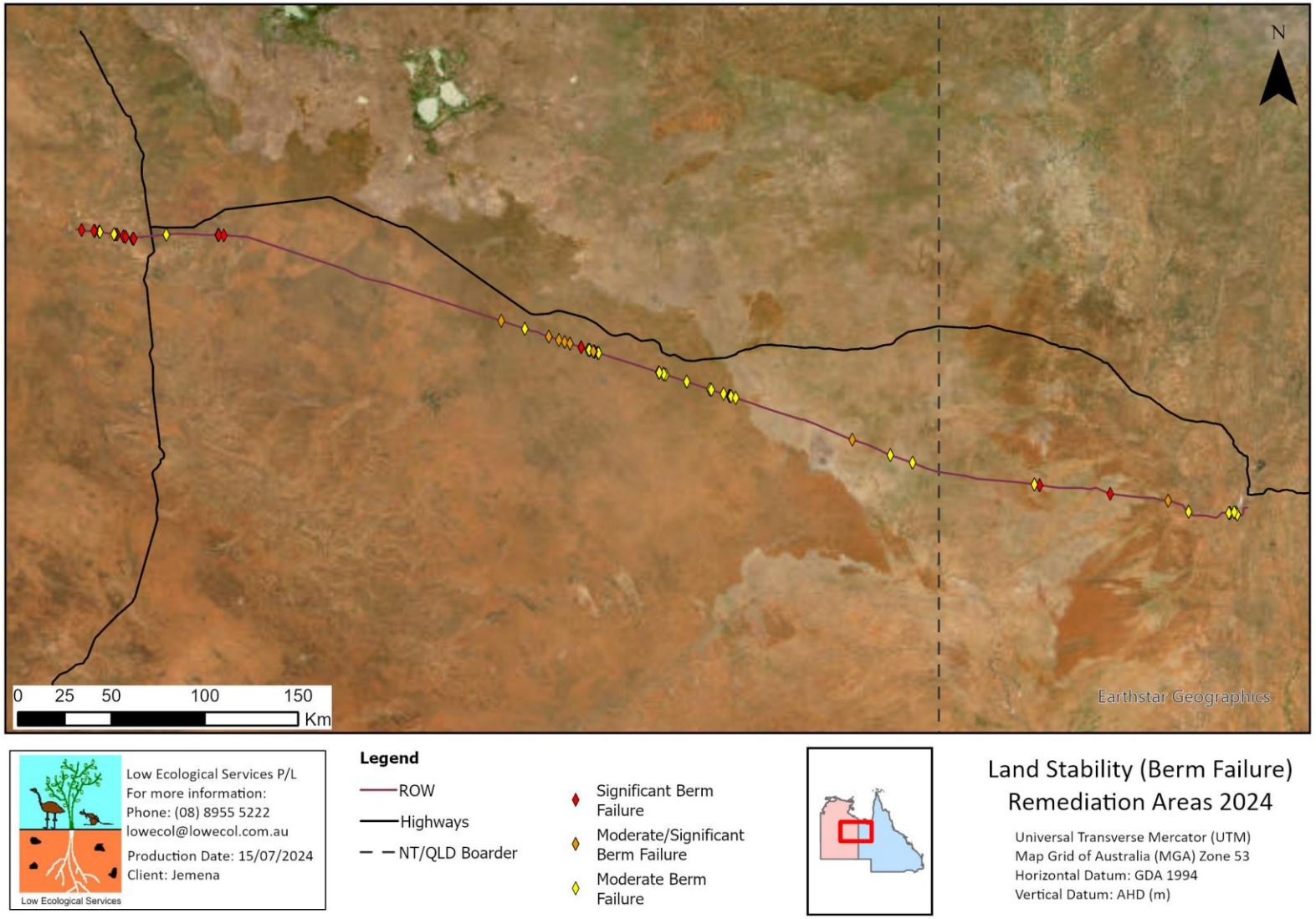

Figure 4-4. Locations of observed compromised berms along the NGP ROW.

Photo 4-8. Erosion from water flowing around a berm and back onto the ROW.

Photo 4-9. Berm removed from grading activities to clear overstory growth off the ROW.

Photo 4-10. Erosion has washed out the middle of a berm at KP 307.5

4.2.3. Subsidence

Subsidence issues were recorded at 57 locations across the ROW. Most of the issues are associated with water channelling and erosion across the pipeline with four locations attributed to cattle activity and one associated with vehicle activity. Most of the significant, major and moderate subsidence is found in the western desert areas.

Subsidence issues were assessed as significant (2 instances), significant/moderate (9 instances), moderate (7 instances) and minor (39 instances), ranging from 100-500 mm in depth. Filling in of subsidence is recommended in all instances of significant, significant/moderate and moderate subsidence issues, with monitoring recommended for minor subsidence issues.

Locations of observed subsidence along the NGP ROW are presented in Figure 4-5. Refer to Appendix A, Table 9-1 for a summary table with locations and recommended actions.

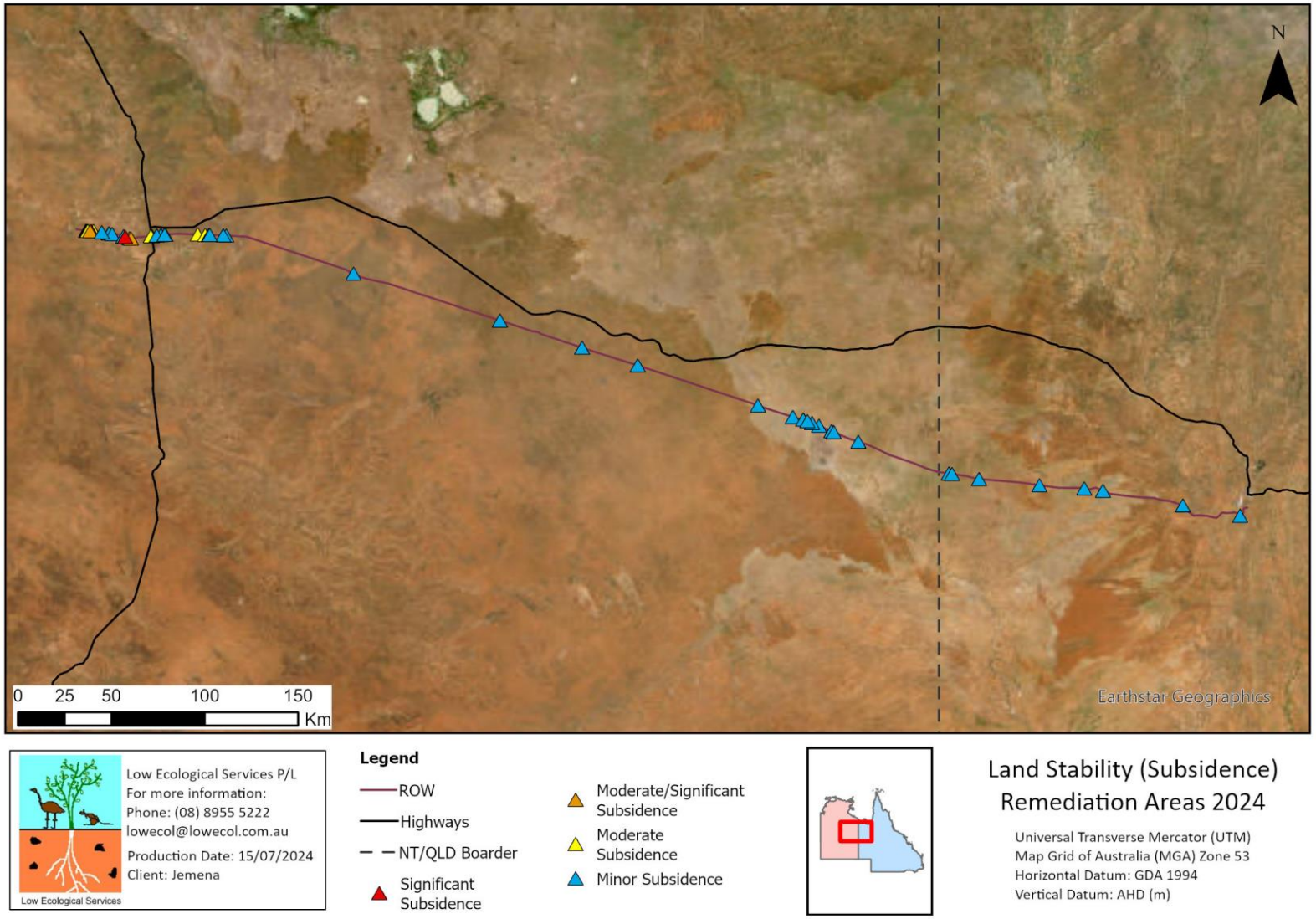

Figure 4-5. Locations of observed subsidence along the NGP ROW

Photo 4-11. Significant subsidence which has not been repaired during grading KP 7

Photo 4-12. Significant subsidence has not been repaired during grading at KP 7.4

Photo 4-13. Moderate to significant subsidence which has affected a pipeline monitoring pole. KP 5.6

4.3. Land Stability Remediation

Clearing of vegetation and grading of the ROW had begun at the western end of the ROW at the time of the 2024 Transitional Rehabilitation assessment walk-over. As discussed above, some of the erosion and subsidence issues observed in the 2023 assessment had been rectified by this grading, but significant areas had not. Several of these areas were assessed as moderate to significant land stability issues. There was a significant erosion issue, approximately between KP 70 and KP 76, which was only observed by LES during a later trip to the pipeline, after clearing of the vegetation had occurred. This erosion had been navigated around and not yet remedied. If remediation is not planned for these areas, it is recommended that Jemena ensure they are rectified to restabilise the area to meet transitional rehabilitation criteria in coming years.

4.4. Revegetation/Overgrowth

The vegetation of the overall ROW at the time of assessment was high. Significant overstory growth along significant stretches of the easement shows that rehabilitation after construction of the pipeline was occurring and the majority of the ROW was assessed as excellent revegetation. This had possibly been a result of above average rainfall during 2023 and 2024. Most of the ROW had high species richness and ground cover although in areas, thick overstory vegetation had restricted growth of the ground cover. The overgrowth along the NGP ROW is mapped in Figure 4-6 and recommended actions are discussed in Section 7.3.

Some small areas showed little vegetation regrowth. These areas were characterised by quartz flats with predominantly spinifex as the ground cover, or they were small patches of the ROW that had been affected by topsoil loss due to significant erosion. There are a few areas in which excessive topsoil had been removed during to create laydown areas during construction which have also not recovered. These areas of quartz and spinifex grasslands are known to take time to reestablish. With vegetation in close vicinity, it is likely a seed bank will be present allowing for vegetation growth when conditions are right. The patches of erosion that had removed topsoil and the affected laydown areas are unlikely to reestablish naturally. The addition of topsoil will be needed and ideally, be similar to the surrounding soil. It was observed in areas which had been cleared, piles of topsoil had collected, and this soil would be ideal to rehabilitate nearby erosion and topsoil loss (refer to Section 7.3).

As discussed in the 2023 report, the easternmost 40 km of the ROW had been heavily affected by weed growth and this had limited the ability of native vegetation to reestablish. Control of these weeds will increase the rehabilitation of the section.

Due to the excessive overstory growth and land stability issues, grading of the ROW had begun from the western end (Phillip Creek Compressor Station) of the pipeline to approximately 88.6 km. This had remedied some erosion but also removed almost all vegetation from a 20 m width of the ROW. Exceptions were shrubs close to pipeline poles as these poles restricted the grader from reaching this vegetation.

From KP 89 the overstorey vegetation was significant in areas, with portions of the ROW and access track completely hidden by vegetation. Other areas showed evidence of overstorey vegetation, however fires in the last twelve months have removed much of the vegetation from the ROW.

The section between KP 251 and KP 296 which sits in the Wonorah and Yelvertoft land systems are characteristic of gravely and stoney quartz soils. These soils encourage the growth of low shrubs, and therefore navigation was easier. These shrubs, predominantly *Acacia hilliana* (Hill's Tabletop Wattle), are still considered ‘overstorey’ for the purposes of the assessment, as they are dense, woody vegetation. This vegetation has the potential to prevent land stability conditions from being assessed and roots of this vegetation may impact on the pipeline infrastructure.

The ROW between KP 356 - KP 526 and KP 535 - KP 560 crossed the Barkley, Georgina, Wonardo, Austral, Wonorah-Barkley and Kalalla land systems of the Barkley Tablelands. This section is characterised by open grass plans with very little woody vegetation growth. No overstory growth was observed along the ROW and the ground cover does not obstruct vision or impact on pipeline infrastructure, therefore can and should be maintained. All other areas consisted of an overstorey which needs to be removed and continually discouraged from establishing through regular slashing.

Clearing and grading will be required in these areas, currently, to remove the undesirable vegetation which has grown. This will likely remove most ground cover and reduce the overall rehabilitation condition. While not ideal for the purposes of rehabilitation, it is required to protect Jemena's assets and enable further management. The current ground cover has shown resilience and the ability to establish quickly in the right conditions (refer to Section 7.3) and therefore recovery should be rapid.

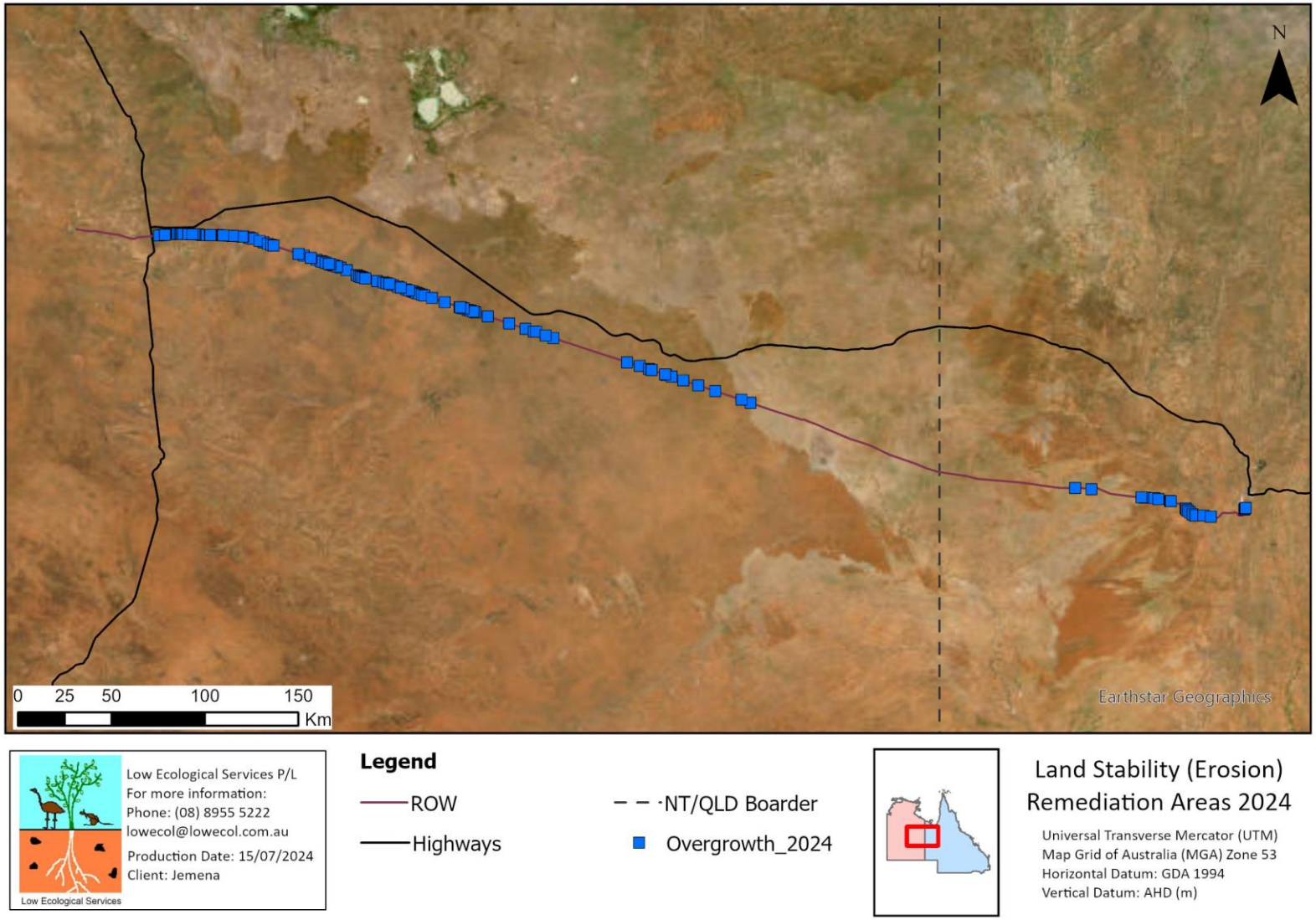

Figure 4-6. Overgrowth along the NGP ROW.

Photo 4-14. Growth of woody shrubs and trees along the ROW.

Photo 4-15. Overgrowth of overstory and ground cover restricting assessment of the ROW condition. Ground cover requires slashing.

Photo 4-16. Overstory reducing vision of the condition of the ROW.

Photo 4-17. Area of low rehabilitation score due to lack of vegetation growth. Topsoil is still present, and vegetation will likely grow given time.

Photo 4-18. Erosion has removed topsoil from this area. Topsoil will need to be replaced and managed to encourage rehabilitation.

Photo 4-19. Laydown area of low rehabilitation score due to lack of vegetation growth. Topsoil is still present, and vegetation will likely grow given time.

4.5. Other Notes

Throughout the survey, the condition of signage poles and monitoring poles was noted, when visible, and the accessibility of gates was assessed.

Occasionally the monitoring poles were damaged or had fallen due to land stability issues or cattle damage. Frequently, if these poles had fallen, wires were exposed at the base of the pole (Photo 4-20).

Pipeline signage poles were seen with damage, bent or fallen. Often on the pastoral land between KP 356 and KP 560, suggesting cattle had used them as scratching poles in a landscape with very few trees.

In the same area, gates used to access the next section of the pipeline had become tensioned to the point the mechanism to unlatch them had no give. This was most likely due to the movement of the cracking clay separating the gate posts farther than originally set. In some cases, there were other gates that enabled access. However other gates, such as the gate on the NT/Qld border were the only gate that allowed access to the next section of the pipeline.

A list of these notes can be found in Appendix A, Table 9-4.

Photo 4-20. Fallen monitoring pole with exposed wires.

5. ASSESSMENT OF TRANSITIONAL COMPLETION CRITERIA

The following criteria designated in the RMP are used to assess the transitional rehabilitation status of disturbed areas.

Significantly disturbed areas that are no longer required for operational purposes, must be transitionally rehabilitated within 12 months (unless exceptional circumstance in the area to be rehabilitated (e.g. flood event) prevents this timeframe being met) and be maintained to meet the following acceptance criteria:

a) Disturbed areas are:
  i. a stable landform
  ii. re-profiled to contours consistent with the surrounding landform
b) Surface drainage lines are re-established;
c) Topsoil is reinstated in disturbed areas; and
d) Either:
  i. Ground cover, that is not a declared pest species, is growing in disturbed areas; or
  ii. an alternative soil stabilisation methodology that achieves effective stabilisation is implemented and maintained in disturbed areas.

No less than 791 ha of suitable Plains Death Adder habitat is rehabilitated within 5 years of completion of construction.

Table 5-1 summarises the results of the assessment of each transitional rehabilitation criteria. This table reports on the fifth year of the 5-year transitional rehabilitation phase.

Table 5-1: Assessment of transitional rehabilitation criteria

Criteria	Conclusion/Recommendations
Disturbed areas are a stable landform within 12 months.	Incomplete. There is a significant portion, exceeding 95%, which meets this criterion. However, there were areas of erosion, subsidence, and ineffective and deteriorating berms observed at various locations throughout the ROW. These conditions are predominately minor; however, management action is required to achieve a stable landform along the pipeline in areas identified as having moderate to significant land stability issues. This is further outlined in Section 4.2, and recommendations provided in Section 7.
Disturbed areas are re-profiled to contours consistent with the surrounding landform within 12 months.	This criterion was met in the previous year, however, areas of the ROW that had become lower than the surrounding landscape were noted in this assessment. This lowering was most likely a result of grading over the ROW and/or repeated vehicle access on the ROW, and due to removal of material through sheet flow erosion. These areas were uncommon and sporadic over the easement; however, this increases the risk of erosion and pooling of water. Actions should be taken to raise the level of the ROW erosion control berms as appropriate in these areas and monitoring should occur to ensure adverse effects do not occur and the issue does not progress.

Surface drainage lines are re-established within 12 months.	Complete, but with minor exceptions. Re-establishment was completed during the project's reinstatement phase. This criterion has been met; however, it is recommended that monitoring and water flow management be continued to reduce any negative effects where drainage depressions cross or coincide with the ROW.
Topsoil is re-instated and maintained in all disturbed areas.	This criterion was undertaken during the projects' reinstatement phase, however, the action of erosion and to a lesser extent grading and clearing of the ROW has reduced or removed topsoil from some areas. The recommendation is that topsoil be replaced in these areas as an action of remediating erosion, plus soil stabilisation methods, such as berms, and encouraging vegetation be utilised to reduce the risk of further loss.
Ground cover which is not a declared species is growing in disturbed areas within 12 months of the completion of construction activities and maintained.	Incomplete. Overall, the 622 km long ROW is revegetating well and mostly meets the transitional rehabilitation criteria. Removal of ground cover is currently necessary to remove the undesirable overstorey, however, ground cover should recover and be managed in the future by slashing with a minimum ground clearance between 150 and 300 mm. Further recommendations are provided in Section 7.
An alternative soil stabilisation methodology that achieves effective stabilisation is implemented and maintained in disturbed areas.	Incomplete. In areas that are currently not stabilised with sufficient ground cover, erosion control berms are in place along sections of the ROW, however, some have been cleared with grading while others have been compromised and some areas require additional berms. Recommendations are provided in Section 7.
No weed incursion or spread within the NGP footprint.	Incomplete. Occurrences of declared weed species within the ROW are limited and are predominately a result of encroachment from adjacent pastoral land. There are some instances of declared weed species within the ROW that require management, including Noogoora Burr and Mesquite. While Horehound was not identified in the 2024 survey, its presence in 2023 suggests efforts should be made to identify and manage it after rainfall. To be effective, cooperative control with the adjacent landholders would be required and control should take place before seed set and focus on upstream or upwind weed populations. The largest weed encroachments within the ROW occur in the easternmost 40 km. Dense to moderately dense populations of Kapok bush have been established within the ROW in large areas. Kapok bush is not a declared weed species however management is recommended to remediate spread along the ROW and into adjacent land. Refer to Section 7 for recommendations. The population of Kapok bush at KP 556.3 is likely the result of pipeline activities and should be a priority to manage.
No less than 791 ha of suitable Plains Death Adder habitat is rehabilitated within 5 years of completion of construction.	Incomplete. Habitat is showing increased rehabilitation. Cracks along the appropriate habitat are forming and vegetation cover is high creating a habitat appropriate for hunting and temporary shelter. More time will be needed for the developing cracks to be completely rehabilitated. Minimal disturbance is recommended to allow cracks to completely rehabilitate.

The transitional rehabilitation of the NGP ROW continues to advance and is estimated to be over 90% complete. Required clearing of the overstorey on the ROW will likely remove the ground cover from highly rehabilitated areas, leading to an interim reduction in rehabilitation which will need to be monitored for land stability until ground cover is reestablished. This will be a good opportunity to remediate land stability issues. After which, management efforts will be important to enable quick recovery and high rehabilitation success.

6. RISKS TO REHABILITATION OBJECTIVES

The management actions detailed in Section 7 have been identified to meet the respective completion criteria. However, following the implementation of management actions, some events or circumstances may impede the attainment of completion criteria. The following events/circumstances have been identified in the RMP as posing a risk to achieving rehabilitation objectives:

- ***Increase in the diversity of weed species.*** *Even after weed hygiene is undertaken (particularly vehicle hygiene and weed inspections prior to transport to site), there is a chance that weed species not currently present in within the Project footprint may be brought to site. New weed introduction poses a risk to the land returning to a comparable pre-disturbance state and the habitat for Plains Death Adder being rehabilitated.*

- ***Increase in weed cover.*** *Increase in weed cover could occur due to opportunistic growth into disturbed areas where there are existing weeds present. Increase in weed cover could prevent or delay the establishment of native ground cover species and/or suppress ground cover species richness. This would hinder suitable habitat for the Plains Death Adder returning, and the return of the land to comparable pre-disturbance state.*

- ***Erosion at watercourse crossings****. Watercourse crossings are the most likely location for erosion to occur. Without management actions, watercourse crossings are expected to erode due to river flow. Erosion of this nature poses a risk to the objective of returning the land to a comparable pre-disturbance state, and (in areas) would prevent the successful rehabilitation of suitable Plains Death Adder habitat.*

- ***Extreme weather event which negatively impacts rehabilitation.*** *As construction is occurring in the dry season, it is unlikely that an extreme weather event (particularly flooding rain) will occur prior to reinstatement, however, such an event could occur before rehabilitation is complete. An extreme weather event could wash away rehabilitated areas (both land and vegetation) and negatively impact on landform in general and specifically Plains Death Adder habitat. Alternatively, a protracted drought could lead to rehabilitation objectives not being met.*

- ***Stock or native fauna activity impacting rehabilitation.*** *As the land is currently used for grazing stock and supports native fauna, rehabilitation could be impacted by stock and/or fauna grazing. This is most likely to occur around water points (troughs, dams etc). This activity could supress the regeneration of native species, and in turn, the rehabilitation of the land to its pre-disturbance condition.*

- ***Unplanned/uncontrolled fire.*** *Construction activities during the dry season, particularly the use of heavy machinery for vegetation clearing, are a possible source*

of wildfire ignition. Although heavy machinery will be used predominately in clearing and on the cleared ROW, a fire that spreads into reinstated areas could negatively impact rehabilitation success through burning new growth.

A number of these risks to rehabilitation have occurred over the past two years of transitional rehabilitation which pose a risk to achieving rehabilitation objectives, which are discussed in Table 6-1.

Table 6-1. Risks to transitional rehabilitation completion

Risk	Event or circumstance
Increase in weed cover	Significant rainfall events during the 2023 and 2024 summer periods have resulted in increased revegetation along the pipeline easement, which has also assisted in the spread and proliferation of weed species such as Noogoora Burr and Kapok bush.
Extreme weather event that negatively impacts rehabilitation	The NGP project area has experienced two years of significant rainfall events, a total of 600-700 mm per year since 2022. This year alone Tennant Creek recorded over 1,000 mm within just 6 months, and Mt Isa and Camooweal 600-700 mm in the same time period. Significant rainfall events such as these increase the risk of erosion, remove topsoil and negatively impact the progress of rehabilitation.
Stock or native fauna activity impacting rehabilitation.	The majority of the NGP project area is situated within pastoral land used for grazing stock. Stock activity around watering points and cattle tracks along the ROW are obvious and have contributed to erosion in some areas and have likely contributed to the spread of weeds, such as Noogoora Burr. Disturbance from cattle in high-activity locations has also likely suppressed the regeneration of native vegetation.
Unplanned/ uncontrolled fire	Fire occurrences between September and October 2023 have affected a large area of the NGP project area. Significant rainfall events resulting in an increase of vegetation along the ROW likely fuelled fires caused by lightning strikes. This has negatively impacted rehabilitation efforts by burning new growth and removing organic material that naturally stabilises the soil, therefore becoming more prone to erosion.

7. CONCLUSION AND RECOMMENDATIONS

The fifth transitional rehabilitation survey of the Northern Gas Pipeline undertaken in June 2024 found the ROW in a similar condition to that during the 2023 assessment. From discussions with Jemena staff responsible for the management and rehabilitation of the ROW, difficulties acquiring timely funding, land entry permissions from appropriate land custodians, and hiring a culturally appropriate labour force has slowed remediation works following the 2023 recommendations. Although little maintenance has occurred on the pipeline in the last twelve months, the condition of the disturbed areas present on the ROW have remained relatively stable and shows good to excellent rehabilitation over the ROW in general.

7.1. Weeds

The presence of weeds was still evident in the ROW, however, management to remove Mesquite had begun and one individual had likely been removed from the ROW during clearing efforts. The three Mesquite trees identified in this assessment were adjacent to the cleared area of the ROW and minimal effort would be required to remove these. They appeared to be isolated individual trees; therefore it is encouraged to remove the issue of this Weed of National Significance from the easement as a priority. Noogoora Burr was found in high density within riparian corridors, however in these areas, the weed was located just outside the easement making management of these populations difficult without the cooperation of adjacent landowners. It is recommended that initial efforts are focussed on the small, isolated populations of Noogoora Burr which occurred outside riparian areas and most likely occurred due to cattle transporting seeds to these areas. This initial management effort would help reduce the further spread of this weed.

Another focus of weed management is the small population of Kapok bush in the vicinity of KP 566. This population is likely a result of pipeline management vehicles transporting seeds to this area and is therefore the responsibility of Jemena to remove before seed spreads. Vehicle hygiene practices should ensure this does not happen in the future. The high density of Kapok Bush in the eastern 40 km of the pipeline was discussed in the 2023 report and has since continued to spread off the ROW and into the surrounding landscape. The RMP performance indicator for transitional rehabilitation of *'No weed incursion or spread within the NGP footprint'* is affected by both the above-mentioned Kapok bush populations and therefore efforts should be made to control these populations as soon as possible.

A focussed survey to map large areas of weeds and treat the isolated populations may be an effective way of managing the weed populations on the ROW. This survey could also remove the small populations of Noogoora Burr, Mesquite, Kapok bush and Rubber bush identified during the 2024 survey.

The following actions are recommended to meet the transitional rehabilitation criteria:

- Prioritise management of all instances of declared weeds.
- Consider working with adjacent landholders for long term management of weed encroachment into the ROW. Management should take place before seed set and focus on upstream or upwind weed populations.
- Management actions for non-declared weeds should focus on areas of high infestation, particularly the spreading populations of Kapok bush in the far eastern portion of the ROW and the Cathodic Protection site at KP 566.4
- Future monitoring should reinspect all weed records to ensure control has been effective and weeds have not spread.

7.2. Land Stability

Much of the land stability issues, erosion and subsidence, observed in the 2024 assessment appeared to be stable when compared to the 2023 assessment. Because of this, the level of severity was reduced in some instances from the 2023 assessment. It should be noted that if any erosion or subsidence, which was assessed as moderate severity or higher this year, progresses in the future it will quickly pose a severe risk to the environment or the integrity of the pipeline. It is recommended that works to improve moderate to significant land stability issues occur quickly in order to reduce the risks involved. This is currently the intention of Jemena after vegetation has been cleared and additional funding and culturally appropriate contractors have been acquired. This will be a key action to re-stabilise the ROW (refer to Section 7.3).

The presence of windrows along the ROW and the lowering of the ROW in comparison to the surrounding landscape both increase the risk of erosion by impacting the natural flow of water. These issues should be addressed where required and machinery operators responsible for the maintenance of the ROW should be alerted to the importance of eliminating these factors to encourage effective water flow management.

Piles of soil accumulated from the recent clearing was observed along the edges of the ROW. This should be managed carefully to ensure this does not also affect natural water flow and is ideal to use to fill in any subsidence and erosion in the vicinity of the soil. If this soil contains woody vegetation, care should be taken to reduce the risk of vehicle damage if this woody material is spread over vehicle access areas. It should also be noted that if these piles of vegetation are stockpiled for a lengthy duration, the APGA CoEP requires a suitably qualified fauna spotter/catcher to check the stockpile and catch and relocate any fauna inhabiting the vegetation and soil, prior to spreading.

The recommendations for additional erosion control berms and water flow management can be found in Appendix A. The construction of berms should follow the OEMP best practice.

The following actions are recommended to meet the transitional rehabilitation criteria:

- Remediate all Level 1 and 2 land stability issues as a priority.
- Remediate Level 3 moderate land stability issues.
- Monitor Level 4 and 5 minor land stability issues.
- Construct additional erosion control berms as required upslope of areas where erosion or subsidence is developing due to water channelling along ROW.
- Where appropriate, back-fill and level subsidence surrounding landscape level.
- Where appropriate, fill and level erosion occurrences to prevent further advancement and encourage vegetation to establish. Eroded sediment from the downslope could be used where available.
- Where appropriate, return ROW easement to the surrounding landscape level.
- Remove windrows.
- Repair compromised berms, with some requiring extension, if possible, to effectively remediate erosion issues.
- Re-build berms after vegetation clearance and in future, alter clearance methods to keep berms intact (i.e. slashing).
- Ensure berms are oriented correctly to ensure desired water management.

7.3. Revegetation and Overgrowth

The level of revegetation was high along the ROW with most sections being assessed as having good ground cover with a high species richness. There were only a few areas where soil and vegetation types were known to be slow to reestablish. It is widely accepted that rehabilitation best practice is to allow the environment to recover naturally. This can lead to a more robust and resilient environment. As these areas are only small patches within the landscape, and topsoil is still present due to sufficient erosion management, it is recommended that these areas be left to revegetate naturally with continued monitoring for weeds and erosion.

Other areas of low revegetation are due to topsoil loss as a result of erosion. This topsoil needs to be replaced, ideally with similar soil from graded areas nearby. Erosion control will be important in these areas to keep the replaced topsoil in position. However, considering the regrowth in adjacent areas in the ROW, suggests if this is done effectively, revegetation will occur quickly.

While the revegetation is high in most areas, most of this revegetation consists of an overstory. The Australian standards for high pressure pipeline systems, AS 2885, states that vegetation within the pipeline corridor shall be managed to:

a) *Maintain line of sight between pipeline markers;*
b) *Maintain access and line of site for third party detection and pipeline patrols;*
c) *Minimise the risk of roots damaging the pipeline coating; and*
d) *Minimise the risk of damage to above-ground facilities due to radiant heat in the event of a bushfire.*

In addition, the Group Gas Operational Environmental Management Plan (GAS-999-PA-EV-002) (2021) recommends *'Regrowth vegetation on the pipeline easement shall be maintained to ensure root systems do not create a safety risk to the pipeline'*. The overstory observed along the ROW does not conform to these requirements and therefore, it is necessary to clear this vegetation including the woody roots present. If the ground cover can be spared in this process it should be encouraged, but it is likely most of the ground cover will be removed in this process. This will significantly reduce the level of rehabilitation over the ROW and therefore all repairs to the easement should be completed at this time. After the clearing of vegetation, water flow and erosion control berms will be important to protect the repairs and topsoil which has been disturbed and redistributed. If this is managed correctly, it will increase the speed and completeness of further rehabilitation.

Once revegetation has begun, management through regular monitoring and slashing to a minimum height of between 150 mm to 300 mm will be important to keep ground cover healthy while discouraging woody overstory growth. This management will allow ease and effectiveness of aerial and ground surveys and pipeline management in the future.

The Plains Death Adder habitat, between KP 355 and K 561, is well rehabilitated with just the further development of cracks in the cracking clay necessary for full rehabilitation. These cracks require the process of inundation with water and subsequent drying to fully form. This will take time and low disturbance to achieve. Therefore, it is strongly recommended that this section of the ROW be protected from any clearing, grading or access by heavy machinery to allow this rehabilitation to progress. Low level cattle grazing is currently effective at managing the vegetation and therefore it is important that only minor works to control and manage weeds take place in this area.

The following actions are recommended to meet the transitional rehabilitation criteria:

- Clear all overstory growth to protect the integrity of the pipeline.
- Limit the clearing of groundcover where possible.
- Install water diversion berms and over water flow management to protect the bare soil where necessary.
- After vegetation growth has reestablished, slash regularly to discourage overstory growth.
- Protect the Plains Death Adder habitat from major works to encourage cracking clay to continue to establish cracks.

7.4. Review of the Rehabilitation Management Plan

The RMP, while comprehensive in discussing the key rehabilitation factors, does not offer criteria for all factors of concern. The RMP has set specific criteria for the rehabilitation of vegetation and Plains Death Adder habitat yet is does not set targets for land stability factors. This makes it difficult to assess how complete the rehabilitation of the ROW is.

The RMP states that:

> *"If the rehabilitation criteria are not met within 5 years of the transitional rehabilitation being achieved, the RMP will be reviewed considering monitoring results to ensure rehabilitation criteria are met."*

It is recommended that a review of the RMP is undertaken and in this process criteria for the assessment of land stability rehabilitation (i.e. an erosion, sediment control plan) and management of native overstory vegetation is revised, and where necessary, included. This will help management efforts by setting a target to work towards while also making it possible to achieve successful rehabilitation with an expected low level of erosion.

8. REFERENCES

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9. APPENDICES

Appendix A: Land Stability and Weeds of National Significance (WONS) Observation Locations and Recommended Actions Table

This table includes all observations of erosion, compromised berms, pipeline trench subsidence and WONS along the 622 km NGP pipeline. The observations in the table are sorted from west to east along the pipeline.

Definitions of Recommended Actions:

- ***Monitor:*** *Revisit and assess condition of observed locations in future surveys*
- ***Repair:*** *Reinstate berm to intended or improved design.*
- ***Smooth:*** *Even out ground surface. Could be achieved by filling with washed out topsoil from downslope.*
- ***Extend:*** *Increase length of berms to extend beyond the ROW. Ensure berms discharge along contour.*
- ***Add:*** *Construct additional berms up slope of vulnerable locations*
- ***Fill:*** *Fill subsidence depression to ground level.*
- ***Wrap:*** *Re-align berm to wrap around contour.*
- ***Raise:*** *Increase height of berm.*

Table 9-1. Land Stability

Observation	KP	Severity Score	Recommended Action	Comments
Erosion	609.9	3	Repair	
Erosion	609.5	4	Monitor	
Erosion	609.4	4	Monitor	
Erosion	620.2	3	Add	
Erosion	620.5	3	Repair and Extend matting	
Erosion	620.7	3	Repair and Extend matting	
Erosion	615.8	3	Add	
Erosion	614.8	3	Add	
Erosion	603.1	4	Monitor	
Erosion	607.1	4	Monitor	
Erosion	610.6	4	Monitor	
Erosion	618.2	4	Improve water flow management	
Erosion	618.2	4	Monitor	
Erosion	618.3	4	Improve water flow management	
Erosion	619	4	Add	
Erosion	619.9	4	Monitor	
Erosion	620.3	4	Monitor	
Erosion	612.6	4	Monitor	
Erosion	617.4	4	Monitor	
Erosion	611.9	4	Add	
Erosion	611.3	4	Monitor	
Erosion	614.2	4	Add	
Erosion	614.7	4	Monitor	
Erosion	615	4	Monitor	
Erosion	615.1	4	Monitor	
Erosion	616.9	4	Monitor	
Erosion	615.3	3	Add	
Erosion	582.6	3	Level	Needs to be filled in and sheet flow promoted by ensuring flat landscape
Erosion	602.9	4	Monitor	
Erosion	602.1	4	Add	
Erosion	582.6	4	Add	
Erosion	574.5	4	Monitor	
Erosion	574.4	4	Monitor	
Erosion	574.7	4	Monitor	
Erosion	579	4	Add	
Erosion	545.2	4	Monitor	
Erosion	479.5	4	Add	
Erosion	461.7	3	Add	
Erosion	472.8	3	Add	
Erosion	472.8	3	Add	
Erosion	473	3	Add	
Erosion	459.7	4	Add	
Erosion	460.3	4	Add	

Erosion	463.9	4	Add	
Erosion	467.5	4	Add	
Erosion	473.8	4	Add	
Erosion	472.2	4	Add	
Erosion	448.2	4	Monitor	Cattle damage
Erosion	451.4	4	Add	Has not worsened since 2023
Erosion	452.2	4	Monitor	
Erosion	442.6	4	Monitor	
Erosion	420.7	4	Add	
Erosion	423.4	3	Add	
Erosion	431.6	3	Add	
Erosion	416.9	4	Add	
Erosion	418.4	4	Add	
Erosion	419.4	4	Add	
Erosion	428.3	4	Add	
Erosion	415.8	4	Add	
Erosion	418.8	4	Add	
Erosion	417.6	4	Add	
Erosion	431.5	3	Add	
Erosion	417.2	3	Add	
Erosion	404.6	4	Monitor	
Erosion	411.7	4	Monitor	
Erosion	411.8	4	Monitor	
Erosion	412.1	4	Monitor	
Erosion	414.4	4	Monitor	
Erosion	410.3	4	Monitor	
Erosion	410.1	4	Monitor	Cattle Damage
Erosion	398.4	4	Monitor	
Erosion	384.2	2	Monitor	
Erosion	386.9	4	Monitor	No change from 2024
Erosion	387.8	4	Monitor	
Erosion	341.6	3	Repair	
Erosion	337.8	3	Repair	
Erosion	341.4	3	Repair	
Erosion	332	4	Monitor	
Erosion	332.3	4	Monitor	
Erosion	332.7	4	Monitor	
Erosion	333	4	Monitor	
Erosion	334.5	4	Monitor	
Erosion	334.9	4	Monitor	
Erosion	335.3	4	Monitor	
Erosion	335.6	4	Monitor	
Erosion	335.9	4	Monitor	
Erosion	336	4	Monitor	
Erosion	336.7	4	Monitor	
Erosion	337.4	4	Monitor	
Erosion	340.7	4	Monitor	
Erosion	344	4	Monitor	
Erosion	344.5	4	Level	Run on from higher surrounding landscape
Erosion	346.1	4	Level	Run on from higher surrounding landscape
Erosion	341.9	4	Level	Run on from higher surrounding landscape
Erosion	340.9	4	Monitor	
Erosion	343.1	4	Monitor	Possible pooling
Erosion	343.8	4	Monitor	Possible pooling
Erosion	320.6	3	Repair	
Erosion	321.1	3	Repair	
Erosion	313.4	4	Monitor	
Erosion	317	4	Monitor	
Erosion	317.9	4	Monitor	
Erosion	318.1	4	Monitor	
Erosion	318.3	4	Monitor	
Erosion	320.9	4	Monitor	
Erosion	321.3	4	Monitor	
Erosion	321.4	4	Monitor	
Erosion	321.5	4	Monitor	
Erosion	322.3	4	Monitor	

Erosion	323.6	4	Monitor	
Erosion	324	4	Monitor	
Erosion	324.9	4	Monitor	
Erosion	328.3	4	Monitor	
Erosion	328.9	4	Monitor	
Erosion	330.1	4	Monitor	
Erosion	330.4	4	Monitor	
Erosion	321.7	4	Monitor	
Erosion	318.4	4	Monitor	
Erosion	326.1	5	Monitor	Possible pooling
Erosion	313.6	5	Level	Soft sand present on easement which has been washed from elsewhere
Erosion	307	3	Repair	
Erosion	307.3	3	Repair	
Erosion	294.3	1	Repair	
Erosion	293.7	2	Repair	
Erosion	306.7	2	Add	
Erosion	303.5	3	Repair	
Erosion	308.5	3	Repair	
Erosion	306.6	3	Repair	
Erosion	294.7	4	Monitor	
Erosion	295.5	4	Monitor	
Erosion	300	4	Monitor	
Erosion	301.1	4	Monitor	
Erosion	302.2	4	Monitor	
Erosion	303.1	4	Monitor	
Erosion	303.9	4	Monitor	
Erosion	304.2	4	Monitor	
Erosion	305.6	4	Monitor	
Erosion	306	4	Monitor	
Erosion	306.1	4	Monitor	
Erosion	307.8	4	Monitor	
Erosion	302.3	4	Monitor	
Erosion	298.8	4	Monitor	
Erosion	300.3	4	Monitor	
Erosion	269.5	4	Monitor	
Erosion	274.7	4	Monitor	
Erosion	270	4	Monitor	
Erosion	274.9	4	Monitor	
Erosion	272.7	3	Repair	
Erosion	272.2	3	Repair	
Erosion	272.9	4	Monitor	
Erosion	274.4	4	Monitor	
Erosion	276.8	4	Monitor	
Erosion	277.9	4	Monitor	
Erosion	278.4	4	Monitor	
Erosion	279.2	4	Monitor	
Erosion	269.4	5	Monitor	Erosion repaired
Erosion	265.8	2	Repair	
Erosion	253.3	4	Monitor	
Erosion	253.9	4	Monitor	
Erosion	259.5	4	Monitor	
Erosion	267.4	4	Monitor	
Erosion	266.2	4	Monitor	
Erosion	230.3	4	Monitor	
Erosion	226.1	4	Monitor	
Erosion	222.9	4	Monitor	
Erosion	225	4	Monitor	
Erosion	211.3	4	Monitor	
Erosion	213.2	4	Monitor	
Erosion	205.5	4	Monitor	
Erosion	205.6	4	Monitor	
Erosion	169.8	4	Monitor	
Erosion	163.2	4	Monitor	
Erosion	173.9	4	Monitor	
Erosion	174.6	4	Monitor	
Erosion	169.7	4	Monitor	
Erosion	174.3	4	Monitor	
Erosion	174.7	4	Monitor	

Erosion	179.4	4	Monitor	
Erosion	166.1	4	Monitor	
Erosion	166.2	4	Monitor	
Erosion	170	4	Monitor	
Erosion	169.8	4	Monitor	
Erosion	163.2	4	Monitor	
Erosion	173.9	4	Monitor	
Erosion	174.6	4	Monitor	
Erosion	169.7	4	Monitor	
Erosion	174.3	4	Monitor	
Erosion	174.7	4	Monitor	
Erosion	179.4	4	Monitor	
Erosion	166.1	4	Monitor	
Erosion	166.2	4	Monitor	
Erosion	170	4	Monitor	
Erosion	123.1	3	Monitor	
Erosion	127	3	Monitor	
Erosion	121.3	4	Monitor	
Erosion	122	4	Monitor	
Erosion	125.2	4	Monitor	
Erosion	125.9	4	Monitor	
Erosion	126.2	4	Monitor	
Erosion	130.2	4	Monitor	
Erosion	136.7	4	Monitor	
Erosion	138.1	4	Monitor	
Erosion	140.8	4	Monitor	
Erosion	121.9	4	Monitor	
Erosion	122.2	4	Monitor	
Erosion	129.6	4	Monitor	
Erosion	126.5	4	Monitor	
Erosion	138.4	4	Monitor	
Erosion	123.7	4	Monitor	
Erosion	125.7	4	Monitor	
Erosion	129.4	4	Monitor	
Erosion	131	4	Monitor	
Erosion	134.6	4	Monitor	
Erosion	135.7	4	Monitor	
Erosion	139.9	4	Monitor	
Erosion	140.1	4	Monitor	
Erosion	130.5	4	Monitor	
Erosion	122.8	4	Monitor	
Erosion	122.9	4	Monitor	
Erosion	124.8	4	Monitor	
Erosion	122.4	4	Monitor	
Erosion	126.1	4	Monitor	
Erosion	131.2	4	Monitor	
Erosion	137.5	4	Monitor	
Erosion	138.6	4	Monitor	
Erosion	140.2	4	Monitor	
Erosion	90.9	4	Monitor	Cattle damage
Erosion	91.7	4	Monitor	
Erosion	91.5	3	Monitor	
Erosion	87.2	4	Monitor	
Erosion	93	4	Monitor	
Erosion	94.3	4	Monitor	
Erosion	86.2	4	Monitor	
Erosion	92.5	4	Monitor	
Erosion	93.3	4	Monitor	
Erosion	92.1	4	Monitor	
Erosion	92.3	4	Monitor	
Erosion	92.2	4	Monitor	
Erosion	84.1	4	Monitor	
Erosion	84.6	4	Monitor	
Erosion	94.4	4	Monitor	
Erosion	96.7	4	Monitor	
Erosion	87.1	4	Monitor	Cattle damage
Erosion	97.1	4	Monitor	
Erosion	95.4	4	Monitor	
Erosion	94.7	4	Monitor	

Erosion	96.9	4	Monitor	
Erosion	97.3	4	Monitor	
Erosion	99.2	4	Monitor	
Erosion	99.4	4	Monitor	
Erosion	46.2	4	Monitor	
Erosion	46.2	4	Monitor	
Erosion	41.3	4	Monitor	
Erosion	46.8	5	Monitor	
Erosion	45.7	3	Monitor	
Erosion	45.8	4	Monitor	
Erosion	45.5	4	Monitor	
Erosion	45.4	5	Monitor	
Erosion	19.8	4	Monitor	
Erosion	17.4	5	Monitor	
Erosion	188.4	4	Monitor	
Erosion	104.6	4	Monitor	
Erosion	103.8	4	Monitor	
Erosion	105.5	4	Monitor	
Erosion	105.9	4	Monitor	
Erosion	107.4	4	Monitor	
Erosion	109.2	4	Monitor	
Erosion	110	4	Monitor	
Erosion	110.3	4	Monitor	
Erosion	115.6	4	Monitor	
Erosion	103.3	4	Monitor	
Erosion	119.7	4	Monitor	
Erosion	144.8	4	Monitor	
Erosion	145.5	4	Monitor	
Erosion	152.7	4	Monitor	
Erosion	144.3	4	Monitor	
Erosion	8.8	3	Monitor	
Erosion	4.7	3	Monitor	
Erosion	1.2	5	Monitor	
Erosion	4.4	5	Monitor	
Erosion	0.1	4	Monitor	
Erosion	5.6	2	Repair	
Erosion	38.7	4	Monitor	
Erosion	31.7	1	Repair	
Erosion	32.2	3	Add	
Erosion	31.2	2	Repair	
Erosion	24.3	3	Add	
Erosion	29.8	3	Add	
Erosion	34	3	Add	
Erosion	28.4	4	Add berm and drainage	
Erosion	34.8	4	Add	
Erosion	36.8	2	Add	
Erosion	30	3	Repair	
Erosion	31.4	3	Repair	
Erosion	35.9	1	Repair	
Erosion	35.4	2	Repair	
Erosion	30.2	3	Add	
Erosion	29.2	3	Add flat bottom drain	
Erosion	29.3	3	Add flat bottom drain	
Erosion	34.4	5	Add	
Erosion	41	4	Monitor	
Erosion	39.6	2	Repair	
Erosion	40.2	1	Repair	
Erosion	38.9	3	Add	
Erosion	27.3	4	Monitor	
Erosion	24.4	2	Repair	
Erosion	69.7	3	Add	
Erosion	69.8	4	Add	
Erosion	70.1	4	Monitor	
Erosion	75.4	3	Monitor	
Erosion	64.1	4	Monitor	
Erosion	63.1	4	Monitor	
Erosion	61.9	3	Add	
Erosion	66.1	4	Monitor	
Erosion	75.3	3	Repair	

Erosion	79.2	5	Monitor	Cattle damage
Erosion	74.2	5	Monitor	
Erosion	74.4	3	Add	
Erosion	75.7	2	Add, Level	
Erosion	65	4	Monitor	
Erosion	64.6	4	Monitor	
Erosion	65.3	4	Monitor	
Erosion	63.6	4	Monitor	
Erosion	74	4	Monitor	
Erosion	64.7	4	Monitor	
Erosion	80.2	4	Add	
Erosion	62.1	3	Monitor	
Erosion	65.9	2	Repair	
Erosion	64.8	3	Monitor	
Erosion	61	3	Add	
Erosion	65.5	3	Add	
Erosion	78.3	4	Add	
Erosion	76.2	3	Add	
Erosion	76.7	4	Add	
Erosion	68.4	5	Add	
Erosion	266.7	5	Monitor	Clear excess soil
Erosion	46.2	4	Monitor	
Erosion	51.6	2	Repair	
Erosion	60.1	4	Monitor	
Erosion	51.2	2	Repair	
Erosion	50	3	Monitor	
Erosion	50.8	3	Monitor	
Erosion	52.4	3	Monitor	
Erosion	55.3	3	Monitor	
Erosion	41.3	4	Add	
Erosion	49.9	4	Monitor	
Erosion	55.2	4	Monitor	
Erosion	55.3	4	Monitor	
Erosion	41	5	Add	
Erosion	57.6	4	Monitor	
Erosion	54.9	4	Monitor	
Erosion	50.1	4	Monitor	
Erosion	57.3	4	Monitor	
Erosion	57.7	3	Monitor	
Erosion	50.6	3	Monitor	
Erosion	54.8	3	Monitor	
Erosion	57.4	4	Monitor	
Erosion	51.8	2	Repair	
Erosion	57.7	2	Repair	
Erosion	43.3	5	Monitor	
Erosion	46.8	5	Monitor	
Erosion	53	4	Monitor	
Erosion	53.3	4	Monitor	
Erosion	45.7	3	Repair	
Erosion	59.2	2	Repair	
Erosion	51.6	1	Repair	
Erosion	45.8	4	Monitor	
Erosion	51.3	4	Monitor	
Erosion	55.5	3	Monitor	
Erosion	56	2	Repair	
Erosion	56.2	2	Repair	
Erosion	51.4	3	Repair	
Erosion	46.3	5	Add	
Erosion	55.8	1	Repair	
Erosion	58.3	2	Repair	
Erosion	58.8	2	Repair	
Erosion	55.6	1	Repair	
Erosion	56.4	2	Repair	
Erosion	57.9	2	Repair	
Erosion	60.4	2	Repair	
Erosion	57.7	2	Repair	
Erosion	59.7	2	Repair	
Erosion	61	2	Repair	
Erosion	58.1	3	Monitor	

Erosion	56.9	3	Monitor	
Erosion	56.7	2	Repair	
Erosion	45.5	4	Monitor	
Erosion	41.4	5	Level	
Erosion	45.4	5	Level	
Subsidence	616.4	4	Monitor	
Subsidence	582.4	4	Monitor	
Subsidence	541.2	4	Monitor	
Subsidence	531.3	4	Monitor	
Subsidence	508.7	4	Monitor	
Subsidence	462.8	4	Monitor	
Subsidence	464.4	4	Monitor	
Subsidence	478.2	4	Monitor	
Subsidence	400.5	4	Monitor	
Subsidence	399.4	4	Monitor	
Subsidence	400.7	4	Monitor	
Subsidence	414.1	4	Monitor	
Subsidence	378.5	4	Monitor	
Subsidence	392.5	4	Monitor	
Subsidence	384.1	4	Monitor	
Subsidence	388.7	4	Monitor	
Subsidence	383.9	4	Monitor	
Subsidence	386.3	4	Monitor	
Subsidence	360	4	Monitor	
Subsidence	295.8	4	Monitor	
Subsidence	266.2	4	Monitor	
Subsidence	222.2	4	Monitor	
Subsidence	43.5	4	Monitor	
Subsidence	45.7	2	Fill	
Subsidence	41.4	4	Monitor	
Subsidence	45.4	4	Monitor	
Subsidence	16.7	4	Monitor	
Subsidence	7.6	2	Fill	
Subsidence	16.4	4	Monitor	
Subsidence	16.6	4	Monitor	
Subsidence	18.2	4	Monitor	
Subsidence	144.3	4	Monitor	
Subsidence	6.9	2	Fill	
Subsidence	8.5	3	Fill	
Subsidence	4.7	3	Fill	
Subsidence	5.1	4	Monitor	
Subsidence	5.6	3	Fill	
Subsidence	7.4	1	Fill	
Subsidence	6.8	2	Fill	
Subsidence	12.8	4	Monitor	
Subsidence	38.9	2	Fill	
Subsidence	24.6	2	Fill	
Subsidence	27.3	2	Fill	
Subsidence	28	2	Fill	
Subsidence	38.4	3	Fill	
Subsidence	24.1	4	Monitor	
Subsidence	76.5	4	Monitor	
Subsidence	75	4	Monitor	
Subsidence	62.1	3	Fill	
Subsidence	65.9	3	Fill	
Subsidence	67.8	3	Fill	
Subsidence	68.2	4	Monitor	
Subsidence	25	1	Fill	
Subsidence	43.5	4	Monitor	
Subsidence	45.7	2	Fill	
Subsidence	41.4	4	Monitor	
Subsidence	45.4	4	Monitor	

Table 9-2. Compromised and Additional Berm Recommendations

Recommendation	KP	Serverity Score
Repair	613.3	3
Repair	613.4	2
Repair	614.4	3
Repair	609.9	1
Repair	609.5	2
Repair	609.4	3
Repair	612.3	3
Repair	586.9	3
Repair	574.5	2
Repair	545.2	1
Repair	508.8	1
Repair	506.2	3
Repair	443.6	3
Repair	431.7	3
Repair	410.8	2
Repair	334.3	3
Repair	335.1	3
Repair	344.7	3
Repair	345.1	3
Repair	345.6	3
Repair	341.6	3
Repair	348.1	3
Repair	310.7	3
Repair	322	3
Extend	307	2
Repair	309.4	3
Repair	309.7	3
Repair	307.3	3
Extend	272.9	2
Repair	270.4	3
Repair	272.6	3
Extend	274.6	2
Repair	269.5	2
Repair	274.7	3
Repair	270	3
Repair	274.9	3
Repair	272.7	3
Repair	272.2	3
Repair	272.2	2
Repair	248.5	2
Repair	253.8	2
Repair	256.9	2
Repair	259.8	2
Repair	265.7	2
Repair	265.7	2
Repair	265.8	1
Repair	235.5	3
Repair and Extend	222.9	2
Repair	46.2	2
Repair	20.7	1
Repair	19.7	1
Repair	19.2	3
Repair	11.4	2
Repair	11.8	3
Repair	9.2	2
Repair	8.8	1
Repair	2.5	1
Repair	24.1	1
Repair	25.3	1
Extend	28.9	2
Repair	29.5	1
Repair	72.5	2
Repair	72.7	1
Repair	75.3	1
Repair	46.2	3
Add	620.2	3

Matting Repair and Extend	620.5	3
Matting Repair and Extend	620.7	3
Add	615.8	3
Add	614.8	3
Crossflow Management	618.2	4
Add	618.3	4
Add	619	4
Add	611.9	4
Add	614.2	4
Add	615.3	3
Level/Crossflow Management	582.6	3
Add	602.1	4
Add	582.6	4
Add	579	4
Add	479.5	4
Add	461.7	3
Add	472.8	3
Add	472.8	3
Add	473	3
Add	459.7	4
Add	460.3	4
Add	463.9	4
Add	467.5	4
Add	473.8	4
Add	472.2	4
Add	451.4	4
Add	420.7	4
Add	423.4	3
Add	431.6	3
Add	416.9	4
Add	418.4	4
Add	419.4	4
Add	428.3	4
Add	415.8	4
Add	418.8	4
Add	417.6	4
Add	431.5	3
Add	417.2	3
Add	333	4
Level	346.1	4
Add	306.7	2
Repair	307.8	4
Add	41	4
Add	103.8	4
Level	105.5	4
Add	105.9	4
Add	32.2	3
Add	24.3	3
Add	29.8	3
Add	34	3
Add/drainage	28.4	4
Add	34.8	4
Add	36.8	2
Add	30.2	3
Drainage	29.2	3
Drainage	29.3	3
Add	34.4	5
Add	38.9	3
Add	25	1
Add	27.3	2
Add	28	2
Add	69.7	3
Add	69.8	4
Add	61.9	3
Add	74.4	3
Add/Level	75.7	2
Add	80.2	4
Add	61	3
Add	65.5	3

Add	78.3	4
Add	76.2	3
Add	76.7	4
Add	67.8	3
Add	68.2	4
Add	68.4	5
Add	51.6	2
Add	60.1	4
Add	51.2	2
Add	50	3
Add	50.8	3
Add	52.4	3
Add	55.3	3
Add	41.3	4
Add	49.9	4
Add	55.2	4
Add	55.3	4
Add/Level	41	5
Add	57.6	4
Add	54.9	4
Add	50.1	4
Add	57.3	4
Add	57.7	3
Add/Level	50.6	3
Crossflow Management	51.8	2
Level	46.8	5
Add	45.7	3
Add	59.2	2
Add	51.6	1
Add	45.8	4
Add	51.3	4
Add	55.5	3
Add	56	2
Add	56.2	2
Add	51.4	3
Add	46.3	5
Add	55.8	1
Add	58.3	2
Add	58.8	2
Add	55.6	1
Add	56.4	2
Add	57.9	2
Add	60.4	2
Add	57.7	2
Add	59.7	2
Add	61	2
Add	58.1	3
Add	56.9	3
Add	56.7	2
Add	45.5	4
Level	45.4	5

Table 9-3. Weeds

Weed	KP	Category (NT)	Category (QLD)	Species	WONS
Buffel Grass	622	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	606.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	608.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	610	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	612.5	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	612.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	613.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	615.9	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	618.2	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	618.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	618.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	618.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	622.1	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	603.1	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	610.4	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	610.4	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	613.1	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	613.1	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	607.2	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	605.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	621.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	621.3	Not Declared	Not Listed	Aerva javanica	No
Kapok	605.4	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	603.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	612.2	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	616.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	617.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	603.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	604.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	606.3	Not Declared	Not Listed	Aerva javanica	No
Kapok	606.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	607	Not Declared	Not Listed	Aerva javanica	No
Kapok	608.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	608.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	608.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	609.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	609.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	609.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	610.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	611.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	611.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	611.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	612.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	612.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	612.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	613.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	614.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	615.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	615.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	616.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	617.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	618	Not Declared	Not Listed	Aerva javanica	No
Kapok	618.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	618.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	618.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	618.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	619.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	619.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	619.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	619.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	620.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	620.3	Not Declared	Not Listed	Aerva javanica	No
Kapok	620.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	620.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	621.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	622	Not Declared	Not Listed	Aerva javanica	No
Kapok	622	Not Declared	Not Listed	Aerva javanica	No

Kapok	622.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	622.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	605.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	604.6	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	607.9	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	607.9	Not Declared	Not Listed	Aerva javanica	No
Spiked Malvastrum	622.2	Not Declared	Not Listed	Malvastrum americanum	No
Buffel Grass	611	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	611	Not Declared	Not Listed	Aerva javanica	No
Kapok	604	Not Declared	Not Listed	Aerva javanica	No
Noogoora burr	618.2	Class B and Class C	Not Listed	Xanthium strumarium	No
Noogoora burr	617.8	Class B and Class C	Not Listed	Xanthium strumarium	No
Kapok	603.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	608.5	Not Declared	Not Listed	Aerva javanica	No
Rubber Bush	622.5	Class B and Class C	Other	Calotropis procera	No
Buffel Grass	622.6	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	622.6	Not Declared	Not Listed	Aerva javanica	No
Farnesiana	622.1	Not Declared	Not Listed	Vachellia farnesiana	No
Kapok	586.6	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	598	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	594.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	582.9	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	585.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	585.5	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	585.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	586.2	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	586.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	586.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	590.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	590.9	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	592.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	593.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	596.5	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	596.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	597.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	597.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	597.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	599.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	589.1	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	597.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	582.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	583	Not Declared	Not Listed	Aerva javanica	No
Kapok	584.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	585	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	586.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	586.2	Not Declared	Not Listed	Aerva javanica	No
Kapok	586.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	586.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	587	Not Declared	Not Listed	Aerva javanica	No
Kapok	588.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	589.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	590.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	590.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	591.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	593.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	594.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	594.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	595.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	596.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	597	Not Declared	Not Listed	Aerva javanica	No
Kapok	597.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	597.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	597.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	597.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	597.7	Not Declared	Not Listed	Aerva javanica	No
Kapok	599.3	Not Declared	Not Listed	Aerva javanica	No

Kapok	600.3	Not Declared	Not Listed	Aerva javanica	No
Kapok	602	Not Declared	Not Listed	Aerva javanica	No
Kapok	602.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	602.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	584.7	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	597.8	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	597.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.4	Class B and Class C	Not Listed	Aerva javanica	No
Kapok	582.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.3	Not Declared	Not Listed	Aerva javanica	No
Kapok	585.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	586.8	Not Declared	Not Listed	Aerva javanica	No
Kapok	590.6	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	594.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	597.5	Declared	Not Listed	Cenchrus ciliaris	No
Spiked Malvastrum	591.1	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	590.5	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	589.2	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	589.3	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	582.5	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	590.9	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	582.6	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	586.6	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	590.9	Class B and Class C	Other	Xanthium strumarium	No
Spiked Malvastrum	586.3	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	583	Not Declared	Not Listed	Malvastrum americanum	No
Farnesiana	582.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	586.2	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	591.3	Not Declared	Not Listed	Vachellia farnesiana	No
Buffel Grass	575.2	Declared	Not Listed	Cenchrus ciliaris	No
Not Found	576.7	Not Found			
Spiked Malvastrum	565.2	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	578.8	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	567.5	Not Declared	Not Listed	Malvastrum americanum	No
Rubber Bush	579.5	Class B and Class C	Other	Calotropis procera	No
Farnesiana	565.2	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	569	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	578.9	Not Declared	Not Listed	Vachellia farnesiana	No
Kapok	556.3	Not Declared	Not Listed	Aerva javanica	No
Noogoora burr	544.5	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	544.8	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	544.6	Class B and Class C	Other	Xanthium strumarium	No
Farnesiana	545.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	546.1	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	547	Not Declared	Not Listed	Vachellia farnesiana	No
Not Found	544.7	Not Found			
Farnesiana	529.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	532.4	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	533.8	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	537.2	Not Declared	Not Listed	Vachellia farnesiana	No
Buffel Grass	511.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	511.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	513.2	Declared	Not Listed	Cenchrus ciliaris	No
Spiked Malvastrum	509.8	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	514.7	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	502.6	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	503.2	Not Declared	Not Listed	Malvastrum americanum	No
Not Found	512.6	Not Found			
Not Found	510.1	Not Found			
Farnesiana	502	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	507.1	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	509.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	509.8	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	511	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	512.4	Not Declared	Not Listed	Vachellia farnesiana	No
Spiked Malvastrum	482.1	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	484.5	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	481.4	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	478.3	Not Declared	Not Listed	Malvastrum americanum	No

Spiked Malvastrum	484	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	488.6	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	479.4	Class B and Class C	Other	Xanthium strumarium	No
Spiked Malvastrum	479.3	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	472.7	Class B and Class C	Other	Xanthium strumarium	No
Spiked Malvastrum	472.3	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	464.8	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	474.8	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	471.9	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	472.4	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	477.3	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	477.6	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	472.2	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	472	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	473.1	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	473.8	Class B and Class C	Other	Xanthium strumarium	No
Parkensonia	472	Class B and Class C	Other	Parkensonia aculeata	No
Spiked Malvastrum	471.3	Not Declared	Not Listed	Malvastrum americanum	No
Farnesiana	464.9	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	459	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	464.2	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	464.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	464.8	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	469.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	471.8	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	472	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	472.3	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	472.5	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	477.6	Not Declared	Not Listed	Vachellia farnesiana	No
Spiked Malvastrum	440.1	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	439.6	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	452.1	Class B and Class C	Other	Xanthium strumarium	No
Spiked Malvastrum	452.1	Not Declared	Not Listed	Malvastrum americanum	No
Farnesiana	438.5	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	451.1	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	452.4	Not Declared	Not Listed	Vachellia farnesiana	No
Spiked Malvastrum	434.2	Not Declared	Not Listed	Malvastrum americanum	No
Farnesiana	417.5	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	415.3	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	415.4	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	417.3	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	421.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	423.5	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	423.9	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	427.4	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	427.4	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	431.5	Not Declared	Not Listed	Vachellia farnesiana	No
Not Found	426.6	Not Found			
Spiked Malvastrum	401.8	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	397.7	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	404.2	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	411.8	Class B and Class C	Other	Xanthium strumarium	No
Paddy Melon	403.3	Not Declared	Not Listed	Cucumis myriocarpus	No
Farnesiana	400.9	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	402.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	402.7	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	403.2	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	413.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	414.8	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	414.9	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	394.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	406.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	407.5	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	399.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	406.1	Not Declared	Not Listed	Vachellia farnesiana	No
Spiked Malvastrum	390.9	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	392.9	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	383.5	Class B and Class C	Other	Xanthium strumarium	No
Spiked Malvastrum	385.4	Not Declared	Not Listed	Malvastrum americanum	No

Spiked Malvastrum	390.2	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	373.7	Not Declared	Not Listed	Malvastrum americanum	No
Mimosa sp.	385.4	Not Declared	Not Listed	Mimosa sp.	No
Spiked Malvastrum	391.8	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	390.3	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	391.2	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	391.7	Class B and Class C	Other	Xanthium strumarium	No
Parkensonia	384	Class B and Class C	Other	Parkensonia aculeata	No
Farnesiana	387.2	Not Declared	Not Listed	Vachellia farnesiana	No
Noogoora burr	388	Class B and Class C	Other	Xanthium strumarium	No
Farnesiana	388.8	Not Declared	Not Listed	Vachellia farnesiana	No
Spiked Malvastrum	371.8	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	369.9	Not Declared	Not Listed	Malvastrum americanum	No
Spiked Malvastrum	370.1	Not Declared	Not Listed	Malvastrum americanum	No
Noogoora burr	367.3	Class B and Class C	Other	Xanthium strumarium	No
Noogoora burr	368.3	Class B and Class C	Other	Xanthium strumarium	No
Buffel Grass	245.6	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	227.5	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	227.3	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	227.3	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	226.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	226.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	228.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	230.5	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	230.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	231.2	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	231.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	232.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	233.3	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	234.1	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	235.2	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	236.2	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	237	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	237.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	238.9	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	242.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	229.4	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	226.6	Not Declared	Not Listed	Aerva javanica	No
Kapok	233.4	Not Declared	Not Listed	Aerva javanica	No
Kapok	236	Not Declared	Not Listed	Aerva javanica	No
Kapok	236.1	Not Declared	Not Listed	Aerva javanica	No
Kapok	236.5	Not Declared	Not Listed	Aerva javanica	No
Kapok	234.1	Not Declared	Not Listed	Aerva javanica	No
Rubber Bush	234.1	Class B and Class C	Other	Calotropis procera	No
Kapok	226.9	Not Declared	Not Listed	Aerva javanica	No
Kapok	212.1	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	223.6	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	224	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	211.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	223.1	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	223.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	224.4	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	225.8	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	226	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	226.1	Declared	Not Listed	Cenchrus ciliaris	No
Kapok	226	Not Declared	Not Listed	Aerva javanica	No
Buffel Grass	222.8	Declared	Not Listed	Cenchrus ciliaris	No
Not Found	87.3	Not Found			
Buffel Grass	20.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	20.7	Declared	Not Listed	Cenchrus ciliaris	No
Spiked Malvastrum	17.7	Not Declared	Not Listed	Malvastrum americanum	No
Mesquite	16.8	Class A and Class C	Prohibited and Restricted	Prosopsis sp.	Yes
Mesquite	16.6	Class A and Class C	Prohibited and Restricted	Prosopsis sp.	Yes
Buffel Grass	15.7	Declared	Not Listed	Cenchrus ciliaris	No
Buffel Grass	15.6	Declared	Not Listed	Cenchrus ciliaris	No
Farnesiana	63.6	Not Declared	Not Listed	Vachellia farnesiana	No
Farnesiana	62.6	Not Declared	Not Listed	Vachellia farnesiana	No
Mesquite	15.6	Class A and Class C	Prohibited and Restricted	Prosopsis sp.	Yes
Buffel Grass	50.8	Declared	Not Listed	Cenchrus ciliaris	No

Table 9-4. Other Notes

Observation	KP	Notes
Pipeline Condition	617.8	Steep, slippery, limited growth, no erosion. Appropriately 50 metres of Acacia overgrowth.
NGP station 5 site 355	556.3	Patch of Kapok Bush present
Damaged Pipeline Pole	522.9	
Damaged Pipeline Pole	523.4	
Damaged Pipeline Pole	523.9	
Damaged Pipeline Pole	531.4	
Damaged Pipeline Pole	504.7	
Damaged Pipeline Pole	505.2	
Damaged Pipeline Pole	506	
Damaged Pipeline Pole	508.1	
Damaged Pipeline Pole	497.4	
NGP station 4 site 350	489.3	
Non-functional gate	481.3	
Damaged Pipeline Pole	443.4	
Damaged Pipeline Pole	443	
Damaged Pipeline Pole	443.1	
Non-functional gate	457.3	
Damaged pipeline pole	393.2	
Damaged pipeline pole	409.8	
Damaged pipeline pole	412.6	
Fallen monitoring pole	394.9	
NGP station 3 site 354	413.6	
Damaged pipeline pole	375.6	
Damaged pipeline pole	381.8	
Damaged pipeline pole	381.9	
Damaged pipeline pole	382.9	
Damaged pipeline pole	390.7	
Damaged pipeline pole	377.1	
Fallen monitoring pole	377.7	
Damaged pipeline pole	374.1	
Fallen monitoring pole	381.3	
Fallen monitoring pole	370.1	Wires showing
Damaged Pipeline pole	370.6	
Damaged Pipeline pole	371.1	
Damaged Pipeline pole	372.2	
NGP Station 3 site 340	356.6	
Damaged pipeline pole	369.3	
Damaged pipeline pole	367.8	
Damaged pipeline pole	369.8	
NGP station site 335	292.4	Maintained well
NGP Station Site 330	211.5	Overgrowth around station.
Damaged pipeline pole	24.5	
NGP Station 1 Site 320	79.4	

2.2 APPENDIX B – NOTIFICATION OF COMMENCEMENT

Marc Rullo

From: Marc Rullo
Sent: Monday, 29 May 2017 3:12 PM
To: EPBCMonitoring@environment.gov.au
Cc: Russell Brooks; Jeff.richardson@ecoz.com.au; Cox, Vaughn
Subject: Notification of Commencement | Jemena Northern Gas Pipeline (EPBC 2015/7569)

Dear Sir or Madam,

In accordance with Condition 7 of EPBC Decision 2015/7569 (Jemena Northern Gas Pipeline), Please be advised the commencement of actions was **20 May 2017**.

Please acknowledge receipt of this email. If you require further information, do not hesitate to contact me using the details below.

Thank you and kind regards,

Marc Rullo
Project Engineer – Northern Gas Pipeline
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