Appendix C. CHEC Project Environmental Clearance (PEC) Report, January 2025

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 6DY86, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 18.05 hectares (3,610m x 50m) of pipeline Right-of-Way (RoW).		
Lot Plan:	6DY86	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	30/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	☐ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Fauna

- Biodiversity offsets for koala *Phascolarctos cinereus* may be required.
- Fauna Spotter Catcher required for clearing activities, potential subterranean species within gilgais (eg. burrowing frogs).

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised, remnant vegetation associated with Wambo Creek and isolated large woodland patches, advanced regrowth, and non-remnant open paddocks (historically cleared), grazed by cattle, that were dissected by access tracks and encompassed existing CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed: 1. a very small portion at the western extent of survey lies within mapped RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio), 2. an isolated patch of remnant RE 11.5.1a within 200m of the survey area, 3. the remaining area within 200m of the survey area as non-remnant vegetation. Ground truthing determined: • the western extent of the survey area traversed remnant RE 11.5.1 (Polygon #32) and advanced regrowth analogous with RE 11.5.4 (polygon #35). Both RE types are Least Concern [VM Act]; No Concern at Present [BDS]), • the mapped isolated patch of RE 11.5.1a comprised RE 11.5.1 (Polygon #37), the remaining area comprised non-remnant vegetation of historically cleared open currently grazed by cattle (Polygons #33, #5 & #2).
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	A small portion of the survey area lies within two separately mapped Category C ESAs and their Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.3.25 (Of Concern [BDS]) as part of the state mapped mixed polygon RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio) and Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. Ground truthing confirmed that the western boundary of the survey area is >200m from the previously surveyed remnant RE 11.3.25 adjoining Wambo Creek to the west and therefore the survey area does not lie within this mapped Category C ESA or PPZ but a small portion would be within the SPZ. Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement. No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	No TECs mapped or recorded the property.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	The western extent of the survey area traversed advanced regrowth analogous with RE 11.5.4 (estimated clearing event 10 years ago).
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.

for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely', or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA), *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) and *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA), are 'likely' to occur in the survey area. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for koala and golden-tailed gecko is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The results of this LoOm assessment were based on the western extent of the survey area comprising remnant RE 11.5.1 (Polygon #32) and advanced regrowth analogous with RE 11.5.4 (polygon #35). The shallow very low quality microrelief and gilgais within Polygons #2 & #5 (non-remnant areas) were also taken into consideration regarding potential habitat. The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: ○ Mapped referrable HES or GES ○ Unmapped ○ Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	No watercourses were mapped or detected within 100m of the survey area. Gilgais were present within the non-remnant Polygons #2 (~30% cover of gilgais) & #5 (~50% cover of gilgais). These gilgais were microrelief and shallow gilgai formations supporting very low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos). There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Additional Considerations:	There were potential habitat features within remnant and advance regrowth including, very sparsely scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ✓ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344. **This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.** **Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.**

Lincoln Smith Gerry Callahan (edits)	27/11/2024 2/02/2025
Completed By	**Date**

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 6DY86, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property comprised, remnant vegetation associated with Wambo Creek and isolated large woodland patches, advanced regrowth, and non-remnant open paddocks (historically cleared) grazed by cattle that were dissected by access tracks and encompassed CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed:
	1. a very small portion at the western extent of survey lies within mapped RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio),
	2. an isolated patch of remnant RE 11.5.1a within 200m of the survey area,
	3. the remaining area within 200m of the survey area as non-remnant vegetation.
	
	Ground truthing determined:
	• the western extent of the survey area traversed remnant RE 11.5.1 (Polygon #32) and advanced regrowth analogous with RE 11.5.4 (polygon #35). Both RE types are Least Concern [VM Act]; No Concern at Present [BDS]),
	• the mapped isolated patch of RE 11.5.1a comprised RE 11.5.1 (Polygon #37),
	• the remaining area comprised non-remnant vegetation of historically cleared open currently grazed by cattle (Polygons #33, #5 & #2).

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	A small portion of the survey area lies within two separately mapped Category C ESAs and their Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.3.25 (Of Concern [BDS]) as part of the state mapped mixed polygon RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio) and Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. Ground truthing confirmed that the western boundary of the survey area is >200m from the previously surveyed remnant RE 11.3.25 adjoining Wambo Creek to the west and therefore the survey area does not lie within this mapped Category C ESA or PPZ but a small portion would be within the SPZ. Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement. No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	No TECs mapped or recorded the property.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping?	Site is not in a High-Risk area according to latest Flora Trigger mapping.

If yes, Flora Trigger Survey to be recommended	
EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	The completed LoOM is appended to this report. The LoOM assessment indicated that *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA), *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) and *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA), are 'likely' to occur in the survey area. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for koala and golden-tailed gecko is increased to ''known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The results of this LoOm assessment were based on the western extent of the survey area comprising remnant RE 11.5.1 (Polygon #32) and advanced regrowth analogous with RE 11.5.4 (polygon #35). The shallow, very low quality, microrelief and gilgais within Polygons #2 & #5 (non-remnant areas) were also taken into consideration regarding potential habitat. The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	No watercourses were mapped or detected within 100m of the survey area. Gilgais were present within the non-remnant Polygons #2 (~30% cover of gilgais) & #5 (~50% cover of gilgais). These gilgais were microrelief and shallow gilgai formations supporting very low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos). There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road.
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	* Denotes non-native species **Trees** (within remnant and advanced regrowth) *Allocasuarina luehmannii* (bull oak) *Angophora leiocarpa* (smooth-barked apple) *Callitris glaucophylla* (white cypress pine) *Eucalyptus chloroclada* (Dawson's gum) *Eucalyptus crebra* (narrow-leaved ironbark) *E. populnea* (poplar box) *Melaleuca decora* (white feather honey myrtle) **Shrubs** *Acacia ixiophylla* (sticky wattle) *A. deanii* (Deane's wattle) *A. leiocalyx* (early flowering black wattle) *A. spectabilis* (glory wattle) *Dodonaea viscosa* (sticky hopbush) **Forbs** *Brunoniella australis* (blue trumpet) *Chrysocephalum apiculatum* (yellow buttons) *Evolvulus alsinoides* (bindweed) *Juncus usitatus* (common rush) *Murdannea graminea* (grass lily) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *Cyperus sp.* (a cyperus) *Dianella sp.* (a flax lily)

	Dichanthium sericeum (Queensland bluegrass) *Eleocharis sp.* (spike rush) *Entolasia stricta* (wiry panic) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass) *Fimbristylis dichotoma* (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Laxmannia gracilis* (wire lily) *Lomandra filiformis* (wattle matrush) *Lomandra longifolia* (spiny-head matrush) *Melinis repens** (red natal) *Panicum decompositum* (native millet) *Panicum effusum* (hairy panic) *Panicum larcomianum* (a panic grass) *Paspalidium caespitosum* (brigalow grass) *Walwhalleya subxerophila* (gilgai grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 18.05 hectares (3,610m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Within remnant and advanced regrowth: • Trees; 0-25, • Shrubs; 0-25, • Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Sandy clay loam; moderate erodibility. Clay within areas containing gilgais and microrelief.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Notes:	There were potential habitat features within remnant and advance regrowth including, very sparsely scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken

Nil

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
See Wetland Feature report appended for Polygons #2 & #5.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Likely fauna habitat within wooded vegetation areas and potential habitat within shallow gilgais. Restricted invasive weeds present at low densities.				

Photography - Linear Infrastructure

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comments

Photo 1: Typical remnant RE 11.5.1 within western extent of survey area (Polygon #32).

Photo 2: Advanced regrowth of vegetation analogous with RE 11.5.4 (Polygon #35).

Photo 3: Recently-cleared open paddock (Polygon #33).

Photos 4: Isolated patch of remnant RE 11.5.1 within 200m of survey area (Polygon #37).

Photo 5: Non-remnant with moderately-dense grassy ground layer cover, gilgais were absent (Polygon #33).

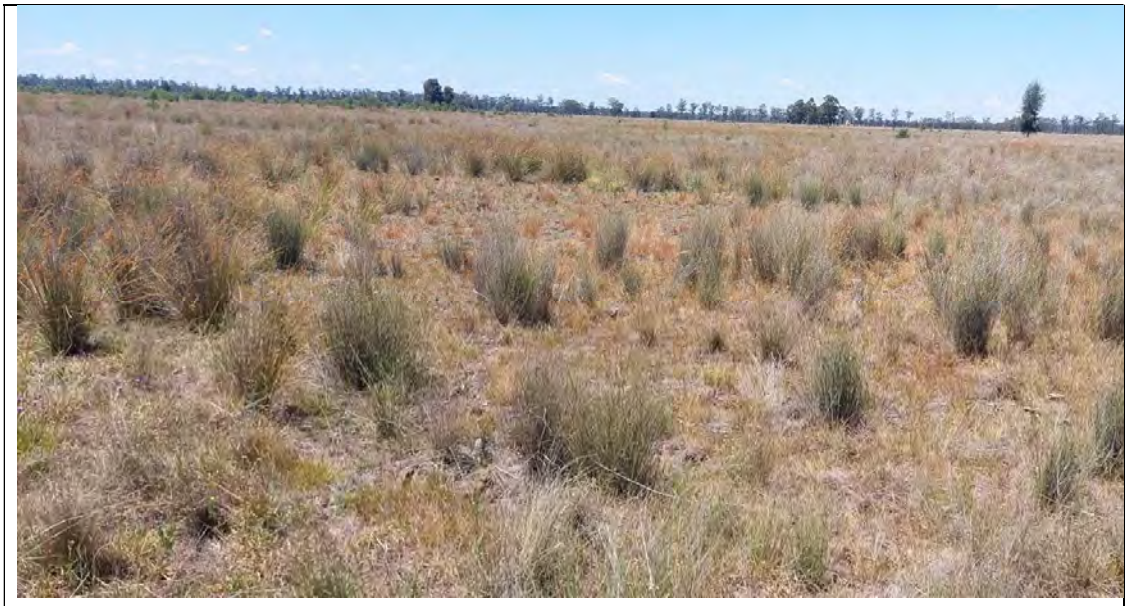

Photo 6: Typical non-remnant vegetation with ~30% cover of shallow gilgais (Polygon #5).

Photo 7: Typical non-remnant vegetation with ~50% cover of shallow gilgais (Polygon #2).

WETLAND FEATURES - ENVIRONMENTAL SURVEY REPORT

Wetland Features **Note: if wetland is Gilgai (melon holes), rate on ecological value. Refer to *Environmental Constraints Assessment Guideline* for rating system.** 1 2 3 4 5 Nil/Very Low Very High				
Location Details (Gathering / Access / Well) Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	**GPS Coordinates Surveyor Reference #**	**Type of wetland** (e.g,Gilgai, mapped Referrable Wetland, discharge area etc.)	***Features Determining Wetland*** (Width, water depth, vegetation, aquatic species, condition, blade ploughed etc)	**Actions Taken**
Example *Well # 179 on Kate*	*Surveyor Ref # 2221*	*Gilgai (Melon Hole) Value Rating 4.*	*50m long and 30m wide, Water to approx. 0.5m depth, many aquatic plants. Previously ploughed for grazing with minor stock trampling. Small fish, frogs and turtle observed.*	*Avoided by 20 metres.* ***Or*** *Could not be avoided as relocation would require clearing of Brigalow TEC or locating within a watercourse buffer. Fauna spotter required during clearing.*
Polygon 5	EV3010 – EV3011	Multiple shallow gilgais (melon holes) and microrelief. Rating 1 (Very low quality)	3m – 10m wide and 3m – 10m long, 0.1-0.2m depth, some wide but relatively shallow cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), no aquatic fauna observed, ~ 30% cover of gilgais.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.
Polygon 2	EV3011= southern boundary	Multiple contiguous and separated shallow gilgais (melon holes). Rating 1&2 (Very low and low quality)	3m – 10m wide and 3m – 25m long, 0.1-0.2m depth, some wide but relatively shallow cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), no aquatic fauna observed, ~ 50% cover of gilgais.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.

Wetland Features – Photography

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comment

Photo 1: Typical gilgai within Polygon #5.

Photo 2: Gilgai within Polygon #2.

Photo 3: Cracking clays within gilgai.

Photo 4: Showing broad area with *Juncus usitatus* indicating locations of gilgais.

SSMP- Likelihood of Occurrence Matrix - Jammat 6DY86

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** In column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Poplar box/gum, cypress pine and bull-oak country in REs 11.3.2, 11.3.4, 11.3.14, 11.3.17, 11.3.18, 11.5.1, 11.5.4 and 11.5.20.	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Not in listed vegetation types									Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over farmland, roads, cleared land, inland open plains or settled areas.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Dry ironbark and cypress pine, Bull-oak scrub or gum/box country.	Nesting habitat, specifically trees with large nesting hollows with entrances >/= 150mm.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Dry ironbark and cypress pine scrub or gum/box country.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No			Trees with loose and peeling bark common throughout	Likely	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Eucalypt woodland on alluvial or sand plains in REs 11.3.2, 11.3.3, 11.3.4, 11.3.25, 11.3.26, 11.3.39, 11.5.1, 11.5.1a, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Eucalypt woodlands	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Not listed in vegetation types									Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Eucalypt/box woodlands and semi-arid areas with gum/box.	Secondary feed trees, being, E. cabageana, E. conica, E. coolabah ssp. coolabah, E. crebra, E. drepanophylla, E. exserta, E. intertexta, E. largiflorens, E. melanophloia, E. melliodora, E. macrocarpa, E. moluccana, E. orgadophila, E. pilligaensis, E. populnea, E. sideroxylon represent the dominant canopy species within the vegetation community.	Primary and/or secondary feed trees <1km from ephemeral to permanent surface water. In drought years, survival of a population may be dependent on the presence of vegetation near permanent waterways.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #32, #37	Canopy dominated Eucalyptus crebra (sencondary food tree); contiguous with large patch of intact vegetation; permant water source within 1km	Likely	Yes
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Bull-oak Woodland on in REs 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.16, 11.5.20 and 11.5.21, containing mistletoes of the genus Amyema.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Dry ironbark and cypress pine, bull-oak or gum/box country in REs 11.4.7, 11.5.1, 11.5.4, 11.5.5, 11.5.20, 11.5.21, 11.9.9 and 11.9.10	Poplar box, ironbark, cypress pine, buloke woodlands.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on sand plains in Land Zone 5	High, open spaces above open wooded areas	Large tracts of native vegetation	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #32, #35, #37.	As this is a fly over species, it was assessed that the proposed disturbance would have negligible impact on the white-troated needletail in the local context.	Likely	Yes
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Dry ironbark and cypress pine scrub or gum/box country.	Log piles, scattered large hollow logs associated with fallen trees, dense woody debris, stick-raked windrows and abandoned animal burrows.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 10RP190982, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 6.4 hectares (1,280m x 50m) surveyed of pipeline Right-of-Way (RoW).		
Lot Plan:	10RP190982	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	30&31/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	✓ EA amendment required (may)?
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Significant Vegetation – Category B ESA

- **An EA amendment may be required** for disturbance within a Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by field verified remnant RE 11.4.3 (Endangered [BDS]). This patch of vegetation (Polygon #38) also met the criteria of a Brigalow Threatened Ecological Community (TEC) (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant] ecological community**).

Fauna

- Fauna Spotter Catcher required for clearing activities, potential subterranean species within gilgais (eg. burrowing frogs).

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised, remnant vegetation associated with Wambo Creek and isolated large woodland patches, advanced regrowth, and non-remnant open paddocks (historically cleared) grazed by cattle that were dissected by access tracks and encompassed CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed predominantly non-remnant vegetation with an isolated remnant patch within 200m of the survey area of RE 11.4.3 (Endangered [VM Act] and [BDS]), and RE 11.5.1a (Least Concern [VM Act]; No Concern at Present [BDS]) The western edge of the isolated patch (Polygon #38) was ground truthed and comprised remnant RE 11.4.3.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	A portion of the survey area lies within a mapped Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.4.3 (Endangered [BDS]). Ground truthing confirmed that the western boundary of the isolated patch (Polygon #38) comprised remnant RE 11.4.3 (Endangered [BDS]), and the survey area lies within the PPZ and SPZ of this Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.** No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	The isolated patch shown as Polygon #38 was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant] ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. No TECs mapped or recorded within the survey area.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	Non-remnant vegetation supported recent and historical clearing establishing very sparsely scattered low woody regrowth.
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 30 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that no threatened species were 'likely' to occur in the survey area. A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing.

4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	

Watercourses and Wetlands:
 	
Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted
 	
Assessment information to include:
• any downgrades of mapped watercourses to drainage features
• infrastructure in buffers
• Details on wetlands:
  ○ Mapped referrable HES or GES
  ○ Unmapped
  ○ Impacts in buffers
 	
Attach completed *Water Features Checklist / Wetland Features Report*
	No watercourses were mapped or detected within 100m of the survey area.
	
	Gilgais were present within the non-remnant Polygons #2 (~50% cover of gilgais) & #36 (~80% cover of gilgais). These gilgais were highly disturbed by heavy grazing and vegetation clearing establishing low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos). Gilgai boundaries were delineated over a 1hectare area within Polygon #36 to indicate the size, shape, and coverage of gilgais within this area which continued to the northern extent of the survey area.
	
	There were no other types of wetlands mapped or detected within 200m of linear infrastructure.

Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Additional Considerations:	Gilgais and pushed timber should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ✓ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Completed By	Date
Lincoln Smith Gerry Callahan (edits)	28/11/2024 2/02/2025

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 10RP190982, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property comprised, remnant vegetation associated with Wambo Creek and isolated large woodland patches, advanced regrowth, and non-remnant open paddocks (historically cleared) grazed by cattle that were dissected by access tracks and encompassed CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed predominantly non-remnant vegetation with an isolated remnant patch within 200m of the survey area of RE 11.4.3 (Endangered [VM Act] and [BDS]), and RE 11.5.1a (Least Concern [VM Act]; No Concern at Present [BDS])
	
	The western edge of the isolated patch (Polygon #38) was ground truthed and comprised remnant RE 11.4.3.

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	A portion of the survey area lies within a mapped Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.4.3 (Endangered [BDS]). Ground truthing confirmed that the western boundary of the isolated patch (Polygon #38) comprised remnant RE 11.4.3 (Endangered [BDS]), and the survey area lies within the PPZ and SPZ of this Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.** No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	The isolated patch shown as Polygon #38 was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla* dominant and co-dominant] ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. No TECs mapped or recorded within the survey area.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site is not in a High-Risk area according to latest Flora Trigger mapping.

EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that no threatened species were 'likely' to occur in the survey area. A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	No watercourses were mapped or detected within 100m of the survey area. Gilgais were present within the non-remnant Polygons #2 (~50% cover of gilgais) & #36 (~80% cover of gilgais). These gilgais were highly disturbed by heavy grazing and vegetation clearing establishing low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos). Gilgai boundaries were delineated over a 1hectare area within Polygon #36 to indicate the size, shape, and coverage of gilgais within this area which continued to the northern extent of the survey area. There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road.
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	**Shrubs** *Acacia ixiophylla* (sticky wattle) *A. deanii* (Deane's wattle) *A. harpophylla* (brigalow) *A. leiocalyx* (early flowering black wattle) *A. spectabilis* (glory wattle) *Casuarina cristata* (belah) *Dodonaea viscosa* (sticky hopbush) *Eucalyptus cambageana* (Dawson gum) regrowth *E. populnea* (poplar box) regrowth *Geijera parviflora (wilga)* **Forbs** *Boerhavia dominii* (tarvine) *Chrysocephalum apiculatum* (yellow buttons) *Cirsium vulgare** (spear thistle) *Enchylaena tomentosa* (ruby saltbush) *Evolvulus alsinoides* (bindweed) *Juncus usitatus* (common rush) *Sclerolaena anisacanthoides* (yellow burr) *Tetragonia tetragionoides* (New Zealand spinach) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *Cyperus sp.* (a cyperus) *Dianella sp.* (a flax lily) *Dichanthium sericeum (Queensland bluegrass)* *Eleocharis sp.* (spike rush) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass) *Fimbristylis dichotoma* (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Lomandra filiformis* (wattle matrush) *Lomandra longifolia* (spiny-head matrush) *Melinis repens** (red natal)

	Panicum decompositum (native millet) *Panicum effusum* (hairy panic) *Panicum larcomianum* (a panic grass) *Paspalidium caespitosum* (brigalow grass) *Sporobolus actinocladus* (ray grass) *Trianthema portulacastrum* (black pigweed) *Walwhalleya subxerophila* (gilgai grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 6.4 hectares (1,280m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees; Absent, Shrubs; 0-25, Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Clay loam
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Notes:	Gilgais and pushed timber should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS

Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
See Wetland Feature report appended for Polygons #2 & #36.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Potential fauna habitat within gilgais. Restricted invasive weed velvety tree pear very sparsely scattered.				

Photography - Linear Infrastructure

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comments

Photo 1: Typical of survey area showing non-remnant vegetation with gilgais present.

Photo 2: Isolated patch of Remnant RE 11.4.3/ Brigalow TEC (Polygon #38).

Photos 3: Low quality gilgai delineated in Polygon #36 and shown on map, representative of gilgais present within survey area.

WETLAND FEATURES - ENVIRONMENTAL SURVEY REPORT

Wetland Features **Note: if wetland is Gilgai (melon holes), rate on ecological value. Refer to *Environmental Constraints Assessment Guideline* for rating system.** 1 2 3 4 5 Nil/Very Low Very High				
Location Details (Gathering / Access / Well) Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	**GPS Coordinates Surveyor Reference #**	**Type of wetland** (e.g ,Gilgai, mapped Referrable Wetland, discharge area etc.)	***Features Determining Wetland*** (Width, water depth, vegetation, aquatic species, condition, blade ploughed etc)	**Actions Taken**
Example *Well # 179 on Kate*	*Surveyor Ref # 2221*	*Gilgai (Melon Hole) Value Rating 4.*	*50m long and 30m wide, Water to approx. 0.5m depth, many aquatic plants. Previously ploughed for grazing with minor stock trampling. Small fish, frogs and turtle observed.*	*Avoided by 20 metres.* ***Or*** *Could not be avoided as relocation would require clearing of Brigalow TEC or locating within a watercourse buffer. Fauna spotter required during clearing.*
Polygon #36	EV3102 – northern extent of survey area.	Multiple contiguous and separated shallow gilgais (melon holes). Rating 1&2 (Very low and low quality)	3m – 20m wide and 3m – 20+m long, 0.1-0.3m depth, historical and recent clearing, heavily grazed, some wide and deep cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), non-native flora species also present (e.g *Cirsium vulgare*), no aquatic fauna observed, ~ 80% cover of gilgais.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.

Wetland Features – Photography

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comment

Photo 1: Typical gilgai within demarcated area showing gilgais within Polygon #36.

Photo 2: Long and wide gilgai within Polygon #36.

Photo 3: Cracking clays within gilgai.

Photo 4: Undisturbed gilgais within remnant RE 11.4.3 (Polygon #38).

SSMP- Likelihood of Occurrence Matrix - Jammat 10RP190982

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points**: In column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence** [LoO] is displayed in column 'L'; (6) **Is Further Action Required?** For a LoO of 'Potential', 'Highly Likely', or 'Known', a 'Yes' will appear in column 'N' . The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team**. (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Not in listed vegetation types									Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over cleared or sparsely wooded land, including farmland, inland open plains and settled areas (e.g. towns, roads). Also recorded over parks and gardens, plantations and heavily populated areas (large towns and cities).	Airspace (from 1m to >1000m above ground level) over farmland, roads, cleared land, inland open plains or settled areas.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Not in listed vegetation types									Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Not in listed vegetation types									Unlikely	No
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Not in listed vegetation types									Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Not in listed vegetation types									Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south, west to about Quilpie	Not in listed vegetation types									Unlikely	No
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Not in listed vegetation types									Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	In Queensland, their current predicted distribution is limited to the south-east at scattered sites including the Brisbane region, Bribie Island and several sites in the Granite Belt from Warwick, west to Gore and south to Sundown National Park. The BAAM habitat modelling extends as far west as Miles.	Not in listed vegetation types									Unlikely	No
View Map	Rufous fantail	Can potentially occur as a non-breeding visitor to many of the QGC tenements and widely across the Gas Field. The species probably occur as an uncommon or rare non-breeding visitor (from autumn to spring) to the Darling Downs, occasionally extending west of Dalby	Not in listed vegetation types									Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Not in listed vegetation types									Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Not in listed vegetation types									Unlikely	No
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Not in listed vegetation types									Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 11RP190982, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 7.15 hectares (1,430m x 50m) of pipeline Right-of-Way (RoW).		
Lot Plan:	11RP190982	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	31/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	✓ EA amendment required (may)?
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Significant Vegetation – Category B ESA

- **An EA amendment may be required** for disturbance within a Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by field verified remnant RE 11.4.3 (Endangered [BDS]). This patch of vegetation (Polygon #39) also met the criteria of a Brigalow Threatened Ecological Community (TEC) (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant**] **ecological community**).
- Fauna Spotter Catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised, remnant vegetation associated with Wambo Creek and isolated woodland patches, advanced regrowth, and non-remnant open paddocks (historically and recently cleared) grazed by cattle, that were dissected by access tracks and encompassed CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed predominantly non-remnant vegetation with a large, isolated remnant patch within 200m of the survey area of RE 11.9.5 (Endangered [VM Act] and [BDS]). The western edge of the isolated patch (Polygon #39) was ground truthed and comprised remnant RE 11.4.3 (Endangered [VM Act] and [BDS]). The remaining survey area supported non-remnant vegetation (open paddocks).
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	A portion of the survey area lies within a mapped Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.9.5 (Endangered [BDS]). Ground truthing confirmed that the western boundary of the isolated patch (Polygon #39) comprised remnant RE 11.4.3 (Endangered [BDS]), and the survey area lies within the PPZ and SPZ of this Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.** No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	The isolated patch shown as Polygon #39 was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant] ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. No TECs mapped or recorded within the survey area.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	Non-remnant vegetation has been subjected to recent and historical clearing establishing very sparsely scattered low woody regrowth.
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that no threatened species were likely to occur in the survey area. A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing.

4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	

Watercourses and Wetlands:
 	
Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted
 	
Assessment information to include:
• any downgrades of mapped watercourses to drainage features
• infrastructure in buffers
• Details on wetlands:
  ○ Mapped referrable HES or GES
  ○ Unmapped
  ○ Impacts in buffers
 	
Attach completed *Water Features Checklist / Wetland Features Report*
	No watercourses were mapped or detected within 100m of the survey area.
	
	Gilgais were present within the non-remnant Polygon #36 (~80% cover of gilgais). These gilgais were highly disturbed by heavy grazing and vegetation clearing establishing low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos).
	
	There were no other types of wetlands mapped or detected within 200m of linear infrastructure.

Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Additional Considerations:	Gilgais and pushed timber should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ✓ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Completed By	Date
Lincoln Smith Gerry Callahan (edits)	28/11/2024 2/02/2025

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 11RP190982, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL443
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property comprised, remnant vegetation associated with Wambo Creek and isolated large woodland patches, advanced regrowth, and non-remnant open paddocks (historically and recently cleared) grazed by cattle that were dissected by access tracks and encompassed CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed predominantly non-remnant vegetation with a large, isolated remnant patch within 200m of the survey area of RE 11.9.5 (Endangered [VM Act] and [BDS]).
	
	The western edge of the isolated patch (Polygon #39) was ground truthed and comprised remnant RE 11.4.3 (Endangered [VM Act] and [BDS]).
	
	The remaining survey area supported non-remnant vegetation (open paddocks).

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	A portion of the survey area lies within a mapped Category B ESA Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers triggered by mapped remnant RE 11.9.5 (Endangered [BDS]). Ground truthing confirmed that the western boundary of the isolated patch (Polygon #39) comprised remnant RE 11.4.3 (Endangered [BDS]), and the survey area lies within the PPZ and SPZ of this Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.** No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	The isolated patch shown as Polygon #39 was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla* dominant and co-dominant] ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. No TECs mapped or recorded within the survey area.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site is not in a High-Risk area according to latest Flora Trigger mapping.

EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that no threatened species were likely to occur in the survey area. A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	No watercourses were mapped or detected within 100m of the survey area. Gilgais were present within the non-remnant Polygon #36 (~80% cover of gilgais). These gilgais were highly disturbed by heavy grazing and vegetation clearing establishing low-quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species (see appended Wetland Features report for ecological rating value, descriptions, and representative photos). There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road.
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	**Shrubs** *Acacia ixiophylla* (sticky wattle) *Ac. deanii (*Deane's wattle) *Ac. harpophylla* (brigalow) *Ac. leiocalyx* (early flowering black wattle) *Ac. spectabilis* (glory wattle) *Casuarina cristata* (belah) *Dodonaea viscosa* (sticky hopbush) *Eucalyptus cambageana* (Dawson gum) regrowth *E. populnea* (poplar box) regrowth *Geijera parviflora (wilga)* **Forbs** *Boerhavia dominii* (tarvine) *Chrysocephalum apiculatum* (yellow buttons) *Cirsium vulgare** (spear thistle) *Enchylaena tomentosa* (ruby saltbush) *Evolvulus alsinoides* (bindweed) *Juncus usitatus* (common rush) *Sclerolaena anisacanthoides* (yellow burr) *Tetragonia tetragionoides* (New Zealand spinach) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *Cyperus sp.* (a cyperus) *Dianella sp.* (a flax lily) *Dichanthium sericeum (Queensland bluegrass)* *Eleocharis sp.* (spike rush) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass) *Fimbristylis dichotoma* (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Lomandra filiformis* (wattle matrush) *Lomandra longifolia* (spiny-head matrush) *Melinis repens** (red natal) *Panicum decompositum* (native millet) *Panicum effusum* (hairy panic) *Panicum larcomianum* (a panic grass)

	Paspalidium caespitosum (brigalow grass) *Sporobolus actinocladus* (ray grass) *Trianthema portulacastrum* (black pigweed) *Walwhalleya subxerophila* (gilgai grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 7.15 hectares (1,430m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees; Absent, Shrubs; 0-25, Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Clay loam.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Notes:	Gilgais and pushed timber should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
See Wetland Feature report appended for Polygon #36.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Potential fauna habitat within gilgais. Restricted invasive weed velvety tree pear very sparsely scattered.				

Photography - Linear Infrastructure

Photo 1: Typical of survey area showing non-remnant vegetation with gilgais present.

Photo 2: Western edge of isolated patch of Remnant RE 11.4.3/ Brigalow TEC (Polygon #39).

Photos 3: Low quality gilgai in Polygon #36 representative of gilgais present within survey area.

WETLAND FEATURES - ENVIRONMENTAL SURVEY REPORT

Wetland Features **Note: if wetland is Gilgai (melon holes), rate on ecological value. Refer to *Environmental Constraints Assessment Guideline* for rating system.** 1 2 3 4 5 Nil/Very Low Very High				
Location Details (Gathering / Access / Well) Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	**GPS Coordinates Surveyor Reference #**	**Type of wetland** (e.g ,Gilgai, mapped Referrable Wetland, discharge area etc.)	***Features Determining Wetland*** (Width, water depth, vegetation, aquatic species, condition, blade ploughed etc)	**Actions Taken**
Example *Well # 179 on Kate*	*Surveyor Ref # 2221*	*Gilgai (Melon Hole) Value Rating 4.*	*50m long and 30m wide, Water to approx. 0.5m depth, many aquatic plants. Previously ploughed for grazing with minor stock trampling. Small fish, frogs and turtle observed.*	*Avoided by 20 metres.* ***Or*** *Could not be avoided as relocation would require clearing of Brigalow TEC or locating within a watercourse buffer. Fauna spotter required during clearing.*
Polygon #36	EV3102 – northern extent of survey area.	Multiple contiguous and separated shallow gilgais (melon holes). Rating 1&2 (Very low and low quality)	3m – 20m wide and 3m – 20+m long, 0.1-0.3m depth, historical and recent clearing, heavily grazed, some wide and deep cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), non-native flora species also present (e.g *Cirsium vulgare*), no aquatic fauna observed, ~ 80% cover of gilgais.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.

Wetland Features – Photography

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comment

	
Photo 1: Typical gilgai within Polygon #36.	Photo 2: Undisturbed gilgais within remnant RE 11.4.3 (Polygon #39).

SSMP- Likelihood of Occurrence Matrix - Jammat 11RP190982

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** In column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in clouмns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Not in listed vegetation types									Unlikely	No
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Not in listed vegetation types									Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over cleared or sparsely wooded land, including farmland, inland open plains and settled areas (e.g. towns, roads). Also recorded over parks and gardens, plantations and heavily populated areas (large towns and cities).	Airspace (from 1m to >1000m above ground level) over farmland, roads, cleared land, inland open plains or settled areas.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Not in listed vegetation types									Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Not in listed vegetation types									Unlikely	No
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Not in listed vegetation types									Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Not in listed vegetation types									Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Not listed in vegetation types									Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Not in listed vegetation types									Unlikely	No
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Not in listed vegetation types									Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Not in listed vegetation types									Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Not in listed vegetation types									Unlikely	No
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Not in listed vegetation types									Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 34DY94, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 40ha for the Jammat Inlet Processing Facility.		
Lot Plan:	34DY94	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	31/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Revii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	☐ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☑ Other: Processing facility		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	☑ Environmental issues identified & surveyed	☑ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	☑ Fauna spotter required
☐ Other: EA amendment		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Significant Vegetation – Category B ESA

- **An EA amendment may be required** for disturbance within a Category B ESA triggered by the isolated patch (Polygon #7) within the centre of the survey area comprised remnant RE 11.4.3 (Endangered [BDS]).
- **An EA amendment may be required** for disturbance within the Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ) buffers of a Category B ESA triggered by field verified remnant RE 11.4.3 (Endangered [BDS]). (Polygons #41 and #40) within the Lot/ Plan 12RP190989.

- The three remnant RE 11.4.3 vegetation communities shown by Polygons #7, #40 and #41 met the criteria of a Brigalow Threatened Ecological Community (TEC) (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant**] **ecological community**).

  Fauna

- Five (5) threatened species were shown as 'likely' to occur by the LoOM process.
- Bioidiversity offsets for habitat of threatened species may be required.
- Fauna spotter-catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised isolated patches of remnant vegetation and non-remnant open paddocks (historically and recently cleared) grazed by cattle that were dissected by access tracks and encompassed CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed the entire property supports non-remnant vegetation. Ground truthing detected an unmapped 1.55-hectare patch (Polygon #7) of remnant RE 11.4.3 (Endangered [VM Act] and [BDS]) within the centre of the proposed infrastructure. The remaining survey area within Lot/ Plan 34DY94 was field verified as non-remnant vegetation. Two patches of remnant RE 11.4.3 (Polygons #41 and #40) within the adjoining property to the west (Lot/ Plan 12RP190989) were also ground truthed during this survey.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	Ground truthing confirmed the isolated patch (Polygon #7) within the centre of the survey area comprised remnant RE 11.4.3 (Endangered [BDS]), which is a Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA.** The two patches of remnant RE 11.4.3 (Polygons #40 and #41) within the Lot/ Plan 12RP190989 were also considered Category B ESA's and therefore the survey area was within the PPZ and SPZ of these Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.**
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	The isolated patch within the centre of the survey area (Polygon #7) was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla* dominant and co-dominant**] **ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. ○ **An EA amendment may be required for disturbance within a Brigalow TEC.** ○ **Offsets may apply to clearing of Brigalow TEC.** The two patches of remnant RE 11.4.3 (Polygons #41 and #40) within the Lot/ Plan 12RP190989 were also recorded to meet Brigalow TEC status.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	Non-remnant vegetation has been subjected to recent and historical clearing establishing very-sparsely-scattered low woody regrowth.
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment (see the EFAS report for details of the LoOM process) indicated the following are 'likely' to occur in the survey area: • Brigalow woodland snail (*Adclarkia cameroni*) 'endangered' under the EPBC and 'vulnerable' under the NCA

indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	• Dunmall's snake (*Furina dunmalli*) 'vulnerable' under the EPBC and NCA • Glossy black-cockatoo (*Calyptorhynchus lathami*) 'vulnerable' under the EPBC and NCA • Golden-tailed gecko (*Strophurus taenicauda*) 'near threatened under the NCA • Grey snake (*Hemiaspis damelii*) 'endangered' under the EPBC and NCA Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for the above threatened species is increased to 'known'. The clearing of woodland at the site may require offsetting and any threatened species detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: o Mapped referrable HES or GES o Unmapped o Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	No watercourses were mapped or detected within 100m of the survey area. Gilgais were present within the non-remnant Polygon #36 (~80% cover of gilgais) and Polygon #7. The gilgais within Polygon #36 were highly disturbed by heavy grazing and vegetation clearing establishing low-quality habitat value (Rating 1&2) regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species. Polygon #7 comprised a brigalow dominated community (remnant RE 11.4.3) with moderate quality (Rating 3) gilgais heavily grazed by cattle. See appended Wetland Features Report for ecological rating value, descriptions, and representative photos. There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	High risk (1). Biosecurity Act restricted invasive weed velvety tree pear (*Opuntia tomentosa*) recorded as rarely occurring.
Additional Considerations:	Relocation of proposed infrastructure to avoid Polygon #7 verified as Category B ESA and Brigalow TEC. Licenced fauna spotter required before and during clearing activities.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ✓ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Completed By	Date
Lincoln Smith Gerry Callahan (edits)	28/11/2024 2/02/2025

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m² and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL STATIC (EFAS) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Jammat, 34DY94, Off-tenure Pipeline Ecology Resurvey		
ATP / PL number:	PL443 and PL253		
Site name: (Field and Well#)	Jammat Inlet Processing Facility	**Development**: (Infrastructure Type)	Processing Facility
Lot Plan:	34DY94	**Disturbance size**:	To be determined

Was the infrastructure shifted and why?	The proposed area was surveyed.
What vegetation is present? (Remnant, regrowth, ERE, OCRE, pasture, cultivation, etc.). **Is the DoR-mapped RE correct** (*if applicable)*? • Survey new/correct extents of REs • Reference survey points and site photos	State mapping showed the entire property supports non-remnant vegetation. Ground truthing detected an unmapped 1.55-hectare patch (Polygon #7) of remnant RE 11.4.3 (Endangered [VM Act] and [BDS]) within the centre of the proposed infrastructure. The remaining survey area within Lot/ Plan 34DY94 was field verified as non-remnant vegetation. Two patches of remnant RE 11.4.3 (Polygons #41 and #40) within the adjoining property to the west (Lot/ Plan 12RP190989) were also ground truthed during this survey.
Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; • Reference survey points and site photos. Refer to EA Conditions Comparison Spreadsheet for buffer distances and permitted activities.	Ground truthing confirmed the isolated patch (Polygon #7) within the centre of the survey area comprised remnant RE 11.4.3 (Endangered [BDS]) which is a Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA.** The two patches of remnant RE 11.4.3 (Polygons #40 and #41) within the Lot/ Plan 12RP190989 were also considered Category B ESA's and therefore the survey area was within the PPZ and SPZ of these Category B ESA. ○ **An EA amendment may be required for disturbance within a Category B ESA PPZ and SPZ.**
Vegetation on Access and Gathering: • For remnant vegetation - 10m access width max; • For Category B or C ESA or PPZ (200m buffer): - 6m access width max; - 15m gathering width max (1 or 2 lines), 20m width (3, 4, 5 lines) etc; - access must be co-located with gathering within an ESA;	Gathering to this infrastructure was via the northern property boundary of Lot/ Plan 11RP190982, which comprised non-remnant vegetation containing low quality gilgais. The site is likely to be accessed from the existing fenceline track traversing non-remnant vegetation (unsealed).
Threatened Ecological Communities: (Survey polygon, provide detail of TEC including proposed disturbance area and justification for impact). Note: Complete Quantification Report if impacted by or bordering infrastructure.	The isolated patch within the centre of the survey area (Polygon #7) was ground truthed as a Brigalow TEC (***Brigalow*** [***Acacia harpophylla*** **dominant and co-dominant] ecological community**) comprising remnant RE 11.4.3 and by meeting the diagnostic characteristics and condition thresholds. ○ **An EA amendment may be required for disturbance within a Brigalow TEC.** ○ **Offsets may apply to clearing of Brigalow TEC.** The two patches of remnant RE 11.4.3 (Polygons #41 and #40) within the Lot/ Plan 12RP190989 were also recorded to meet Brigalow TEC status.
EVNT Flora: Note: Complete Quantification Report if impacted by or bordering infrastructure.	No EVNT flora were recorded on site.

Flora Survey Trigger Areas: Does the infrastructure intersect the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site was not in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	**Introduction** The *Likelihood of Occurrence Matrix* (LoOM) was developed by CHEC Environmental (CHEC) to facilitate consistency in habitat assessments by its ecologists. The LoOM, in its current version, considers the likelihood of 34 threatened (federal and/or state) fauna species occurring at a proposed development site. The included species are those with potential to occur within QGC's 'Upstream' and 'Midstream' project areas (and are applicable to Arrow Energy's Surat Gas Project areas), which are detailed in QGC's combined *Significant Species Management Plan* (SSMP). The LoOM (and SSMP) is regularly reviewed and revised to ensure alignment with changes to federal and state conservation status listings. The distribution and habitat information contained in the LoOM (and SSMP) were sourced from the latest reliable reference material, including published texts and journals, SPRAT profiles, *Atlas of Living Australia* maps, *Wildlife Online* searches and QGC GIS records. The LoOM assessment is a systematic process, where you work across the spreadsheet from left to right for each species, starting with viewing a distribution map, then making selections (where prompted) from lists for 'broad area of occurrence', then 'habitat attributes', occurrence of 'Essential Habitat', 'historical' or 'recent' confirmed records. Depending on the responses, a determination of 'Unlikely', 'Likely' or 'Known' is provided for the species, and a link to the relevant survey methodology is provided, if applicable. The completed LoOM is appended to this report. The LoOM assessment indicated the following species are 'likely' to occur in the survey area: • Brigalow woodland snail (*Adclarkia cameroni*) 'endangered' under the EPBC and 'vulnerable' under the NCA, • Dunmall's snake (*Furina dunmalli*) 'vulnerable' under the EPBC and NCA, • Glossy black-cockatoo (*Calyptorhynchus lathami*) 'vulnerable' under the EPBC and NCA, • Golden-tailed gecko (*Strophurus taenicauda*) 'near threatened' under the NCA, • Grey snake (*Hemiaspis damelii*) 'endangered' under the EPBC and NCA, Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for the above threatened species is increased to 'known'. The clearing of woodland at the site may require offsetting and any threatened species detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any fauna.
Distance to mapped and unmapped Water Features: • Confirm type i.e., Stream Order watercourse, drainage feature, erosion gully and give description of feature i.e., width of bed and banks, vegetation etc. • Complete *Water Features Checklist* • For Stream Orders, if infrastructure is proposed within the buffer from the high bank, seek alternative site. • If no alternative exists, peg in area of least disturbance and provide justification Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	No watercourses were mapped or detected within 100m of the survey area.

<table>
<tr><td>Distance to Wetlands (not including melon holes):
• Complete Wetland Features Report
• Record wetland status and type:
  ○ Referable and Validated (Mapped and ground truthed as a wetland)
  ○ Referable and Not Validated (Mapped and ground truthed as not a wetland)
  ○ Non-referable and Validated (Unmapped ground-truthed wetland)
Refer to EA Conditions Matrix for buffer distances and permitted activities, e.g.:
QCLNG - 200m buffer applies for static, Surat North – HES (200m buffer applies), GES (no buffer)</td><td>Gilgais were present within the non-remnant Polygon #36 (~80% cover of gilgais) and Polygon #7– see appended Map.

The gilgais within Polygon #36 were highly disturbed by heavy grazing and vegetation clearing, resulting in low-quality habitat value (Rating 1&2) regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species.

Polygon #7 comprised a brigalow dominated community (remnant RE 11.4.3) with moderate-quality (Rating 3) gilgais heavily grazed by cattle.

See appended Wetland Features Report for ecological rating value, descriptions, and representative photos.

There were no other types of wetlands mapped or detected were within 200m of linear infrastructure.</td></tr>
<tr><td>Melon Holes (rate on ecological value):
Give details on width, depth, area, vegetation, fauna habitat, disturbance etc</td><td><table><tr><td>1 ✓</td><td>2✓</td><td>3 ✓</td><td>4</td><td>5</td></tr></table>Gilgais present within non-remnant = 1&2; Polygon #7 gilgais = 3</td></tr>
<tr><td>Weeds present (and general abundance):
• Record general composition density & species.
• Survey any Restricted Invasive Weeds</td><td>Biosecurity Act restricted invasive weed velvety tree pear (Opuntia tomentosa) recorded as rarely occurring.

Non-native ground layer species of forbs (e.g., Cirsium vulgare) and grasses (e.g., Melinis repens) present throughout survey area.</td></tr>
<tr><td>Additional Considerations:</td><td>Licenced fauna spotter required before and during clearing activities.</td></tr>
</table>

Ecological Characteristics

Dominant Species: (trees, bushes, grasses)

Trees
Acacia harpophylla (brigalow), *Casuarina cristata* (belah)

Shrubs
Acacia leiocalyx (early flowering black wattle), *Alectryon diversifolius* (boonaree), *Dodonaea viscosa* (sticky hopbush), *Geijera parviflora* (wilga), *Psydrax odorata* (Canthium)

Forbs

Boerhavia dominii (tarvine), *Chrysocephalum apiculatum* (yellow buttons), *Cirsium vulgare** (spear thistle), *Enchylaena tomentosa* (ruby saltbush), *Evolvulus alsinoides* (bindweed), *Juncus usitatus* (common rush), *Sclerolaena anisacanthoides* (yellow burr), *Tetragonia tetragonioides* (New Zealand spinach), *Trianthema portulacastrum* (black pigweed)

Grasses and Associates
Aristida caput-medusae (many-headed wiregrass), *Aristida calycina* (dark wiregrass), *Cyperus sp.* (a cyperus), *Dichanthium sericeum* (Queensland bluegrass), *Eleocharis sp.* (spike rush), *Eragrostis elongata* (clustered lovegrass), *E. sororia* (woodland lovegrass), *Fimbristylis dichotoma* (common fringe-rush), *Lomandra filiformis* (wattle matrush), *Melinis repens** (red natal), *Panicum effusum* (hairy panic), *Paspalidium caespitosum* (brigalow grass), *Walwhalleya subxerophila* (gilgai grass)

Structural Form:

Average Tree Height (m): 16	Canopy layer (%): 50
Structural Form (Specht 1970[1]): open-forest	

Habitat Description:

Is a further detailed flora/fauna assessment required?	Y	N
	Y	

If yes, what type and reasons for: Fauna assessments for threatened species is highly likely to be required.

Logs >30cm Ø (count): 10+ / hectare	Rocks >50cm Ø (count): 0
Hollow bearing trees (count): 0	
Slope: flat	Aspect of Slope: NA

Soil:

Colour:	brown
Texture[2]:	clay
Land Zone:	4
Salinity:	-

Groundcover: (%)

Bare soil: 40	Grass/Herbs: 25
Shrubs <1m: 5	Other (rocks, logs, weeds): 30

Environmentally Sensitive Areas (ESA) Tick if site is located within:

	Category A ESA (e.g., national park, conservation park)
✓	Category B ESA (e.g., endangered regional ecosystem, a place of cultural significance).
	Category C ESA (e.g., state forest, OCRE, Timber Reserve, Essential Habitat).
	300m of Category A or B ESA
	In or within 300m of a Category C ESA
	within an area with overlapping ESAs

If YES in any of the above, provide justification or tick appropriate box below:

	pre-existing area of significant disturbance in the buffer zone
	undisturbed areas more than 100m from the ESA
	undisturbed areas less than 100m from the ESA
	pre-existing areas of significant disturbance within the ESA
	areas within the ESA of lower environmental value
	areas where clearing of an ERE or OCRE is unavoidable; clearing does not exceed 10% of the mapped polygon

Vegetation Management

Does the proposed development involve vegetation clearing?

	that isolates clumps or dissects corridors of vegetation
	on dispersible soils
	in existing or potential discharge areas

If YES in any of the above, provide justification: Development would involve the clearing of a 1.55 hectare patch of remnant RE 11.4.3.

Disturbance

Erosion:

Insignificant		Minor	✓	Moderate		Severe					

Describe (e.g., sheet, gully, tunnel, stream, original cause, e.g., cattle, slope, etc): Heavily grazed and historically cleared.

SITE LOCATION RECOMMENDED

Yes ☐ **No** ☑ **Yes with conditions** ☐

Draft sketch of site:
- including surrounding infrastructure
- show vegetation & water bodies in close proximity

N

[1]**Structural Forms of vegetation, Specht 1970**

	Percentage foliage cover of tallest plant layer			
Life form / height of tallest stratum	**Dense (70-100%)**	**Mid-dense (30-70%)**	**Sparse (10-30%)**	**Very sparse (<10%)**
Trees > 30 m	Tall closed-forest	Tall open-forest	Tall woodland	Tall open-woodland
Trees 10-30 m	Closed-forest	Open -forest	Woodland	Open-woodland
Trees 5-10 m	Low closed-forest	Low open-forest	Low woodland	Low open-woodland
Shrubs 2-8 m	Closed -scrub	Open-scrub	Tall shrubland	Tall open-shrubland
Shrubs 0-2 m	Closed -heath	Open-heath	Low shrubland	Low open-shrubland

Photography - Static Infrastructure

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comments

Photo 1: View of survey area from NE corner towards centre

Photo 2: View of survey area from NW corner towards centre

Photo 3: View of survey area from SE corner towards centre

Photo 4: View of survey area from SW corner towards centre

Photos 5: Polygon #7 comprising remnant RE 11.4.3 / Brigalow TEC.

WETLAND FEATURES - ENVIRONMENTAL SURVEY REPORT

Wetland Features **Note: if wetland is Gilgai (melon holes), rate on ecological value. Refer to *Environmental Constraints Assessment Guideline* for rating system.** 1 2 3 4 5 Nil/Very Low Very High				
Location Details (Gathering / Access / Well) Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	**GPS Coordinates Surveyor Reference #**	**Type of wetland** (e.g. ,Gilgai, mapped Referrable Wetland, discharge area etc.)	***Features Determining Wetland*** (Width, water depth, vegetation, aquatic species, condition, blade ploughed etc)	**Actions Taken**
Example *Well # 179 on Kate*	*Surveyor Ref # 2221*	*Gilgai (Melon Hole) Value Rating 4.*	*50m long and 30m wide, Water to approx. 0.5m depth, many aquatic plants. Previously ploughed for grazing with minor stock trampling. Small fish, frogs and turtle observed.*	*Avoided by 20 metres.* ***Or*** *Could not be avoided as relocation would require clearing of Brigalow TEC or locating within a watercourse buffer. Fauna spotter required during clearing.*
Polygon #36	EV3102 (inside) – northern extent of survey area.	Multiple contiguous and separated shallow gilgais (melon holes). Rating 1&2 (Very low and low quality)	3m – 20m wide and 3m – 20+m long, 0.1-0.3m depth, historical and recent clearing, heavily grazed, some wide and deep cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), non-native flora species also present (e.g. *Cirsium vulgare*), no aquatic fauna observed, ~ 30% cover of gilgais.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.
Polygon #7	EV3102	Multiple contiguous and separated shallow gilgais (melon holes). Rating 3 (Moderate quality)	3m – 10m wide and 3m – 12+m long, 0.1-0.3m depth, within 1.55-hectare remnant RE 11.4.3, heavily grazed, some wide and deep cracks, woody debris and logs present, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), no aquatic fauna observed.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.

Wetland Features – Photography

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comment

	
Photo 1: Typical gilgai within Polygon #36.	Photo 2: Heavily-grazed gilgais within remnant RE 11.4.3 (Polygon #7).

SSMP- Likelihood of Occurrence Matrix - Jammat 34DY94

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** in column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Brigalow/Belah in REs 11.3.1, 11.4.3, 11.4.10 and 11.9.5.	Remnant or advanced regrowth Acacia harpophylla (brigalow) and Casuarina cristata (belah)	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No			Microhabitat features for this species for feeding, survival and egg-laying observed throughout brigalow community in survey area such as decaying logs and woody debris, leaf litter, and dense overstorey cover of shrubs and trees.	Likely	Yes
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Not in listed vegetation types									Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Brigalow / Belah in REs 11.3.1, 11.3.16, 11.3.17, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.11, 11.5.16, 11.7.1, 11.9.1, 11.9.4, 11.9.5, 11.9.4, 11.9.5, 11.9.6, 11.9.10, 11.9.11, 11.9.12, 11.11.13, 11.11.14, 11.11.16, 11.11.19 and 11.12.21.	Healthy shrub layer present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Brigalow / Belah in REs 11.3.1, 11.4.3, 11.7.1, 11.9.4, 11.9.5, 11.9.6 and 11.9.10	Shelter available from ground debris and features such as logs and bark slabs.	Deep cracking black clay and loam soils.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No			Shelter and other microhabitat features were present including soil cracks,logs and woody debris, leaf litter, and dense overstorey cover of shrubs and trees.	Likely	Yes
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over farmland, roads, cleared land, inland open plains or settled areas.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Brigalow / Belah.	Brigalow / belah scrub, bull-oak or any vegetation containing Casuarina/Allocasuarina spp. as food trees associated with Land Zones 3, 4 and 5.	Isolated medium to large belah trees containing cones	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No			Mature belah (Casuarina cristata) feed trees present .	Likely	Yes
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Brigalow melon-hole country with woody debris, soil cracks and water.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	Clay and/or alluvial soils associated with land zones 3, 4 and 5 in close proximity to water.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Not Mapped as Essential Habitat (No)	No			Trees with loose and peeling bark common throughout brigalow patch and water source within vicinity.	Likely	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Not in listed vegetation types									Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Not in listed vegetation types									Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Brigalow with woody debris, soil cracks and water.	Open Eucalypt and Brigalow forests and woodlands <1km from permanent water as well as floodplains including riverine communities.	Heavy textured soils including deeply cracking clays and loam soils associated with Land zones 3, 4 and 9.	Suitable structural elements including, soil cracks, rocky outcrops, bark, logs, grass tussocks and other forms of woody debris.	Not Mapped as Essential Habitat (No)	No			Heavy clay soils with cracks in gilgais <1km from permanent water. Logs and woody debris, leaf litter, and dense overstorey cover of shrubs and trees.	Likely	Yes
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Not listed in vegetation types									Unlikely	Yes
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Not in listed vegetation types									Unlikely	No
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Not in listed vegetation types									Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Brigalow/Belah open forest on clay soils with gilgai present, most containing deeper water. Understory often has wilga and false sandalwood.	Brigalow-dominated community often in association with belah on heavy textured soils on flat to gently undulating plains. Eucalypt emergents may be present in association with Wilga.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Not in listed vegetation types									Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on plains in Land Zones 3 and 4	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Brigalow melon-hole country with woody debris, soil cracks and water.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 27DY81, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 2,388m x 50m (11.94 hectares) of pipeline Right-of-Way (RoW).		
Lot Plan:	27DY81	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	29,30/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	☐ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Fauna

- Biodiversity offsets for koala *Phascolarctos cinereus* may be required.
- Fauna Spotter Catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	From aerial imagery analysis, the property predominantly comprised remnant vegetation dissected by access tracks and encompassing CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed the entire survey area is non-remnant vegetation. Ground truthing recorded linear infrastructure predominantly traversed remnant vegetation that are (Least Concern [VM Act]; No Concern at Present [BDS]) vegetation communities of the following RE types: • RE 11.5.20 (Polygon #22), • RE 11.5.4 (Polygon #23), • RE 11.5.1 (Polygons #24, #26). Non-remnant vegetation adjoining existing access track was recorded at Polygons #25 and #27. Varying levels of disturbance by fire, selective clearing and broadscale clearing were observed throughout the remnant vegetation communities.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	Large portions of the eastern and western survey area lie within mapped Category C ESA or buffers (PPZ, SPZ) triggered by Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement. No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	No TECs mapped or recorded on or near site.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	There were areas of non-remnant regrowth in the survey area with the floristic assemblage of the RE types present (estimated clearing events1-12 years).
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that Stagonopleura guttata (diamond firetail) ('vulnerable' under the EPBC and NCA), *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA) and *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) were 'likely' to

indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	occur in the survey area. Strophurus taenicauda (golden-tailed gecko)'near threatened' under the NCA), was 'known' to occur in the survey area as the RoW traversed essential habitat for the species that was validated during the survey. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for diamond firetail and koala is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: o Mapped referrable HES or GES o Unmapped o Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	The Stream Order 1 (SO1) watercourse mapped at the western extent of the survey area to be crossed by the proposed linear infrastructure was downgraded to a drainage feature, see appended Water Feature Checklist report. Gilgais were present within Polygons #22 (remnant RE 11.5.20) and #23 (remnant RE 11.5.4). These gilgais were mostly a series of contiguous microrelief and shallow gilgai formations supporting very-low to low quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species, see appended Wetland Features report for ecological rating value, descriptions, and representative photos. There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring.
Additional Considerations:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ✓ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ✓ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Completed By	Date
Lincoln Smith Gerry Callahan (edits)	26/11/2024 2/02/2025

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 27DY81, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	From aerial imagery analysis, the property predominantly comprised remnant vegetation dissected by access tracks and encompassing CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed the entire survey area is non-remnant vegetation.
	
	Ground truthing recorded linear infrastructure predominantly traversed remnant vegetation that are (Least Concern [VM Act]; No Concern at Present [BDS]) vegetation communities of the following RE types:
	• RE 11.5.20 (Polygon #22),
	• RE 11.5.4 (Polygon #23),
	• RE 11.5.1 (Polygons #24, #26).
	
	Non-remnant vegetation adjoining existing access track was recorded at Polygons #25 and #27.
	
	Varying levels of disturbance by fire, selective clearing and broadscale clearing were observed throughout the remnant vegetation communities.

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	Large portions of the eastern and western survey area lie within mapped Category C ESA or buffers (PPZ, SPZ) triggered by Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement. No Significant Vegetation was recorded within the survey area.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	No TECs mapped or recorded on or near site.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site is not in a High-Risk area according to latest Flora Trigger mapping.

EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 344 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that Stagonopleura guttata (diamond firetail) ('vulnerable' under the EPBC and NCA), Phascolarctos cinereus (koala) ('endangered' under the EPBC and NCA) and Hirundapus caudacutus (white-throated needletail) ('vulnerable' under the EPBC and NCA)to occur in the survey area. *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA), was 'known' to occur in the survey area as the RoW traversed essential habitat for the species that was validated during the survey. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	The Stream Order 1 (SO1) watercourse mapped at the western extent of the survey area to be crossed by the proposed linear infrastructure was downgraded to a drainage feature, see appended Water Feature Checklist report. Gilgais were present within Polygons #22 (remnant RE 11.5.20) and #23 (remnant RE 11.5.4). These gilgais were mostly a series of contiguous microrelief and shallow gilgai formations supporting very-low to low quality habitat value regarding structure, vegetation, and suitable habitat attributes for aquatic fauna species, see appended Wetland Features report for ecological rating value, descriptions, and representative photos. There were no other types of wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road.
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	**Trees** *Allocasuarina luehmannii* (bull oak) *Angophora leiocarpa* (smooth-barked apple) *Callitris glaucophylla* (white cypress pine) *Eucalyptus crebra* (narrow-leaved ironbark) *Eucalyptus woollsiana* (grey box) *Melaleuca decora* (white feather honey myrtle) **Shrubs** *Acacia ixiophylla* (sticky wattle) *Ac. deanii (*Deane's wattle) *Ac. leiocalyx* (early flowering black wattle) *Ac. spectabilis* (glory wattle) *Petalostigma pubescens* (quinine bush) **Forbs** *Brunoniella australis* (blue trumpet) *Cheilanthes sieberi* (rock fern) *Chrysocephalum apiculatum* (yellow buttons) *Evolvulus alsinoides* (bindweed) *Juncus usitatus* (common rush) *Murdannea graminea* (grass lily) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *A. vagans* (wire grass) *Chrysopogon fallax* (golden-beard grass *Cymbopogon refractus* (barb-wire grass) *Cyperus sp.* (a cyperus) *Dianella sp.* (a flax lily) *Eleocharis sp.* (spike rush) *Entolasia stricta* (wiry panic) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass)

	Fimbristylis dichotoma (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Laxmannia gracilis* (wire lily) *Lomandra filiformis* (wattle matrush) *Lomandra longifolia* (spiny-head matrush) *Melinis repens** (red natal) *Murdannea graminea* (grass lily) *Panicum decompositum* (native millet) *Panicum effusum* (hairy panic) *Panicum larcomianum* (a panic grass) *Paspalidium caespitosum* (brigalow grass) *Walwhalleya subxerophila* (gilgai grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 11.94 hectares (2,388m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees; 25-50, Shrubs; 0-25, Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Sandy clay loam; moderate erodibility. Clay within areas containing gilgais and microrelief.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring.
Notes:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES

Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
See Water Feature Checklist report for details of mapped S01 watercourse downgraded to a drainage feature and Wetland Feature report appended.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Potential fauna habitat throughout survey area and restricted invasive weeds present at low densities (see below photos for examples).				

Photography - Linear Infrastructure

Photo 1: Typical remnant RE 11.5.20.

Photo 2: Remnant RE 11.5.20 with shallow gilgais and microrelief.

Photo 3: Gilgai and microrelief within RE 11.5.20.

Photos 4: Gilgai within remnant RE 11.5.4.

Photo 5: Non-remnant vegetation adjoining track and windrow of felled timber providing potential fauna habitat.

Photo 6 and 7: Dead tree bearing hollows and mature velvety tree pear fruiting.

Photo 8: Typical non-remnant vegetation, historically cleared with woody regrowth.

WATER FEATURE CHECKLIST - ENVIRONMENTAL SURVEY REPORT

Field Assessment				
Block – PACR Name: (Survey Title from invite)	Kenya East, 27DY81, Off-tenure Pipeline Ecology Resurvey			
Infrastructure impact on water feature (Provide details) **Is it:** • Crossed by access? (bed-level crossing) • Crossed by gathering? • In proximity to static infrastructure? (well, camp, gravel pit, STP effluent area) *Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	Drainage feature crossed by water pipeline.			
Lot Plan:	27DY81	**Crossing type:**	Existing Crossing / No Upgrade Required: Existing Crossing / Upgrade Required: New Crossing in previously disturbed area: New Crossing in undisturbed area:	☐ ☐ ☐ ✓
Survey sketch point #:	#2253	**Bank full width**	1m, very difficult to determine	
		Bank width	0.5m, very difficult to determine	
		Bed width	0.2m, very difficult to determine	
		Bank height from bed	0.1m, very difficult to determine	
Instructions for Assessment	1. A separate checklist shall be completed where there is deemed to be a change in hydrological or topographic conditions, which may change the outcome of any of the below questions: (e.g. area of permanent flow, occurrence of contiguous riparian vegetation, obvious changes in landscape such as the occurrence of beds or banks) 2. This checklist should be accompanied by mapping, which indicates the location of each individual assessment. Each assessment should be numbered and reflected and/or identified on the map. 3. A work sheet is to be completed for all water features encountered during the survey.			

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

Question to determine if the feature is a watercourse	Y/N	Justification	Comments
Is the feature mapped within the state mapping data set? If so, what is the stream order number? Is the feature named?	Y	Mapped as Stream Order 1 Not named	
A non-watercourse drainage feature is defined as having all of the following attributes; assessor to complete assessment of the following parameters: a) is the feature formed by the concentration of, or operates to confine or concentrate overland flow water only during and immediately after rainfall events; and	Y	If **YES** to <u>all</u> of these questions the feature is only a drainage feature, the feature doesn't constitute a mappable watercourse and no further assessment is required. If **NO** to <u>any</u> of these continue with the assessment	Drainage feature was a very shallow and narrow depression within the landscape with no watercourse attributes.
b) appears to flow for only a short duration after a rainfall event, regardless of the frequency of flow events; and	Y		
c) does not appear to have enough continuing flow to create a riverine environment.	Y		
Is there a presence of defined bed and banks? (The bed and banks must be continuous rather than isolated and broken sections of a depression).		If **YES** to all, the feature is a watercourse.	
Does the feature have sufficient flow adequacy: the flow needs to be sufficient to sustain basic ecological processes and to maintain additional biodiversity, than that of the surrounding landscape, within the feature		If **NO** to any of these, the feature doesn't constitute a mappable watercourse and no further assessment is required under the *Fisheries Act*. Construct the watercourse crossing under the Environmental Authority. No DAFF notification is required.	

<u>Summary is required for how determination was made of the water feature:</u>

The mapped Stream Order 1 watercourse was downgraded to a drainage feature. Watercourse attributes were absent.

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

Water Features – Pre-works Notification Photos

5 photos required for each bed-level access crossing. Photos to be taken as per instructions below.

Survey sketch point #: DR2905
[
Photo (A) – Looking up the very shallow narrow drainage feature.

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

WETLAND FEATURES - ENVIRONMENTAL SURVEY REPORT

Wetland Features **Note: if wetland is Gilgai (melon holes), rate on ecological value. Refer to *Environmental Constraints Assessment Guideline* for rating system.** 1 2 3 4 5 Nil/Very Low Very High				
Location Details (Gathering / Access / Well) Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	**GPS Coordinates Surveyor Reference #**	**Type of wetland** (e.g ,Gilgai, mapped Referrable Wetland, discharge area etc.)	***Features Determining Wetland*** (Width, water depth, vegetation, aquatic species, condition, blade ploughed etc)	**Actions Taken**
Example *Well # 179 on Kate*	*Surveyor Ref # 2221*	*Gilgai (Melon Hole) Value Rating 4.*	*50m long and 30m wide, Water to approx. 0.5m depth, many aquatic plants. Previously ploughed for grazing with minor stock trampling. Small fish, frogs and turtle observed.*	*Avoided by 20 metres.* ***Or*** *Could not be avoided as relocation would require clearing of Brigalow TEC or locating within a watercourse buffer. Fauna spotter required during clearing.*
Polygon #22	EV2909 – EV2911	Multiple contiguous and separated shallow gilgais (melon holes) and microrelief. Rating 1&2	3m – 10m wide and 3m – 15m long, 0.1-0.2m depth, some wide but relatively shallow cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), no aquatic fauna observed, within remnant RE 11.5.20.	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.
Polygon #23	EV2911 – EV2912	Multiple contiguous and separated shallow gilgais (melon holes). Rating 1&2	3m – 10m wide and 3m – 25m long, 0.1-0.2m depth, some wide but relatively shallow cracks, semi aquatic flora species present (*Juncus usitatus*, *Walwhalleya subxerophila*, *Lomandra longifolia, Cyperus spp., Eleocharis sp., Cynodon dactylon, Carex inversa*), no aquatic fauna observed, within remnant RE 11.5.20	Unavoidable due to being widespread over area. Fauna spotter required during clearance activities.

Wetland Features – Photography

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comment

Photo 1: Polygon #22 with shallow contiguous microrelief.

Photo 2: GPS #2479, Gilgai with cracking clays within remnant RE 11.5.20.

Photo 3: Cracking clays within gilgai.

Photo 4: Polygon #23 showing contiguous gilgai with typical habitat attributes within remnant RE 11.5.20

SSMP- Likelihood of Occurrence Matrix - Kenya East 27DY81

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** in column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in clouns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Poplar box/gum, cypress pine and bull-oak country in REs 11.3.2, 11.3.4, 11.3.14, 11.3.17, 11.3.18, 11.5.1, 11.5.4 and 11.5.20.	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Not in listed vegetation types									Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Open grassy forests and woodlands, dry pastures at wooded edges and occasionally in farmlands and grasslands with scattered trees.	Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats.	Sapling and small tree regrowth with low cover of shrubs, logs and leaf litter; moderate to high grass cover with grasses <40cm height for foraging.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #22, #23, #24, #26.	QGC 2019 diamond firetail record approximately 7km NE of preferred habitat crossed by RoW	Likely	Yes
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over farmland, roads, cleared land, inland open plains or settled areas.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Dry ironbark and cypress pine, Bull-oak scrub or gum/box country.	Nesting habitat, specifically trees with large nesting hollows with entrances >/= 150mm.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Brigalow melon-hole country with woody debris, soil cracks and water.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	Clay and/or alluvial soils associated with land zones 3, 4 and 5 in close proximity to water.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Mapped and Validated (Yes)	No	Yes	Polygons #22, #23, #24, #26.	Trees with loose and peeling bark common throughout woodland areas. RoW traverses validated Essential Habitat for GTG	Known	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Eucalypt woodland on alluvial or sand plains in REs 11.3.2, 11.3.3, 11.3.4, 11.3.25, 11.3.26, 11.3.39, 11.5.1, 11.5.1a, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Eucalypt woodlands	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Occur in lightly timbered woodlands and shrublands dominated by eucalypts and/or wattles.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Eucalypt/box woodlands and semi-arid areas with gum/box.	Secondary feed trees, being, E. cabageana, E. conica, E. coolabah ssp. coolabah, E. crebra, E. drepanophylla, E. exserta, E. intertexta, E. largiflorens, E. melanophloia, E. melliodora, E. macrocarpa, E. moluccana, E. orgadophila, E. pilligaensis, E. populnea, E. sideroxylon represent the dominant canopy species within the vegetation community.	Primary and/or secondary feed trees <1km from ephemeral to permanent surface water. In drought years, survival of a population may be dependent on the presence of vegetation near permanent waterways.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #22, #23, #24, #26.	Canopy dominated by Eucalyptus crebra (secondary feed tree); located within large tract of intact vegetation; permanent water source within 1km.	Likely	Yes
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Bull-oak Woodland on in REs 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.16, 11.5.20 and 11.5.21, containing mistletoes of the genus Amyema.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Dry ironbark and cypress pine, bull-oak or gum/box country in REs 11.4.7, 11.5.1, 11.5.4, 11.5.5, 11.5.20, 11.5.21, 11.9.9 and 11.9.10	Poplar box, ironbark, cypress pine, buloke woodlands.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Open woodlands and shrublands with a low shrub layer and grassy ground cover; mainly occur in arid and semi-arid acacia, eucalypt and cypress pine Callitris woodlands and shrublands	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on sand plains in Land Zone 5	High, open spaces above open wooded areas	Large tracts of native vegetation	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Entire survey area within this property.	As this is a fly over species, it was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context.	Likely	Yes
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Dry ironbark and cypress pine scrub or gum/box country.	Log piles, scattered large hollow logs associated with fallen trees, dense woody debris, stick-raked windrows and abandoned animal burrows.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Yellow-bellied Gliders (south-eastern) occur in dry eucalypt-dominated forests and woodlands, including wet and dry sclerophyll forests, typically in areas of high rainfall.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 28DY81, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 1,800m x 50m (9 hectares) of pipeline Right-of-Way (RoW).		
Lot Plan:	28DY81	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	29,30/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	☐ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Fauna

- Biodiversity offsets for diamond firetail and koala habitat may be required.
- Fauna Spotter Catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised remnant woodland, regrowth and open paddocks dissected by access tracks and encompassing CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed most of the survey area is non-remnant vegetation except for a small section in the southeast lies within remnant RE 11.5.1 / 11.5.20 in 70:30 ratio (Least Concern [VM Act]; No Concern at Present [BDS]). Ground truthing recorded that the linear infrastructure predominantly traversed remnant vegetation of the following RE types that are (Least Concern [VM Act]; No Concern at Present [BDS]) vegetation communities. • RE 11.5.1 (Polygons #13, #8, #9) • RE 11.5.4 (Polygons #13) • RE 11.5.20 (Polygons #1, #10, #21) Ecotonal areas of RE types were also observed. Advanced regrowth was recorded at an area south of the Kenya East compression station comprised of RE 11.5.4 (Polygon #11) and at Polygon #15 which comprised mixed RE 11.5.1/ 11.5.4. Both areas did not-meet the structural criteria for remnant status. Non-remnant vegetation was recorded in areas associated with existing cleared access tracks shown by Polygons #4, #16, #20. Varying levels of disturbance by fire, selective clearing and broadscale clearing were observed throughout the remnant and regrowth vegetation communities.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	The following areas lie within mapped Significant Vegetation or their buffers, associated with mapped Category C ESA triggered by Essential Habitat mapping for golden-tailed gecko (*Strophurus taenicauda)*. 1. The western extent of the survey area lies within the Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ). 2. The survey area in the eastern extent traverses the Category C ESA and buffers (PPZ and SPZ). Whilst the golden-tailed gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	No TECs mapped or recorded on or near site.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	Advanced regrowth was recorded, at an area south of the Kenya East compression station comprised of RE 11.5.4 (Polygon #11), and at Polygon #15 which comprised mixed RE 11.5.1/ 11.5.4. Both areas did not-meet the structural criteria for remnant status (clearing within past 10 years).
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.

for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that *Stagonopleura guttata* (diamond firetail) (vulnerable under the EPBC and NCA), *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA) and *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) were assessed as 'likely' to occur in the survey area. *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA) was assessed as 'known' in the survey area. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for diamond firetail and koala is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting for diamond firetail and koala habitat. Any diamond firetail nests or koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: o Mapped referrable HES or GES o Unmapped o Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	A Stream Order 1 (SO1) watercourse was mapped adjacent the proposed linear infrastructure. The area mapped and immediate adjoining areas were surveyed, and no watercourses or drainage features were detected (see Photo 6 in EFAL). There were no wetlands mapped or detected within 200m of linear infrastructure.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring. See EFAL species list for other non-native flora recorded.
Additional Considerations:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ☐ Other:

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Lincoln Smith Gerry Callahan (edits)	25/11/2024 3/02/2025
Completed By	**Date**

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 28DY81, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property comprised remnant woodland, regrowth and open paddocks dissected by access tracks and encompassing CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed most of the survey area is non-remnant vegetation except for a small section in the southeast lies within remnant RE 11.5.1 / 11.5.20 in 70:30 ratio (Least Concern [VM Act]; No Concern at Present [BDS]).
	
	Ground truthing recorded that the linear infrastructure predominantly traversed remnant vegetation of the following RE types that are (Least Concern [VM Act]; No Concern at Present [BDS]) vegetation communities.
	• RE 11.5.1 (Polygons #13, #8, #9)
	• RE 11.5.4 (Polygons #13)
	• RE 11.5.20 (Polygons #1, #10, #21)
	
	Ecotonal areas of RE types were also observed.
	
	Advanced regrowth was recorded at an area south of the Kenya East compression station comprised of RE 11.5.4 (Polygon #11) and at Polygon #15 which comprised mixed RE 11.5.1/ 11.5.4. Both areas did not-meet the structural criteria for remnant status.
	
	Non-remnant vegetation was recorded in areas associated with existing access tracks shown by Polygons #4, #16, #20.
	
	Varying levels of disturbance by fire, selective clearing and broadscale clearing were observed throughout the remnant and regrowth vegetation communities.

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	The following areas lie within mapped Significant Vegetation or their buffers, associated with mapped Category C ESA triggered by Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. 1. The western extent of the survey area lies within the Primary Protection Zone (PPZ) and Secondary Protection Zone (SPZ). 2. The survey area in the eastern extent traverses the Category C ESA and buffers (PPZ and SPZ). Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	No TECs mapped or recorded on or near site.
EVNT Flora present/impacted:	No EVNT flora recorded on site.

(If impacted by or adjoining infrastructure complete *Quantification Report.)*	
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping?	Site is not in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 344 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that Stagonopleura guttata (diamond firetail) ('vulnerable' under the EPBC and NCA), Phascolarctos cinereus (koala) ('endangered' under the EPBC and NCA) and Hirundapus caudacutus (white-throated needletail) ('vulnerable' under the EPBC and NCA) to occur in the survey area. Strophurus taenicauda (golden-tailed gecko) ('near threatened' under the NCA), was 'known' to occur in the survey area as the RoW traversed essential habitat for the species that was validated during the survey. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting fordiamond firetail and koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	A Stream Order 1 (SO1) watercourse was mapped adjacent the proposed linear infrastructure. The area mapped and immediate adjoining areas were surveyed, and no watercourses or drainage features were detected (see Photo 6). There were no wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	* Denotes non-native species **Trees** *Allocasuarina luehmannii* (bull oak) *Angophora leiocarpa* (smooth-barked apple) *Callitris glaucophylla* (white cypress pine) *Eucalyptus crebra* (narrow-leaved ironbark) *Eucalyptus woollsiana* (grey box) *Melaleuca decora* (white feather honey myrtle) **Shrubs** *Acacia ixiophylla* (sticky wattle) *A. deanii* (Deane's wattle) *A. leiocalyx* (early flowering black wattle) *A. spectabilis* (glory wattle) *Petalostigma pubescens* (quinine bush) **Forbs** *Brunoniella australis* (blue trumpet) *Cheilanthes sieberi* (rock fern) *Chrysocephalum apiculatum* (yellow buttons) *Evolvulus alsinoides* (bindweed) *Goodenia glabra* (smooth goodenia) *Murdannea graminea* (grass lily) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass), *A. leichhardtiana* (a wiregrass), *A. ramosa* (cane speargrass), *A. vagans* (wire grass), *Cymbopogon refractus* (barb-wire grass), *Dianella sp.* (a flax lily), *Entolasia stricta* (wiry panic), *Eragrostis lacunaria* (purple lovegrass), *E. elongata* (clustered lovegrass), *E. sororia* (woodland lovegrass), *Fimbristylis dichotoma* (common fringe-rush), *Gahnia aspera* (rough saw-sedge), *Laxmannia gracilis* (wire lily), *Lomandra filiformis* (wattle matrush), *Melinis repens** (red

	natal), *Murdannea graminea* (grass lily), *Panicum decompositum* (native millet), *Panicum effusum* (hairy panic), *Paspalidium caespitosum* (brigalow grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 9 hectares (1,800m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees and shrubs; 25-50, Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Sandy clay loam; moderate erodibility.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring.
Notes:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
No watercourses or drainage features detected near mapped SO1.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Potential fauna habitat throughout survey area and restricted invasive weeds were present at low densities.				

Photography - Linear Infrastructure

Photo 1: Remnant RE 11.5.20 adjoining access track at western extent of survey area.

Photo 2: Sparse – moderate canopy cover of remnant RE 11.5.20 disturbed by historical clearing and fire within past two years.

Photo 3: Non-remnant patch highly disturbed by recent fire and dieback within canopy.

Photos 4: Mixed remnant RE 11.5.1/ 11.5.4.

Photo 6: Very insignificant drainage feature within vicinity of mapped SO1 as no other potential watercourses/ drainage features were detected.

Photo 7 and 8: Mature grey box with decorticating and stripping bark providing potential Golden-tailed Gecko habitat and dead tree bearing hollows.

Photo 8: Windrow of felled timber along access track near Kenya East compression station.

SSMP- Likelihood of Occurrence Matrix - Kenya East 28DY81

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** in column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Poplar box/gum, cypress pine and bull-oak country in REs 11.3.2, 11.3.4, 11.3.14, 11.3.17, 11.3.18, 11.5.1, 11.5.4 and 11.5.20.	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Ironbark / smooth-barked apple / box woodland in REs 11.5.1, 11.5.4, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No Habitat Attribute Present	No Habitat Attribute Present						Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Open grassy forests and woodlands, dry pastures at wooded edges and occasionally in farmlands and grasslands with scattered trees.	Landforms 3, 4, 5 and possibly 9.	Eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats.	Sapling and small tree regrowth with low cover of shrubs, logs and leaf litter; moderate to high grass cover with grasses <40cm height for foraging.	Not Mapped as Essential Habitat (No)	No		Polygons #1, #8, #9, #10, #11, #13, #15, #21.	QGC 2019 diamond firetail record approximately 8.5km NE of preferred habitat on 28DY81 crossed by RoW	Likely	Yes
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over remnant or regrowth vegetation.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Dry ironbark and cypress pine, Bull-oak scrub or gum/box country.	Nesting habitat, specifically trees with large nesting hollows with entrances >/= 150mm.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Dry ironbark and cypress pine scrub or gum/box country.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	Clay and/or alluvial soils associated with land zones 3, 4 and 5 in close proximity to water.	Mapped and Validated (Yes)		Yes	Polygons #1, #8, #9, #10, #11, #13, #15, #21.	Field validated GTG essential habitat travesred by proposed RoW	Known	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Eucalypt woodland on alluvial or sand plains in REs 11.3.2, 11.3.3, 11.3.4, 11.3.25, 11.3.26, 11.3.39, 11.5.1, 11.5.1a, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Eucalypt woodlands	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Occur in lightly timbered woodlands and shrublands dominated by eucalypts and/or wattles.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Eucalypt/box woodlands and semi-arid areas with gum/box.	Secondary feed trees, being, E. cabageana, E. conica, E. coolabah ssp. coolabah, E. crebra, E. drepanophylla, E. exserta, E. intertexta, E. largiflorens, E. melanophloia, E. melliodora, E. macrocarpa, E. moluccana, E. orgadophila, E. pilligaensis, E. populnea, E. sideroxylon represent the dominant canopy species within the vegetation community.	Primary and/or secondary feed trees <1km from ephemeral to permanent surface water. In drought years, survival of a population may be dependent on the presence of vegetation near permanent waterways.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #1, #8, #9, #10, #13, #21.	Canopy dominated by Eucalyptus crebra (secondary feed tree); located within large tract of intact vegetation; permanent water source within 1km.	Likely	Yes
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Bull-oak Woodland on in REs 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.16, 11.5.20 and 11.5.21, containing mistletoes of the genus Amyema.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Dry ironbark and cypress pine, bull-oak or gum/box country in REs 11.4.7, 11.5.1, 11.5.4, 11.5.5, 11.5.20, 11.5.21, 11.9.9 and 11.9.10	Poplar box, ironbark, cypress pine, buloke woodlands.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on sand plains in Land Zone 5	High, open spaces above open wooded areas	Large tracts of native vegetation	Large tracts of native vegetation	Not Mapped as Essential Habitat (No)	No		Entire survey area within this property.	As this is a fly over species, it was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context.	Likely	Yes
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Dry ironbark and cypress pine scrub or gum/box country.	Log piles, scattered large hollow logs associated with fallen trees, dense woody debris, stick-raked windrows and abandoned animal burrows.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 37DY81, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 600m x 50m (3 hectares) of pipeline Right-of-Way (RoW).		
Lot Plan:	37DY81	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	30/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:	Wells	☐ Core	☐ Exploration
	☐ Appraisal	☐ Development / Production	☐ Monitoring
	☐ Microseismic	☐ Directional	☐ Tiltmeter Array
	☐ Gravel Pit	☐ Campsite	☐ Access Track
	☐ Seismic	☐ Gathering System	☐ Security Hut
	☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline
	☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond
	☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)
	☐ Other:		☐ Frac Pond

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	✓ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Significant Vegetation - Environmental Sensitive Area (ESA)

- Under-boring of Category C ESA recommended to avoid major disturbance or an EA amendment may be required for disturbance within a Category C ESA and buffers associated with an “Of Concern” RE type (Polygon #29).

Water

- Recommend under-boring of Stream Order 4 (SO4) watercourse “Wambo Creek” shown as Polygon #30 to avoid major, erosion issues and disturbance to watercourse.

Fauna

- Biodiversity offsets for some threatened species may be required.
- Fauna Spotter Catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property comprised remnant vegetation including tall woodland riparian vegetation associated with Wambo Creek. The property is dissected by a cleared construction Right-of-Way (RoW) for underground CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed most of the survey area lies within mixed remnant vegetation including RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio). Ground truthing recorded that the linear infrastructure traversed non-remnant vegetation (Polygons #31 & #33) and the following remnant vegetation communities: • Mixed remnant RE 11.3.18/ 11.5.1 (both Least Concern [VM Act]; No Concern at Present [BDS]) as shown by Polygon #14, • RE 11.5.1 (Least Concern [VM Act]; No Concern at Present [BDS]) as shown by Polygon #32, • RE 11.3.25 (Least Concern [VM Act]; Of Concern [BDS]) as shown by Polygon #29.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	The entire survey area lies within mapped Category C ESA, associated with remnant RE 11.3.25 (Of Concern [BDS]) as part of the state mapped mixed polygon RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio). • Ground truthing confirmed remnant RE 11.3.25 riparian vegetation associated with Wambo Creek (DAFF mapped Stream Order 4 watercourse [S04]). ○ Under-boring of Category C ESA recommended to avoid major disturbance or an EA amendment may be required for disturbance within a Category C ESA and buffers associated with an “Of Concern” RE type (Polygon #29). The survey area also lies within mapped Significant Vegetation or their buffers, associated with mapped Category C ESA triggered by Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. • Whilst the Golden-tailed Gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report.*	No TECs mapped or recorded on or near site.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	There were areas of non-remnant regrowth in the survey area with the floristic assemblage of the RE types present (recently cleared <2 years).
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.

EVNT Fauna – Does the area contain Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated the following species are likely to occur in the survey area: • Brigalow woodland snail (*Adclarkia cameroni*) 'endangered' under the EPBC and 'vulnerable' under the NCA; • Brown treecreeper (*Climacteris picumnus victoriae*) 'vulnerable' under the EPBC and the NCA; • Glossy black-cockatoo (*Calyptorhynchus lathami*) 'vulnerable' under the EPBC and NCA; • Golden-tailed gecko (*Strophurus taenicauda*) 'near threatened' under the NCA, 'Known' to occur within 1km; • Greater glider (*Petauroides Volans*) 'endangered' under the EPBC and NCA; • Koala (*Phascolarctos cinereus*) 'endangered' under the EPBC and NCA, • White-throated needletail (*Hirundapus caudacutus*) 'vulnerable' under the EPBC and NCA. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for the above threatened species is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting and any threatened species detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: ○ Mapped referrable HES or GES ○ Unmapped ○ Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	The Stream Order 4 (SO4) watercourse "Wambo Creek" mapped crossing the survey area was confirmed as a watercourse (see appended Water Feature Checklist report). • Recommend under-boring of Stream Order 4 (SO4) watercourse "Wambo Creek" shown as Polygon #30 to avoid major, erosion issues and disturbance to watercourse. There were no wetlands mapped or detected within 200m of linear infrastructure. A DEHP wetland is mapped > 400m north of the survey area.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	High risk (1). Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations commonly occurring.
Additional Considerations:	There were numerous potential habitat features recorded and observed including, watercourse attributes (pools, beds, banks) and riparian vegetation, multiple large mature trees bearing hollows, trees with decorticating bark, hollow logs, course woody debris, moderate-dense leaf litter. Where practicable, these

	features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	✓ Sketch ✓ QA mark-up map ✓ LoOM ✓ ESPT ✓ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ☐ Wetland Feature Report

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Completed By	Date
Lincoln Smith Gerry Callahan (edits)	26/11/2024 2/02/2025

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 37DY81, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were undertaken due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property comprised remnant vegetation including tall woodland riparian vegetation associated with Wambo Creek. The property is dissected by a cleared construction Right-of-Way (RoW) for underground CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed most of the survey area lies within mixed remnant vegetation including RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio).
	
	Ground truthing recorded that the linear infrastructure traversed non-remnant vegetation (Polygons #31 & #33) and the following remnant vegetation communities:
	• Mixed remnant RE 11.3.18/ 11.5.1 (both Least Concern [VM Act]; No Concern at Present [BDS]) as shown by Polygon #14,
	• RE 11.5.1 (Least Concern [VM Act]; No Concern at Present [BDS]) as shown by Polygon #32,
	• RE 11.3.25 (Least Concern [VM Act]; Of Concern [BDS]) as shown by Polygon #29.

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	The entire survey area lies within mapped Category C ESA, associated with remnant RE 11.3.25 (Of Concern [BDS]) as part of the state mapped mixed polygon RE 11.3.18/ 11.5.1/ 11.3.25 (40:40:20 ratio). • Ground truthing confirmed remnant RE 11.3.25 riparian vegetation associated with Wambo Creek (DAFF mapped Stream Order 4 watercourse [S04]). ○ Under-boring of Category C ESA recommended to avoid major disturbance or an EA amendment may be required for disturbance within a Category C ESA and buffers associated with an "Of Concern" RE type (Polygon #29). The survey area also lies within mapped Significant Vegetation or their buffers, associated with mapped Category C ESA triggered by Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. • Whilst the golden-tailed gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	No TECs mapped or recorded on or near site.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.

Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site is not in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following: • Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated the following species are likely to occur in the survey area: • Brigalow woodland snail (*Adclarkia cameroni*) 'endangered' under the EPBC and 'vulnerable' under the NCA; • Brown treecreeper (*Climacteris picumnus victoriae*) 'vulnerable' under the EPBC and the NCA; • Glossy black-cockatoo (*Calyptorhynchus lathami*) 'vulnerable' under the EPBC and NCA; • Golden-tailed gecko (*Strophurus taenicauda*) 'near threatened' under the NCA, 'Known' to occur within 1km; • Greater glider (*Petauroides Volans*) 'endangered' under the EPBC and NCA; • Koala (*Phascolarctos cinereus*) 'endangered' under the EPBC and NCA, • White-throated needletail (*Hirundapus caudacutus*) 'vulnerable' under the EPBC and NCA. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for the above threatened species is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting and any threatened species detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any fauna.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	The Stream Order 4 (SO4) watercourse "Wambo Creek" mapped crossing the survey area was confirmed as a watercourse (see appended Water Feature Checklist report). • Recommend under-boring of Stream Order 4 (SO4) watercourse "Wambo Creek" shown as Polygon #30 to avoid major, erosion issues and disturbance to watercourse. There were no wetlands mapped or detected within 200m of linear infrastructure. A DEHP wetland is mapped > 400m north of the survey area.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road.
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	* Denotes non-native species **Trees** *Allocasuarina luehmannii* (bull oak) *Angophora fibrosa* (rough-barked apple) *Angophora leiocarpa* (smooth-barked apple) *Callitris endlicheri* (black cypress pine) *Callitris glaucophylla* (white cypress pine) *Eucalyptus chloroclada* (Dawson's gum) *E. crebra* (narrow-leaved ironbark) *E. populnea* (poplar box) *E. tereticornis* (bluegum) *E. woollsiana* (grey box) *Melaleuca decora* (white feather honey myrtle) **Shrubs** *Acacia ixiophylla* (sticky wattle) *A. deanii* (Deane's wattle) *A. leiocalyx* (early flowering black wattle)

	A. spectabilis (glory wattle) *Petalostigma pubescens* (quinine bush) **Forbs** *Brunoniella australis* (blue trumpet) *Bryophyllum delagoense** (mother-of-millions) *Cheilanthes sieberi* (rock fern) *Chrysocephalum apiculatum* (yellow buttons) *Evolvulus alsinoides* (bindweed) *Glandularia aristigera** (Mayne's pest) *Juncus usitatus* (common rush) *Podolepsis jaceoides* (showy copper-wire daisy) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *Arundinella nepalensis* (reed grass) *Chrysopogon fallax* (golden-beard grass *Cymbopogon refractus* (barb-wire grass) *Cyperus sp.* (a cyperus) *Dianella sp.* (a flax lily) *Eleocharis sp.* (spike rush) *Entolasia stricta* (wiry panic) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass) *Fimbristylis dichotoma* (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Laxmannia gracilis* (wire lily) *Lomandra filiformis* (wattle matrush) *Lomandra longifolia* (spiny-head matrush) *Melinis repens** (red natal) *Murdannea graminea* (grass lily) *Panicum decompositum* (native millet) *Panicum effusum* (hairy panic) *Panicum larcomianum* (a panic grass) *Paspalidium caespitosum* (brigalow grass) *Walwhalleya subxerophila* (gilgai grass)
Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 3 hectares (600m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees; 75-100, Shrubs; 0-25, Ground cover species; 50-75.
Soil type & erodibility (Sodic: Y/N):	Sandy with clay; moderate erodibility. Dense ground layer cover of vegetation and organic material.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	Constructed RoW for underground CSG infrastructure susceptible to erosion, particularly where channelling between the outer banks of the watercourse occurs.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%, with ~ 4% slope from western edge of floodplain to Clynes Road.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site	High risk (1). Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations commonly occurring.

3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	
Notes:	There were numerous potential habitat features recorded and observed including, watercourse attributes (pools, beds, banks) and riparian vegetation, multiple large mature trees bearing hollows, trees with decorticating bark, hollow logs, course woody debris, moderate-dense leaf litter. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Non-remnant vegetation areas shown as Polygons #31 & #33 with exposed soils from previous disturbance (clearing).				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
See Water Feature Checklist report appended for details of mapped S04 "Wambo Creek" confirmed as a watercourse.				

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
High abundance of potential fauna habitat throughout survey area (particularly within remnant RE 11.3.25). Infestations of the restricted invasive weed mother-of-millions was recorded and observed throughout entire survey area. Velvety tree pear recorded as occasionally occurring.				

Photography - Linear Infrastructure

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comments

Photo 1: Mixed remnant RE 11.3.18/ 11.5.1 (Polygon #14).

Photo 2: Top of western outer bank facing south showing edge of remnant RE 11.3.25 and ecotone with RE 11.3.18.

Photo 3: Remnant RE 11.3.25 within island between outer banks of watercourse (Polygon #29)

Photos 4: Remnant RE 11.5.1 (Polygon #32).

Photo 6: Windrow of felled timber providing potential fauna habitat and showing existing RoW with non-remnant vegetation.

Photo 7 and 8: Mature trees bearing hollows abundant within remnant RE 11.3.25.

Photo 8: Ground layer habitat including logs, woody debris, leaf litter, sedges and rushes.

Photo 9: Infestations of mother-of-millions were common throughout areas on alluvium.

Photo 10: Facing north on western outer bank of Wambo Creek.

Photo 11: Facing upstream on eastern outer bank of Wambo Creek.

WATER FEATURE CHECKLIST - ENVIRONMENTAL SURVEY REPORT

Field Assessment				
Block – PACR Name: (Survey Title from invite)	Kenya East, 37DY81, Off-tenure Pipeline Ecology Resurvey			
Infrastructure impact on water feature (Provide details) **Is it:** • Crossed by access? (bed-level crossing) • Crossed by gathering? • In proximity to static infrastructure? (well, camp, gravel pit, STP effluent area) *Refer to *EA Conditions Comparison Spreadsheet* for buffer distances and permitted activities.	Pipeline RoW crossing of mapped Stream Order 4 "Wambo Creek" verified as a watercourse. • Recommend under-boring of Stream Order 4 (SO4) watercourse "Wambo Creek" shown as Polygon #30 to avoid major, erosion issues and disturbance to watercourse. Watercourse within Category C ESA.			
Lot Plan:	37DY81	**Crossing type:**	Existing Crossing / No Upgrade Required:	☐
			Existing Crossing / Upgrade Required:	☐
			New Crossing in previously disturbed area:	☐
			New Crossing in undisturbed area:	✓
Survey sketch point #:	Polygon #30 (TB3001 – TB3003)	**Bank full width**	120m between outer banks of main channel (east side) and local anabranch (west side).	
		Bank width	15m for main and 13m for anabranch channel	
		Bed width	7m for main and 5m for anabranch channel	
		Bank height from bed	3m for main channel and 1-2.2 m for anabranch channel	
Instructions for Assessment	1. A separate checklist shall be completed where there is deemed to be a change in hydrological or topographic conditions, which may change the outcome of any of the below questions: (e.g. area of permanent flow, occurrence of contiguous riparian vegetation, obvious changes in landscape such as the occurrence of beds or banks) 2. This checklist should be accompanied by mapping, which indicates the location of each individual assessment. Each assessment should be numbered and reflected and/or identified on the map. 3. A work sheet is to be completed for all water features encountered during the survey.			

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

Question to determine if the feature is a watercourse	Y/N	Justification	Comments
Is the feature mapped within the state mapping data set? If so, what is the stream order number? Is the feature named?	Y	No option for alternative route. Enable RoW to cross perpendicular to watercourse.	Mapped as Stream Order 4 and ground truthed as a watercourse. Named Wambo Creek.
A non-watercourse drainage feature is defined as having all of the following attributes; assessor to complete assessment of the following parameters: a) is the feature formed by the concentration of, or operates to confine or concentrate overland flow water only during and immediately after rainfall events; and	N	If **YES** to <u>all</u> of these questions the feature is only a drainage feature, the feature doesn't constitute a mappable watercourse and no further assessment is required. If **NO** to <u>any</u> of these continue with the assessment	Watercourse is ephemeral but supports a riverine environment.
b) appears to flow for only a short duration after a rainfall event, regardless of the frequency of flow events; and	N		
c) does not appear to have enough continuing flow to create a riverine environment.	N		
Is there a presence of defined bed and banks? (The bed and banks must be continuous rather than isolated and broken sections of a depression).	Y	If **YES** to all, the feature is a watercourse.	Continuous bed and banks in for main and secondary channel.
Does the feature have sufficient flow adequacy: the flow needs to be sufficient to sustain basic ecological processes and to maintain additional biodiversity, than that of the surrounding landscape, within the feature		If **NO** to any of these, the feature doesn't constitute a mappable watercourse and no further assessment is required under the *Fisheries Act*. Construct the watercourse crossing under the Environmental Authority. No DAFF notification is required.	Watercourse supports riparian vegetation and sustains ecological processes to maintain additional biodiversity.

<u>Summary is required for how determination was made of the water feature:</u>

This mapped S04 was field verified as a watercourse and demarcated between the outer banks (Polygon #30) including the high bank of the main channel on the eastern side and the local anabranch top of bank on the western side. A small island predominantly supporting riparian vegetation below the floodplain level is present between the outer banks.

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

Water Features – Pre-works Notification Photos

Survey sketch point #: TB3003, Polygon #30

Photo (A) – Looking across the main channel of waterway at the centre of RoW (from east to west).
Across the watercourse at the proposed site of the bed-level crossing.

Photo (B) – Looking upstream of main channel from centre of RoW.
Standing at the point of the crossing, and looking downstream.

Photo (C) – Looking downstream of main channel from centre of RoW.
Standing at the point of the crossing, and looking upstream.

This Assessment worksheet has been prepared to assist with ensuring QGC reviews drainage features/watercourses in accordance with the Water Act and the Environmental Authorities in which QGC operates.

SSMP- Likelihood of Occurrence Matrix - 37DY81

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** in column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Timbered watercourses with river she-oak or Casuarina species in REs 11.3.14, 11.3.17, 11.3.18, 11.3.25 and 11.3.27a.	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	Poplar box, gum-topped box, or forest red gum over ground cover of native grasses	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #14, #29.	Microhabitat features for this species for feeding, survival and egg-laying observed throughout survey area such as decaying logs and woody debris, leaf litter, and dense overstorey cover of shrubs and trees.	Likely	Yes
View Map	Brown treecreeper (south-eastern)	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Timbered watercourses and palustrine wetlands with river red gum, forest red gum and she-oak in RE 11.3.25 / 11.3.25a and 11.3.27f.	Remnant and advanced regrowth patches of at least 6ha required and patches larger than 20ha preferred, particularly with good connectivity to other woodland patches (i.e., non-fragmented habitat). Areas subject to periodic or prescribed burning are preferred.	Trees (particularly dead trees or tree stumps) with hollows, spouts or fissures which are preferred nesting sites.	Fallen timber, logs and leaf litter which provide essential foraging habitat.	Not Mapped as Essential Habitat (No)	No		Polygons #14, #29, #32.	Timbered watercourse parto of a large patch of suitable foraging and nesting habitat	Likely	Yes
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Woodland and scrub on alluvial or sand plains in all REs from land zones 3, 4 and 5 (excluding wetlands such as 11.3.25f and 11.3.27).	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over remnant or regrowth vegetation.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Timbered watercourses with river she-oak or Casuarina species.	Nesting habitat, specifically trees with large nesting hollows with entrances >/= 150mm.	Timbered watercourses with Casuarina spp. associated with permanent water.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygon #29.	Potential feed trees (Casuarina spp.) and multiple large trees with hollows present.	Likely	Yes
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Dry ironbark and cypress pine scrub or gum/box country.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	Clay and/or alluvial soils associated with land zones 3, 4 and 5 in close proximity to water.	Mapped and Validated (Yes)		Yes	Polygons #14, #29, #32.	Trees with loose and peeling bark common throughout.	Known	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Eucalypt woodland on alluvial or sand plains in REs 11.3.2, 11.3.3, 11.3.4, 11.3.25, 11.3.26, 11.3.39, 11.5.1, 11.5.1a, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.20 and 11.5.21.	Canopy dominated by Eucalypts. e.g., Eucalyptus tereticornis, E. camaldulensis, E. crebra, E. populnea E. acmenoides, E. fibrosa, E. moluccana, Corymbia citriodora, C. tessellaris, C. clarksoniana	High density of hollow-bearing trees, particularly trees with large (150-300mm) to very-large (>300mm) hollows	Presence of very large and mature trees, particularly those with a DBH greater than 50cm	Not Mapped as Essential Habitat (No)	No		Polygons #14, #29.	Diverse and abundant food trees and large trees bearing hollows suitable as den trees.	Likely	Yes
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	River red gum Eucalyptus camaldulensis and coolibah forest red gum E. tereticornis-lined watercourses	Favoured nest trees are river red gum Eucalyptus camaldulensis and coolibah E. coolabah. They roost in live or dead trees and on bare, open ground	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Riverine woodlands.	Open Eucalypt and Brigalow forests and woodlands <1km from permanent water as well as floodplains including riverine communities.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Not listed in vegetation types									Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Timbered watercourses with river red gum, forest red gum, poplar box and coolabah.	Primary feed trees, bieng E. camaldulensis ssp. camaldulensis, E. camaldulensis ssp. simulate, E. chloroclada and E. tereticornis ssp. tereticornis represent the dominant canopy species within the vegetation community.	Primary and/or secondary feed trees <1km from ephemeral to permanent surface water. In drought years, survival of a population may be dependent on the presence of vegetation near permanent waterways.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #14, #29, #32.	Canopy dominated by Eucalyptus tereticornis (primary feed tree) adjacent S04 watercourse (Wambo Creek); located within large tract of intact vegetation; permanent water source within 1km.	Likely	Yes
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Timbered watercourses with river red gum in REs 11.3.14, 11.3.17 and 11.3.25 / 11.3.25a, containing mistletoes of the genus Amyema.	Forest and woodland eucalypts containing mistletoes of the genus Amyema.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Timbered watercourses with mixed eucalypt species REs 11.3.14, 11.3.17, 11.3.18 and 11.3.25.	Large intact, extensive stands of vegetation with old-growth vegetation.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types									Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on plains in Land Zones 3 and 4	High, open spaces above open wooded areas	Large tracts of native vegetation	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Entire survey area within this property.	As this is a fly over species, it was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context.	Likely	Yes
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Not in listed vegetation types									Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No

SUMMARY of PROJECT ENVIRONMENTAL CLEARANCE (PEC) REPORT

SURVEY DETAILS			
PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 30DY81, Off-tenure Pipeline Ecology Resurvey		
Type of Survey:	Ecological survey - general		
Scope of Activity: Quantify the scope details; include length and width of surveyed RoW, number and names of well leases, gravel pits, camps etc. If this report is uprevved following additional assessments or sketch changes, detail the additional scope, sketch change, ecologist name and date of additions	Ecological survey of approximately 1,250m x 50m (6.25 hectares) of pipeline Right-of-Way (RoW).		
Lot Plan:	30DY81	**Date of Survey:** Include dates and ecologist initials for follow-up assessment	28 and 29/10/2024
Survey Revision (Numerical)	Resurvey	**Report Revision (Roman Numeral)**	Rev ii
Description of Revision Changes			

Facility Type / Activity:			
Wells	☐ Core	☐ Exploration	
☐ Appraisal	☐ Development / Production	☐ Monitoring	
☐ Microseismic	☐ Directional	☐ Tiltmeter Array	
☐ Gravel Pit	☐ Campsite	☐ Access Track	
☐ Seismic	☐ Gathering System	☐ Security Hut	
☐ Trunkline	☐ Gas Pipeline	✓ Water Pipeline	
☐ Comms Towers	☐ Fibre Optic Cable	☐ Pond	
☐ FCS (Field Compression Station)	☐ CPP (Central Processing Plant)	☐ WTP (Water Treatment Plant)	
☐ Other:		☐ Frac Pond	

RECOMMENDATIONS:		
☐ No Environmental issues on site	✓ Environmental issues identified & surveyed	☐ EA amendment required
☐ Protected Flora Trigger Map Survey required	☐ Reforestation triggered	✓ Fauna spotter required
☐ Other:		

ISSUES Requiring Follow-up:

Only detail significant issues here that are required to be followed up, e.g., infrastructure in ESA buffers* requiring EA amendment, additional flora or fauna surveys required etc.

*Refer to *EA Conditions Matrix* for buffer distances and permitted activities.

Fauna

- Biodiversity offsets for koala *Phascolarctos cinereus* may be required.
- Fauna Spotter Catcher required for clearing activities.

SUMMARY OF ENVIRONMENTAL CONSTRAINTS (DETAILED IN OTHER REPORT ELEMENTS)	
Brief description of broader vegetation / land use:	The property predominantly comprised remnant woodland vegetation dissected by access tracks and encompassing CSG infrastructure.
Were any REs identified and what are they? Are these correctly mapped by DoR? (Survey new extents) Updates to DoR RE Mapping IDs: What is the vegetation currently mapped as (RE and status) and what should it be mapped as? *Refer to VMA Mapping and Biodiversity Status.*	State mapping showed linear infrastructure lies within remnant RE 11.5.1 / 11.5.20 in 70:30 ratio (Least Concern [VM Act]; No Concern at Present [BDS]). The vegetation within the linear infrastructure was ground truthed and demarcated into separate polygons of remnant RE 11.5.1 and RE 11.5.20. Ecotonal areas of the two RE types were also observed.
Environmentally Sensitive Areas (ESAs) Provide a summary of mapped and unmapped ESAs surveyed/validated. If surveyed infrastructure would impact ESAs or buffers, include impact details on front page	The site lies within the Primary Protection Zone of a mapped Category C ESA associated with Essential Habitat mapping for golden-tailed gecko (*Strophurus taenicauda)*. Whilst the golden-tailed gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the subject tenement EA.
Threatened Ecological Communities (TEC) identified: Survey TEC polygon for inclusion on survey sketch Note: If impacted by or adjoining infrastructure attach *Quantification Report*.	No TECs mapped or recorded on or near site.
DoR-mapped High-value Regrowth present / impacted:	There was no mapped HVR in the survey area.
Regrowth Present/Impacted: *(i.e., Species & Common name/rough estimate when cleared in years)*	There was no non-remnant regrowth in the survey area.
EVNT Flora species present / impacted (EPBC or NCA): Note: If impacted by or adjoining infrastructure complete Quantification Report. Is proposed infrastructure in a High-risk Area identified on a Protected Plant Trigger Map? (If yes, add requirement for Flora Survey to front page – refer to *Flora Survey Guidelines – Protected Plants*).	No threatened flora species were detected in the survey area. The proposed infrastructure did not lie in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna – Does the area contain Potential Habitat for any EVNT species (EPBC or NCA)? 1. Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA) (from the LoOM assessment) 2. If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? 3. Survey microhabitat features or fauna encounters for inclusion on survey sketch. 4. If no suitable habitat for any threatened species is detected, provide summary of how site conditions are unsuitable. Attach completed *Likelihood of Occurrence Matrix (LoOM)* to report	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report. The LoOM assessment indicated that *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA), *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) and *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA), were likely to occur in the survey area. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for koala and golden-tailed gecko is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context.

	The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses and Wetlands: Brief summary of mapped and unmapped watercourses, wetlands and buffers impacted Assessment information to include: • any downgrades of mapped watercourses to drainage features • infrastructure in buffers • Details on wetlands: o Mapped referrable HES or GES o Unmapped o Impacts in buffers Attach completed *Water Features Checklist / Wetland Features Report*	A Stream Order 1 (SO1) watercourse was mapped within 100m of a portion of proposed linear infrastructure. The mapped and immediate adjoining areas were surveyed, and no watercourses or drainage features were detected. There were no wetlands mapped or detected within 200m of linear infrastructure.
Restricted Invasive Plants (Weeds): Summary of invasive weeds surveyed/recorded	Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring.
Additional Considerations:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.
Attachments Included:	☑ Sketch ☐ QA mark-up map ☑ LoOM ☑ ESPT ☐ Water Feature Checklist(s) ☐ Habitat Checklist(s) (SBAD) ☐ Other:

This report has been prepared in accordance with DSEWPAC Condition 7a for EPBC Approval 2010/5344.
This survey has been completed by a qualified ecologist. Survey approval applies to the location & environmental constraints outlined in this report. At the time of submission, the ecologist deems the report to be satisfactory.
Features of ecological and environmental significance were identified and mapped where present in accordance with QGC's Environmental Field Constraints Assessment Guidelines.

Lincoln Smith Gerry Callahan (edits)	25/11/2024 3/02/2025
Completed By	**Date**

[1]*Detail the rapid Fauna assessment: I.e., methodology and/or if a detailed, in-depth fauna survey is required prior to construction works.*
[2]*Quantification Methodology: I.e., individual counting, radius method, defining density/m^2 and multiply by total area*

ENVIRONMENTAL FIELD APPROVAL LINEAR (EFAL) REPORT

PACR (Block – Infra. Surveyed): (Survey Title from invite)	Kenya East, 30DY81, Off-tenure Pipeline Ecology Resurvey
ATP / PL number:	PL278
Changes to Linear Infrastructure (not including small changes to access and gathering due to small moves on static infrastructure) - If changes to conceptual layout were made due to environmental constraints, summarise below:	
Changes to Infrastructure & Outcome: (E.g., "Access was realigned from survey point xx to survey point xx to avoid an unmapped Cat B ESA")	No realignments were necessary due to environmental constraints.

Subject	Detailed Description
General Description of Current Land Use: (Remnant vegetation, regrowth, cultivation, pasture or other)	The property predominantly comprised remnant woodland vegetation dissected by access tracks and encompassing CSG infrastructure.

Confirm REs present:
• What is the vegetation currently mapped as (RE and Biodiversity status) and what should it be mapped as?
• Survey new/correct extents of REs.
  ○ Fully survey polygons, if practicable;
  ○ Buffer partially-surveyed edges; and
• Provide reference survey points and site photos.
	State mapping showed linear infrastructure lies within remnant RE 11.5.1 / 11.5.20 in 70:30 ratio (Least Concern [VM Act]; No Concern at Present [BDS]).
	
	The vegetation within the linear infrastructure was ground truthed and demarcated into separate polygons of remnant RE 11.5.1 and RE 11.5.20. Ecotonal areas of the two RE types were also observed.

Significant Vegetation (including ESAs): • Ground truth any mapped ESAs within buffer distance of infrastructure; • Survey any unmapped ESAs and buffers; and • Provide reference survey points and site photos. Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	The site lies within the Primary Protection Zone (PPZ) of a mapped Category C ESA associated with Essential Habitat mapping for Golden-tailed Gecko (*Strophurus taenicauda)*. Whilst the golden-tailed gecko is likely to occur in the study area, habitat for Near Threatened species does not constitute an ESA under the EA for the subject tenement No significant vegetation was recorded within survey area.
Threatened Ecological Communities present/impacted: Survey polygons for inclusion on survey sketch. If impacted by or adjoining infrastructure complete Quantification Report.	No TECs mapped or recorded on or near site.
EVNT Flora present/impacted: (If impacted by or adjoining infrastructure complete *Quantification Report.)*	No EVNT flora recorded on site.
Flora Survey Trigger Areas: Does the infrastructure impact the latest DoR mapping? If yes, Flora Trigger Survey to be recommended	Site is not in a High-Risk area according to latest Flora Trigger mapping.
EVNT Fauna: Complete *Likelihood of Occurrence Matrix* (LoOM) to determine the following:	A Likelihood of Occurrence Matrix (LoOM) assessment, considering 34 threatened species with potential to occur in Arrow's upstream tenements, was conducted for the surveyed infrastructure on the property. The completed LoOM is appended to this report.

• Is the area 'Likely,' or 'Known' Habitat for any EVNT species (EPBC or NCA)? • If 'Yes', does the area contain microhabitat features as per the SSMP, which would indicate likely habitat for the species OR was the species detected? • Survey microhabitat features or fauna encounters for inclusion on survey sketch.	The LoOM assessment indicated that *Phascolarctos cinereus* (koala) ('endangered' under the EPBC and NCA), *Hirundapus caudacutus* (white-throated needletail) ('vulnerable' under the EPBC and NCA) and *Strophurus taenicauda* (golden-tailed gecko) ('near threatened' under the NCA), were likely to occur in the survey area. Under the LoOM assessment process, additional fauna survey work would be required to determine if the 'likelihood of occurrence' for koala and golden-tailed gecko is increased to 'known'. It was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context. The clearing of woodland at the site may require offsetting for koala habitat. Any koalas detected before or during clearing should be managed as per the requirements in the Arrow Energy Species Management Program (SMP). A licensed fauna spotter should search all suitable habitat features on the site, prior to and during clearing, to salvage any golden-tailed geckos, along with other displaced fauna.
Watercourses / Wetlands: • Ground truth mapped watercourses and wetlands crossed by infra. or within buffer distance (complete *Water Features Checklist / Wetland Features Report*) • Survey unmapped watercourses / wetlands Refer to *EA Conditions Matrix* for buffer distances and permitted activities.	A Stream Order 1 (SO1) watercourse was mapped within 100m of a portion of proposed linear infrastructure. The mapped and immediate adjoining areas were surveyed, and no watercourses or drainage features were detected. There were no wetlands mapped or detected within 200m of linear infrastructure.
Current road access to proposed site: Existing / to be upgraded / new	Access is via Montrose Road (unsealed).
Dominant vegetation species to be disturbed: Trees, Shrubs, Groundcover	**Trees** *Allocasuarina luehmannii* (bull oak) *Angophora leiocarpa* (smooth-barked apple) *Callitris glaucophylla* (white cypress pine) *Eucalyptus crebra* (narrow-leaved ironbark) *Eucalyptus woollsiana* (grey box) *Melaleuca decora* (white feather honey myrtle) **Shrubs** *Acacia ixiophylla* (sticky wattle) *A. deanii (*Deane's wattle) *A. leiocalyx* (early flowering black wattle) *A. spectabilis* (glory wattle) *Petalostigma pubescens* (quinine bush) **Forbs** *Brunoniella australis* (blue trumpet) *Cheilanthes sieberi* (rock fern) *Chrysocephalum apiculatum* (yellow buttons) *Evolvulus alsinoides* (bindweed) *Goodenia glabra* (smooth goodenia) *Murdannea graminea* (grass lily) **Grasses and Associates** *Aristida caput-medusae* (many-headed wiregrass) *A. leichhardtiana* (a wiregrass) *A. ramosa* (cane speargrass) *A. vagans* (wire grass) *Chrysopogon fallax* (golden-beard grass *Cymbopogon refractus* (barb-wire grass) *Dianella sp.* (a flax lily) *Entolasia stricta* (wiry panic) *Eragrostis lacunaria* (purple lovegrass) *E. elongata* (clustered lovegrass) *E. sororia* (woodland lovegrass) *Fimbristylis dichotoma* (common fringe-rush) *Gahnia aspera* (rough saw-sedge) *Laxmannia gracilis* (wire lily) *Lomandra filiformis* (wattle matrush) *Melinis repens** (red natal) *Murdannea graminea* (grass lily) *Panicum decompositum* (native millet) *Panicum effusum* (hairy panic) *Paspalidium caespitosum* (brigalow grass)

Vegetation disturbance size: *(Area – m^2)*	Disturbance would be as per the final sketch. Approximately 3.6 hectares (720m x 50m) surveyed.
Vegetation density to be disturbed: (%) 0-25, 25-50, 50-75, 75-100	Trees and shrubs; 0-25 Ground cover species; 25-50.
Soil type & erodibility (Sodic: Y/N):	Sandy clay loam; moderate erodibility.
Potential Sediment and Erosion Zones: Provide references to survey points and site photos	No significant erosion zones noted; relatively flat site.
Site slope (approx.) 10% slope maximum limit for vegetation clearing. Survey any areas where clearing would occur on slopes >10% for inclusion in the survey sketch	Relatively flat ~ 1%.
Weed Details and Risk Rating*: • Record general composition density & species. • Survey any Restricted Invasive Weeds * Weed risk rating refers to the level of risk involved with transporting weeds from the property: 1. High risk – restricted invasive weeds confirmed on the construction site 2. Medium risk – restricted invasive weeds on the site, however not on the actual construction site 3. Low risk – other invasive weeds are found throughout the site, however no restricted weeds are present 4. Negligible risk – no invasive weeds are present on the site	High risk (1). Biosecurity Act restricted invasive weeds recorded: 1. Velvety tree pear (*Opuntia tomentosa*) as rarely occurring. 2. Mother-of-millions (*Bryophyllum delagoense*) infestations occasionally occurring.
Notes:	There were potential habitat features recorded including, scattered trees bearing hollows, trees with decorticating bark, hollow logs, and course woody debris. Where practicable, these features should be avoided. Any that can't be avoided should be inspected by a licenced fauna spotter before and during clearing.

LOCATION OF VEGETATION OR AREAS NOT TO BE DISTURBED (This can represent a grouping of vegetation)				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

LOCATION OF POTENTIAL SEDIMENT AND EROSION ZONES				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Nil				

DETAILS OF WATERCOURSES AND WETLANDS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken

No watercourses or drainage features detected near mapped SO1.

OTHER CONSIDERATIONS				
Site Description	Photo #	GPS / Location	Environmental Value	Action Taken
Potential fauna habitat throughout survey area and restricted invasive weeds present at low densities (see below photos for examples).				

Photography - Linear Infrastructure

Please ensure photo(s) are captioned including location and GPS Coordinates, description and any additional comments

Photo 1: Remnant RE 11.5.1. (Polygon #19)

Photo 2: Typical remnant RE 11.5.20 dominated by grey box (Polygon #6)

Photo 3: Large woodpile providing potential fauna habitat (GPS #2018).

Photos 4 and 5: Tree with stick nest (GPS #2013) and dead tree bearing hollows (GPS #2009).

Photo 6: Large hollow log (GPS #2002) and moderate density of ground layer cover with leaf litter.

Photo 7: Trees with decorticating and stripping bark, providing potential Golden-tailed Gecko habitat, were common.

Photo 8: Mother-of-millions infestation occasionally occurring.

SSMP- Likelihood of Occurrence Matrix - Kenya East 30DY81

LoOM Steps: (1) View **Distribution Map** (column 'A') in relation to your site; (2) **Broad Area of Occurence**: Select a choice from drop-down list in column 'C'; (3) If subject site is within **Broad Area of Occurrence**, select a choice from the drop-down lists in **every** column, as required, from 'D' to 'J'; (4) **ESPT Reference points:** in column 'K', provide the ESPT survey points for the subject area/areas of habitat on the property for that particular species; (5) **Likelihood-of-Occurrence**(LoO) is displayed in column 'L'; (6) **Is Further Action Required?**: For a LoO of 'Likely', or 'Known', a 'Yes' will appear in column 'N'. The LoO for the species should be stated on the front page of the PEC summary and that the LoOM recommends further action is required ; (7) The decision on what further action is taken for that particular Lot/Plan will be made by the **Biodiversity Advisor**, in consultation with the **Asset Team.** (8) **Survey Type**: If the decision is to proceed with a fauna survey, links to the relevant survey type are provided for each species in cloumns 'O' and 'P'.

Distribution Map and Records	Common Name	Broad Area of Occurrence	Broad Vegetation Types	Habitat Attribute 1	Habitat Attribute 2	Habitat Attribute 3	Mapped and Validated Essential Habitat	Historical Confirmed Species Record within 1km	Recent Confirmed Species Record within 1km (within last 20yr)	ESPT Reference Points	Comments	Occurrence Likelihood	Is further action required?
View Map	Australian painted snipe	In Queensland, it occurs in suitable habitat from about Cairns in the north to the NSW border, west to Mount Isa and east to the coast	Not in listed vegetation types									Unlikely	No
View Map	Black-breasted button-quail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Boggomoss snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Brigalow woodland snail	The range runs from Condamine River floodplain and associated tributaries, within the project area. From Pittsworth in the east to just east of Surat in the west and north to the Barakula State Forest.	Poplar box/gum, cypress pine and bull-oak country in REs 11.3.2, 11.3.4, 11.3.14, 11.3.17, 11.3.18, 11.5.1, 11.5.4 and 11.5.20.	Tree canopy and on-ground timber cover and leaf litter for survival and egg-laying	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Brown treecreeper (south-eastern	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland	Ironbark / smooth-barked apple / box woodland in REs 11.5.1, 11.5.4, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No Habitat Attribute Present	No Habitat Attribute Present						Unlikely	No
View Map	Collared delma	Delma torquata is likely to occur in south-east Queensland as far north as the Blackdown Tableland and inland as far as St. George. Additionally, D. torquata may occur further north to Middle Mount and into NSW to South of Tenterfield.	Not in listed vegetation types									Unlikely	No
View Map	Common death adder	Occurs from the Gulf region of the Northern Territory across to central and eastern Queensland and New South Wales then through southern parts of South Australia and Western Australia.	Not in listed vegetation types									Unlikely	No
View Map	Diamond firetail	The species currently occurs from south-eastern and south-central Qld, from around Maryborough and Calliope regions, south through eastern and central NSW, and further south.	Not in listed vegetation types									Unlikely	No
View Map	Dulacca woodland snail	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Dunmall's snake	Dunmall's snake has a patchy distribution. Its range extends from Yeppoon in the north and the Expedition Range in the west, to the NSW border in the south.	Not in listed vegetation types									Unlikely	No
View Map	Fork-tailed swift	The species probably occurs as a transitory non-breeding visitor (mostly October to March) to the Darling Downs and Australia more widely, occasionally extending west of Dalby.	Transitory in airspace (1m to >1000m above ground) over remnant native vegetation, including open woodlands, forests, riparian woodlands, shrublands, grasslands and wetlands; potentially over any RE's across Gas Field.	Airspace (from 1m to >1000m above ground level) over remnant or regrowth vegetation.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Glossy black-cockatoo	In Queensland, from about Ingham in the north to the NSW border in the south; inland in Qld west to about Mitchell	Dry ironbark and cypress pine, Bull-oak scrub or gum/box country.	Nesting habitat, specifically trees with large nesting hollows with entrances >/= 150mm.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Golden-tailed gecko	From around Emerald in central Qld, south to about St. George and to just west of the Canarvon Ranges	Dry ironbark and cypress pine scrub or gum/box country.	Intact open Acacia scrub, Eucalypt and Callitris communities.	Standing trees with loose, flaky bark, cracking soils, dense woody debris and leaf litter/fallen dead timber.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No				Likely	Yes
View Map	Greater glider	Greater gliders occur in tropical, subtropical, and temperate regions of Queensland, New South Wales, and Victoria. In Queensland their predicted distribution extends from the coast to Carnarvon National Park in the west and potentially as far north as Townsville.	Eucalypt woodland on alluvial or sand plains in REs 11.3.2, 11.3.3, 11.3.4, 11.3.25, 11.3.26, 11.3.39, 11.5.1, 11.5.1a, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.20 and 11.5.21.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey falcon	The grey falcon is endemic to mainland Australia where it is a rare species. The species mainly occurs in the arid and semi-arid zone (mainly where annual rainfall is <500 mm) west and north of the Great Dividing Range from Queensland to Victoria.	Eucalypt woodlands	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Grey snake	In Qld, from about Wandoan in the north, to about Goondiwindi in the south and west to Roma	Not in listed vegetation types									Unlikely	No
View Map	Hooded robin (south-eastern)	The Hooded Robin (south-eastern) occurs in south-eastern Australia from far southern Queensland to Yorke Peninsula,	Occur in lightly timbered woodlands and shrublands dominated by eucalypts and/or wattles.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Koala	In Queensland, from Cairns in the north to the NSW order in the south; west to about Quilpie	Eucalypt/box woodlands and semi-arid areas with gum/box.	Secondary feed trees, being, E. cabageana, E. conica, E. coolabah ssp. coolabah, E. crebra, E. drepanophylla, E. exserta, E. intertexta, E. largiflorens, E. melanophloia, E. melliodora, E. macrocarpa, E. moluccana, E. orgadophila, E. pilligaensis, E. populnea, E. sideroxylon represent the dominant canopy species within the vegetation community.	Primary and/or secondary feed trees <1km from ephemeral to permanent surface water. In drought years, survival of a population may be dependent on the presence of vegetation near permanent waterways.	No 3rd Attribute Present	Not Mapped as Essential Habitat (No)	No		Polygons #6, #10, #18, #19	Canopy dominated by Eucalyptus crebra (secondary feed tree); located within large tract of intact vegetation; permanent water source within 1km.	Likely	Yes
View Map	Large-eared pied bat	In Qld, from Shoalwater Bay in the north to Stanthorpe in the south and west to Carnarvon NP	Not in listed vegetation types									Unlikely	No
View Map	Major Mitchell cockatoo	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Northern quoll	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Ornamental Snake	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Painted honeyeater	The painted honeyeater is endemic to mainland Australia and is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory.	Bull-oak Woodland on in REs 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.16, 11.5.20 and 11.5.21, containing mistletoes of the genus Amyema.	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Pale imperial hairstreak butterfly (PIHB)	In Queensland, as far north and west as Tambo, south to about Gore and east to near Toowoomba	Not in listed vegetation types									Unlikely	No
View Map	Red goshawk	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Regent honeyeater	Not in the Broad Area of Occurrence										Unlikely	No
View Map	South-eastern long-eared bat (SELEB)	In Queensland, found from Gladstone in the north to the NSW border in the south and from about Augathella in the west to about Kingaroy in the east. Most of its range is in the Murray Darling Basin.	Dry ironbark and cypress pine, bull-oak or gum/box country in REs 11.4.7, 11.5.1, 11.5.4, 11.5.5, 11.5.20, 11.5.21, 11.9.9 and 11.9.10	Poplar box, ironbark, cypress pine, buloke woodlands.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Southern whiteface	Southern Whiteface occurs across most of mainland Australia south of the tropics, from the north-eastern edge of the Western Australian wheatbelt, east to the Great Dividing Range.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Squatter pigeon	Distribution extends south from the Burdekin-Lynd divide in the southern region of Cape York Peninsula to the Border Rivers region of northern NSW, and from the east coast to Hughenden, Longreach and Charleville, Queensland.	Not in listed vegetation types									Unlikely	No
View Map	Swift parrot	Not in the Broad Area of Occurrence										Unlikely	No
View Map	White-throated needletail	Distribution includes all coastal regions in QLD and NSW, through to the Great Dividing Ranges and occasionally on to the plains inland of the range. Hirundapus caudacutus are also found through most of Victoria and Tasmania and south-eastern SA	Above forest on sand plains in Land Zone 5	High, open spaces above open wooded areas	Large tracts of native vegetation	Large tracts of native vegetation	Not Mapped as Essential Habitat (No)	No		Entire survey area within this property.	As this is a fly over species, it was assessed that the proposed disturbance would have negligible impact on the white-throated needletail in the local context.	Likely	Yes
View Map	Woma	Not in the Broad Area of Occurrence										Unlikely	No
View Map	Yakka skink	In Queensland, from about Proserpine in the north to St George in the south, and west to about Charleville. Also in the Atherton Tablelands and on northern Cape York around Coen	Dry ironbark and cypress pine scrub or gum/box country.	Log piles, scattered large hollow logs associated with fallen trees, dense woody debris, stick-raked windrows and abandoned animal burrows.	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No
View Map	Yellow-bellied glider (south-eastern)	In Qld, Yellow-bellied Gliders (south-eastern) occur mainly in coastal and near-coastal forests from around Mackay, coastal-central Qld south to the ranges on the NSW-Qld border. There are isolated sub-populations in inland parts of the state, including Blackdown and Carnarvon Ranges of central Qld and on the Darling Downs and western slopes of the Great Divide.	Not listed in vegetation types	No Habitat Attribute Present	No 2nd Attribute Present	No 3rd Attribute Present						Unlikely	No