

Attachment to Amendment Application to amend a PRCP Schedule and Environmental Authority

EMPL00439113

PRCP_EPML00439113_V1

Fura Gems Australia Pty Ltd

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1. Introduction

The document provides additional information to support the application to amend a joint PRCP schedule and Environmental Authority (EA).

2. Environmental authority holder

Fura Gems Australia Pty Ltd (Fura Gems) is the holder of Environmental Authority EMPL00439113 and an approved Progressive Rehabilitation and Closure Plan (PRCP)(PRCP_EPML00439113_V1).

3. Proposed EA amendment

This amendment seeks approval to:

- consolidate the existing activities of “**Mining Gemstones (Excavations/Voids, Topsoil Dumps and Spoil Dumps)**” and “**Tailings Ponds**” into a single activity described as “**Mining**”; and
- amend the authorised maximum extent of disturbance not rehabilitated (ripped and seeded maintenance required) at any one time for selected activities identified in Table F1. The proposed amendment increases the maximum area of disturbance requiring rehabilitation for roads and tracks from 0.3 ha to 4 ha and increases the maximum mining disturbance to 100 ha. The current approved combined mine disturbance footprint is 43.7 ha, comprising 28.1 ha associated with mining and 15.6 ha associated with **tailings ponds**.

4. Justification for EA amendment

Consolidate Activities

Tailings generated by the mining and washing process consist of dry and wet tailings. Although tailings storage facilities are commonly associated with a higher risk to environmental values, the approved (PRCP) for the Subera operation demonstrates that both dry and wet tailings generated at the site are not chemically reactive and do not present a contamination risk. Dry tailings are structurally stable upon discharge, while the wet tailings consisting primarily of fine particles require a consolidation period prior to final rehabilitation.

Wet tailings and recycled water ponds require extended consolidation periods, potentially up to five years, before topsoiling and seeding can be undertaken. This consolidation period represents a delay in rehabilitation rather than an increase in long-term environmental risk.

Mining disturbance at the site is managed as an integrated operation. Selected areas progress from extraction to temporary plant area establishment, followed by progressive rehabilitation. Plant areas typically comprise a hardstand, dry tailings storage, wet tailings pond(s), and recycled water pond(s). While wet tailings ponds require consolidation prior to rehabilitation, the remaining plant area is progressively rehabilitated during operations or immediately following plant relocation.

Historical performance demonstrates that all plant areas, including wet tailings and recycled water ponds, have been successfully rehabilitated within the timeframes specified in the

PRCP. Certified rehabilitation has been achieved for plant areas, including Louis Lane. Wet tailings and water ponds represent 15–25% of the total plant area footprint.

Where practicable, the volume of wet tailings is managed through backfilling of mined voids filled with plant oversize within proximity of the plant area. This approach reduces the volume of surface-stored wet tailings and facilitates more timely achievement of rehabilitation outcomes but expands the number of pits containing tails.

The proposed consolidation of mining and tailings disturbances into a single activity category accurately reflects the integrated nature of mining, processing, tailings management, and rehabilitation at the site. The amendment does not introduce new disturbance types or activities but clarifies activity classification, removes regulatory ambiguity, and supports effective assessment and management of environmental impacts consistent with the objectives of the *Environmental Protection Act 1994*.

Amend Disturbance

In the past twelve months, management have strived to reduce the overrun in mining disturbance from 20 ha achieving reduction to 6 ha (January 2026). Production wise, the emphasis on achieving a reduction in exceedance of disturbance has seen the site going from hitting its production targets in January 2025 to a 25% reduction in production in H2 2025. The key factor has been the inefficiency of rehabilitating reduced areas. Management expects that the increase in the authorised mining disturbance will allow the mine to achieve targets whilst maintaining a balance between disturbance and rehabilitation.

The amendment will increase the maximum extent of disturbance present at any one time and may increase dust and greenhouse emissions consistent with a modest (approximately 10%) uplift in activity. Tailings and rehabilitation are managed as an integrated system, and consolidating the disturbance categories improves regulatory clarity and aligns activity classification with the operational sequence and rehabilitation approach described in the PRCP.

Roads and tracks disturbance is minor in comparison with mining disturbance but integral to efficient operations. Maintaining the disturbance of roads and tracks to be rehabilitated to 0.3 ha has been challenging. This application is an opportunity to increase the area of roads and tracks.

Figure 5 shows the road network broken down into landholder retained tracks, tracks to be rehabilitated by Fura Gems under this EA and the registered access to the adjacent Nardoo MLs. The landholder retained roads include the registered access to Subera leases. 0.3 ha is only 1 km of tracks 3 m wide. 1 km of track limits the current and planned operation. An increase to 4 ha will allow 5 kms of tracks 3 m wide and 4 kms of roads 6 m wide as the maximum disturbance. This maximum disturbance will allow planned mining activities to operate efficiently.

5. Proposed Schedule Amendment

This amendment seeks to revise Table 4.2 Rehabilitation Area 2 only. No other change is proposed to the Schedule with all other sections and tables remaining unchanged. The proposed changes are:

- Change the cumulative area achieving milestones by date due to the increase in mining disturbance to 22 ha/yr for the life of mine.
- Amend the cumulative area achieving RM7 in 2026 from 52 ha to 40ha.

6. Justification for Schedule Amendment

The EA amendment seeks to increase the mining area disturbed at any one time to a maximum of 100 ha. The expected annual disturbance rate is 22 ha/yr and a corresponding rehabilitation rate of the same area i.e. 22 ha/yr. The schedule has been adjusted based on the assumed disturbance and rehabilitation rates for the life of mine.

The current approved schedule predicted that the area of certified rehabilitation approved in 2026 would be 52 ha. This area was the total of all rehabilitation on Subera over 10-year-old in 2026. Since 2023 and approval of the schedule, the area of Vella Pit has been encroached by Small Hill and Nardoo Pit has been totally disturbed by Maybe Something. The 2025 monitoring revealed that the low lying area of Area 3 North Pit (9 ha) remained water logged for some time preventing perennial vegetation and promoting parthenium. Fura Gems was advised that the pond level needed to be reduced by removing the downstream blockage to reduce the level and duration of ponding to levels consistent with the duration of ponding in adjacent low lying areas. The earthworks to achieve this has been completed and the area ripped and seeded (RM4). It is expected that the area will achieve RM7 in 2026 but not in time for inclusion in the planned 2026 application for certified rehabilitation. These three adjustments have reduced the area to be submitted for certification to 40 ha.

7. PRCP

The PRCP has been reviewed ensuring compliance with the EA. Monitoring and knowledge gained since 2023 has been included in the draft PRCP submitted. Commitments in the rehabilitation planning section in the PRCP have not been changed.

8. Assessment level decision

The application will trigger a major amendment of the EA.

9. Requirements under the EP Act

Section 226 and 226A of the EP Act outline the information required to assess an EA amendment application. These requirements and where they are addressed in this document are given in Table 1.

Table 1: EP Act requirements

Component	Relevant section(s)
226 (1) An amendment application must:	
(a) be made to the administering authority;	
(b) be in the approved form;	
(c) be accompanied by the fee prescribed by regulation;	
(d) describe the proposed amendment;	Section 3 and 5
(e) describe the land that will be affected by the proposed amendment; and	Section 10
(f) include any other document relating to the application prescribed by regulation.	PRCP and Schedule
226A (1) If the amendment application is for the amendment of an environmental authority, the application must also:	
(a) describe any development permits in effect under the Planning Act for carrying out the relevant activity for the authority;	Not applicable
(b) state whether each relevant activity will, if the amendment is made, comply with the eligibility criteria for the activity;	Not applicable
(c) if the application states that each relevant activity will, if the amendment is made, comply with the eligibility criteria for the activity—include a declaration that the statement is correct;	Not applicable
(d) state whether the application seeks to change a condition identified in the authority as a standard condition;	Not applicable
(e) if the application relates to a new relevant resource tenure for the authority that is an exploration permit or GHG permit—state whether the applicant seeks an amended environmental authority that is subject to the standard conditions for the relevant activity or authority, to the extent it relates to the permit;	Not applicable
(f) include an assessment of the likely impact of the proposed amendment on the environmental values, including— (i) a description of the environmental values likely to be affected by the proposed amendment; (ii) details of emissions or releases likely to be generated by the proposed amendment; (iii) a description of the risk and likely magnitude of impacts on the environmental values; (iv) details of the management practices proposed to be implemented to prevent or minimise adverse impacts; and (v) if a PRCP schedule does not apply for each relevant activity—details of how the land the subject of the application will be rehabilitated after each relevant activity ends.	Section 13 Section 13 Section 15 Section 13
(g) include a description of the proposed measures for minimising and managing waste generated by amendments to the relevant activity; and	Section 13

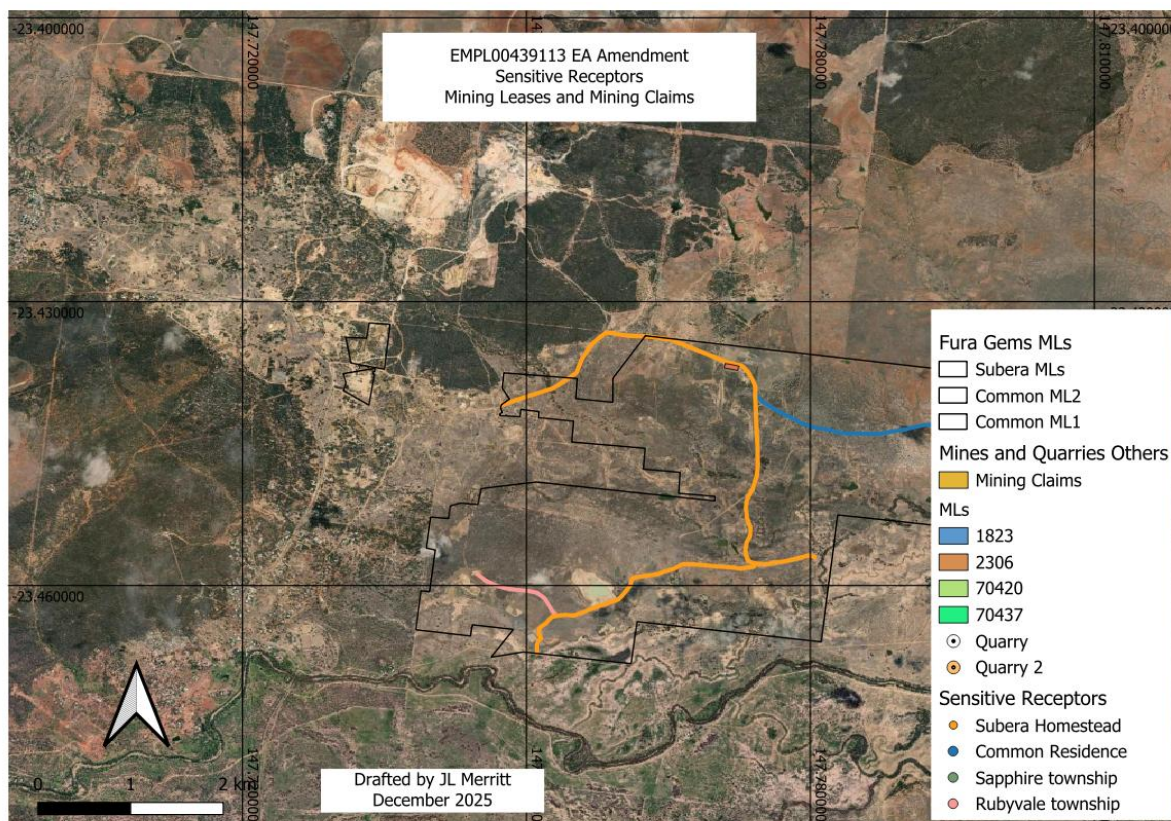


Figure 2: Sensitive Receptors, Mining Tenure

10.2. Mining

MLs were granted to the original holder in 1999. These leases covered most of the area currently held. The initial PRCP and schedule was granted in 2023.

The company plans to mine until resources identified during the ongoing mining operations are exhausted. A time frame for mining of 30 years is realistic with 10 years to surrender the EA and leases. Individual leases may be relinquished as the resource is exhausted.

10.3. Land available for mining

The *available land* (Figure 3) is defined in the PRCP and is land that is not covered by Matters of State Environmental Significance (MSES) dated 2022, patches of woody vegetation or tree lined drainage lines. All the *available land* not previously mined on Subera is considered to contain probable resources. The total lease area within Subera is 1,516 ha of which 1,268 ha is available for mining.

The area disturbed by mining to January 2026 is 302 ha. Estimated disturbance rate is approximately 22 ha/yr or 770 ha in next 30 years. Although gemstone size and quality vary across Subera, exploration drilling indicates that most areas contain mineable resources, and consequently much of the *available land* is likely to be mined over the life of the project.

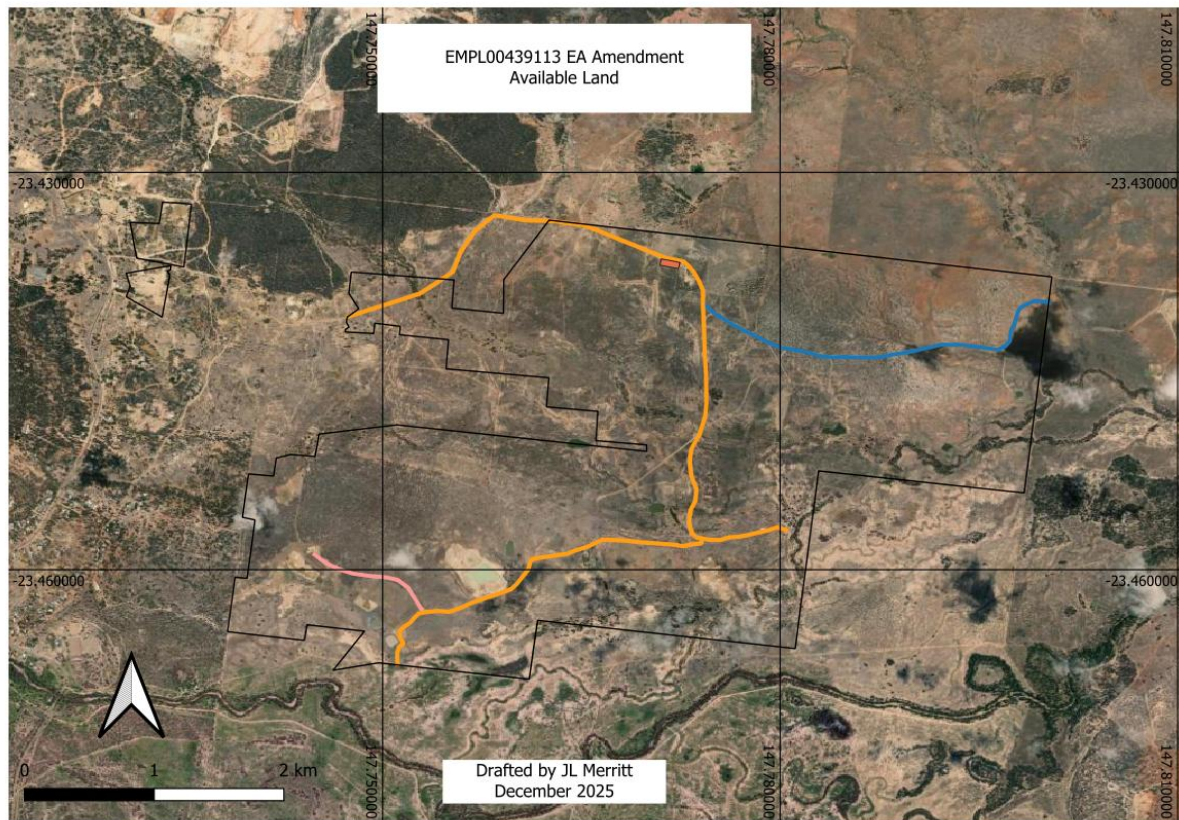


Figure 3: Available Land

Mining tenements and tenure

The Subera mining leases except for ML 70285 and ML 70286 occur on the property “Subera” owned by S & A Benny. “Subera” is Lot 6 PT203 held under freehold title. ML70285 and ML 70286 are located within the “Scrub Lead” designated fossicking land on the town common and are owned by the State.

Relevant mining tenements owned by Fura Gems list in the EA are listed in Table 2. The extents of the MLs are shown in Figure 2.

Table 2: Mining tenements

Mining lease (ML)	ML name	Location	Area (ha)
ML400036	Subera Consolidated 1	Subera	81
ML400037	Subera Consolidated 2	Subera	100
ML400038	Subera Consolidated 3	Subera	100
ML400039	Subera Consolidated 4	Subera	91.6
ML400040	Subera Consolidated 5	Subera	83.2
ML400041	Subera Consolidated 6	Subera	96
ML400042	Subera Consolidated 7	Subera	90.1
ML400043	Subera Consolidated 8	Subera	100
ML400044	Subera Consolidated 9	Subera	100
ML400045	Subera Consolidated 10	Subera	100
ML400046	Subera Consolidated 11	Subera	98.8
ML70304	MOSLEY 1	Subera	20
ML70305	TRY-ANGLE	Subera	31.9
ML70357	“SUBERA” PLUS TWENTY	Subera	19.9
ML6830	“SUBERA” PLUS TWENTY ONE	Subera	19.5
ML70229	“SUBERA” PLUS THIRTEEN	Subera	19.6
ML70230	“SUBERA” PLUS SIXTEEN	Subera	24.2
ML70199	“SUBERA” NINETY EIGHT	Subera	85
ML70200	“SUBERA” ONE O FOUR	Subera	20
ML7168	“SUBERA” ONE O FIVE	Subera	20
ML7174	“SUBERA” ONE O SIX	Subera	20
ML7175	“SUBERA” ONE ONE O	Subera	20
ML7176	“SUBERA” ONE ONE ONE	Subera	19.8
ML7180	“SUBERA” ONE ONE TWO	Subera	13.2
ML7181	“SUBERA” PLUS FOURTEEN	Subera	14.4
ML7182	“SUBERA” ONE ONE TWO	Subera	14.4
ML70195	“SUBERA” PLUS FOURTEEN	Subera	20
ML70285	NINE TO FIVE	Scrub Lead	17.2
ML70286	REDBACK	Scrub Lead	9.7

10.4. Project overview

Figure 4 shows disturbance and rehabilitation. Mining has been conducted on the leases since 1999. Historical mining occurred prior to this.

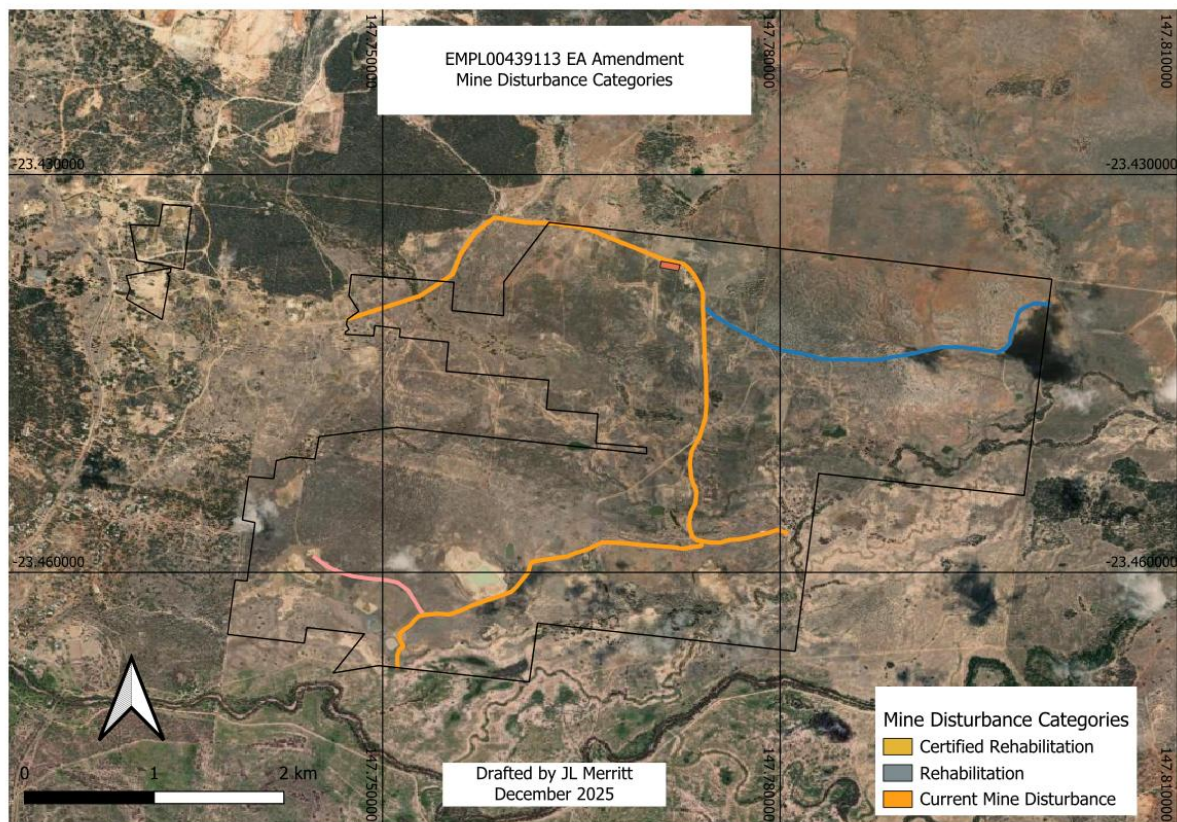


Figure 4: Disturbance Categories

10.5. Environmentally Relevant Activities

The only Environmentally Relevant Activities (ERA) conducted on site is **Schedule 3 20: Clay pit mining, dimension stone mining or mining gemstones (including the material from which gemstones are extracted) (c) more than 1,000,000t in a year.**

10.6. Primary mine features and infrastructure

An industrial zone is situated on Subera (Figure 5). This area comprises office facilities, septic sanitation, gem sorting operations, workshops, a laydown yard, and a mini plant dedicated to washing samples from exploration holes. Activities on the lease include the operation and maintenance of both fixed and mobile equipment, storage of fuel and lubricants, spare parts inventory, and two wash plants. Drinking water is supplied via rainwater tanks or bottled sources.

Adjacent to the industrial site are the elevated rehabilitation areas of the Main Dam Site and Rejects Hill. These sites represent rehabilitated plant areas resulting from mining activities prior to 2003, where all wash was transported to this central location for processing. The elevated terrain is primarily composed of wash residue. Current mining practices employ a mobile wash plant, thereby reducing the haul distance between mining pits and the plant area. This logistical improvement allows tails and oversize materials to be returned directly to the mining pits, effectively addressing overburden deficits and managing both wet and dry tailings.

Mining-disturbed categories are mining pits, proposed plant areas, operational plant areas, and areas undergoing rehabilitation. Due to the brief duration of mining operations, the extent of disturbance changes frequently.

The lease area is also traversed by roads and access tracks supporting both mining and pastoral activities.

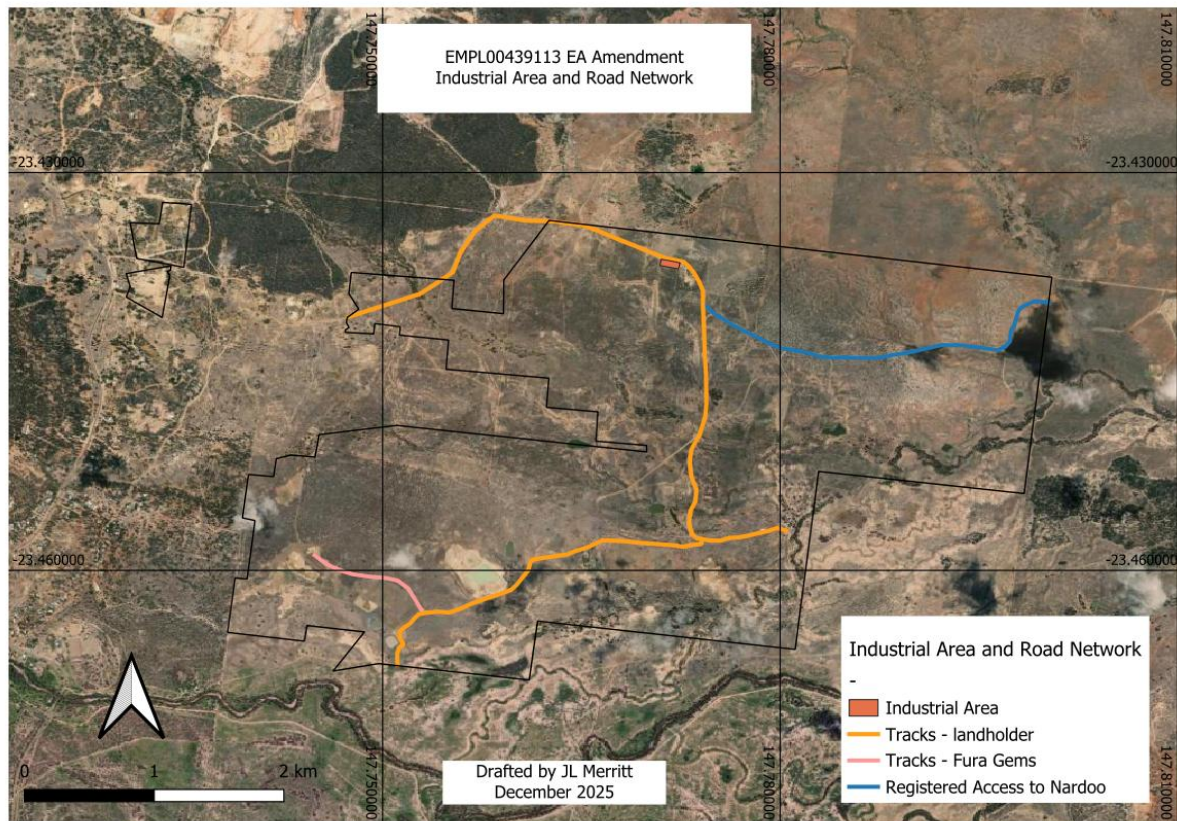


Figure 5: Industrial and Access

10.7. Rehabilitation

The area rehabilitated as at January 2026 is 240.5 ha or 80% of total disturbance (Figure 4 and Table 1). The area rehabilitated includes 66.1 ha of certified rehabilitation. The rehabilitated area includes 7 stock water storages.

Table 1: Disturbance Categories

Disturbance Categories	Area (ha)
Mining	32
Tails Ponds	19
Infrastructure - Others	8
Infrastructure rehab reqd	1
Roads/Tracks	0
Rehabilitated	174
Certified Rehabilitation	66
Certification Application	0
Total	302

Records of the area disturbed and rehabilitated on the Scrub Lead MLs 70285 and 70286 during the period of the tenure have been kept by Fura Gems.

11. Mining activity

Fura Gems since 2024 has operated a fleet of 3 475 Komatsu dozers; 3 excavators ranging from 60 to 87 tonne and 6 100 tonne trucks plus ancillary equipment. Management does not plan to increase the current fleet. The proponent operates 2 wash plants at different locations running 2 25 tonne loaders upgraded from 1 loader in 2021 when the second plant became operational.

There is no plan or need to increase the current mining fleet.

Diesel usage for 2025 averaged 86,028L/month which is an 10% increase from 2023 usage. All electricity is generated onsite from diesel. It is predicted fuel usage will increase by 10% with a successful EA amendment.

Workforce varies between 10 to 15 persons and will remain at this manning level with a successful EA amendment. Due to the location, skilled operators are in high demand with the coal mines able to pay higher hourly rates. Workforce churn is high making it difficult to maintain the desired manning.

12. Land use and PMLU

Mining activities are conducted within the established boundaries of the environmental authority, encompassing 1,515 ha of grazing land on “Subera” (totalling 3,048 ha) and 26 ha of designated fossicking land at Scrub Lead (totalling 1,541 ha). Portions of “Subera” and the Scrub Lead Fossicking Area have been subject to mining operations over many years, resulting in lapsed or abandoned leases and areas that remain unrehabilitated. Selective mining and rehabilitation of ML 70285 and ML 70286 have been undertaken, while remaining areas of the Scrub Lead mining leases exhibit historical tailings storage facilities and elevated overburden piles.

“Subera” operates as a grazing property, supporting beef production through breeding, growing, and fattening. The land has undergone extensive modification to enhance grazing, including repeated treatment of woody regrowth and the sowing of improved pasture.

The Scrub Lead Fossicking Area is part of the town common for Rubyvale and Sapphire. Local residents utilize this area for grazing cattle, horses, and camels. Mining tenement holders do not exercise control over grazing intensity.

Post-mining land use (PMLU) for leases on “Subera” is designated as grazing, whereas the PMLU for the Scrub Lead Leases continues as the Scrub Lead fossicking area.

13. Environmental values, Potential impacts and Mitigation measures

13.1. Introduction

Section 12 provides an overview of the environmental values present within the project area, outlines the potential impacts associated with mining activities, and details the mitigation measures proposed to manage and minimise these effects. This section serves as a foundation for understanding how the operation aligns with regulatory requirements and environmental stewardship, ensuring that land use and resource management are conducted responsibly.

13.2. Potential impacts

This proposed amendment will increase the area of land not rehabilitated at any one time. Current approved mining area is 43.7 ha with the proposed amendment increasing the land disturbed by mining to a maximum of 100 ha. The increase in disturbance has the potential to impact the environmental values of land including flora and fauna and surface water.

Mining activity is predicted to increase by 10% with approval of the EA amendment. This increase in mining activity may increase dust emissions and noise emissions from the operation. The increase in activity will increase the waste streams marginally and greenhouse gas emissions by 10%.

13.3. Water

13.3.1. Surface water

The major watercourses draining the project area are Policeman's and Retreat Creeks. Retreat Creek to the south of the project area is the only named Creek in the vicinity. As such, there are no flood plains on the lease area. The creeks are part of an easterly watershed system with their waters flowing into the Nogoia River approximately 15km northeast of Emerald. The creeks are ephemeral flowing following prolonged wet weather.

Flooding

Both Policeman's and Retreat Creek regularly flood out. There are several low-lying drainage lines between Policeman's Creek and Retreat which pond water for a period following rain. The flooding risk profile of the final landform will not change from the flooding or inundation risk of the pre-mining landform as the final landform is not changed from the pre-mine landform with the exception of the Main Dam Site and Rejects Hill. Low-lying areas of the Subera MLs will suffer the same incidence of inundation, and Policeman's Creek will extend beyond the low flow channel just as it has done for centuries. Flow upstream and downstream will not be altered. Examining the vegetation visually on the leases can offer comparable insights into previous flood levels, helping to indicate the future pasture or vegetation that may be expected in areas undergoing rehabilitation. Native vegetation regrows in low-lying areas fast enough to meet the RM7 schedule commitment.

Final Void

The company does not propose to leave a final void on Subera at closure. Overburden from the mining pits will be stockpiled in the final mining pits. This overburden, tails and oversize from the plant area will allow the landform to be returned to the pre-mine landform +/- 2 metres.

Surface Water Quality

Surface water quality sampled in streams and standing water including “Subera” dams are alkaline with Electrical Conductivity (EC) > 400 μ Siemens/cm (Table 2). Stock Water Storages (Table 3) recorded similar water quality. Storage water quality increases in EC when levels are low. Examples are the Dam near Tryangle West and Pig Pit Storage.

Table 2: Surface water quality

Site	Date	pH	Electrical Conductivity microSiemens/cm or μ Siemens/cm
Creek Nardoo	7/06/2023	7.73	280
Dam (near Eastern Ck)	15/07/2009	8.98	385
Dam (near Eastern Ck)	29/04/2020	7.99	213
Drainage line Nardoo	15/08/2022	7.40	214
Drainage line to NF2	15/08/2022	8.43	237
ML 70286 pond	8/06/2023	7.97	210
North Pit Area 2 drainage line	15/08/2022	8.89	312
Dam (near Tryangle West)	29/04/2020	8.33	602

Table 3: Stock water storages water quality

Site	Date	pH	Electrical Conductivity microSiemens/cm or µSiemens/cm
Laneway West Stock Water Storage	25/07/2024	8.84	230
Laneway West Stock Water Storage	15/08/2022	9.33	210
Laneway West Stock Water Storage	7/06/2023	9.06	211
Nardoo Stock Water Storage	28/04/2020	8.06	204
Nardoo Stock Water Storage	15/08/2022	8.75	220
Nardoo Stock Water Storage	25/07/2024	8.62	362
NF2 Nardoo North	15/08/2022	8.83	262
Northern Flats 4 Stock Water Storage	25/07/2024	8.05	422
Old Laneway 1 Stockwater Storage	15/04/2009	9.14	484
Old Laneway 1 Stockwater Storage	29/04/2020	8.00	190
Old Laneway 2 Stock Water Storage	29/04/2020	7.90	160
Old Laneway 2 Stock Water Storage	15/08/2022	8.57	175
Pig Pit Stock Water Storage	7/06/2023	8.49	196
Pig Pit Stock Water Storage	25/07/2024	8.49	227
Pig Stock Water Storage	6/11/2025	8.71	440
Pig Stock Water Storage	28/04/2020	8.02	210
Pig Stock Water Storage	15/08/2022	9.07	2,850 ¹
Pit 21 Stock Water Storage	15/08/2022	9.43	597
Pointsetta Stock Water Storage	28/04/2020	8.08	313
Pointsetta Stock Water Storage	15/08/2022	9.60	314
Pointsetta Stock Water Storage	7/06/2023	7.08	304
Pointsetta Stock Water Storage	6/11/2025	8.69	328
Retreat Stock Water Storage	28/04/2020	8.10	430
Retreat Stock Water Storage	7/06/2023	7.89	188
Retreat Stock Water Storage	6/11/2025	8.73	265

¹ Storage at low level

Potential impacts

This application does not change the flooding impact or propose a final void.

Surface water quality may be affected by sediment and dissolved salts in run-off, groundwater and process waters. Soils in the project area are naturally alkaline, so water collected in stock water dams ranges from pH 8.98 to 9.15.

No chemicals are used in the process plant at the mine site. Small quantities of hydrocarbon products (diesel, oils and grease) are stored in the workshop area for use in the mining and processing operations and are potential sources of water contamination.

Where practical, low lying areas are mined and rehabilitated over one dry season. Pits are bunded and diversions established to divert overland flow around mining operations. Topsoil stockpiles make excellent bunds. Low lying areas have slopes of <1% causing no erosion. These areas are vegetated with native grasses, nardoo and sedges which filter any sediment from the flows.

Mining to date has not impacted on the water courses on "Subera". The proposed increase in disturbance will not be significant.

Mitigation measures

No additional mitigation measures are proposed.

13.3.2. Groundwater

The maximum depth of economic mining is 12 m. This is not expected to change with the ever-increasing cost pressures on the operation. Mining to date is not impacted by groundwater make. Mining has occurred from north to south and west to east on the Subera mining leases. Future mining will be interspersed within the current disturbance with no anticipated change in groundwater make in mining pits which will all be backfilled to +/-2 m of the original ground level. Water collected in the pits can be attributed to rainfall.

The proponent has one registered bore RN89318 and a Water Licence 403159 with an annual allocation of 150ML. Water quality was tested in 2020, 2022 and 2025. pH ranged from 6.6 to 8.33 and EC from 374 to 393 µSiemens/cm. The two records of the water level data for the production bore (89318) as being in the range of ~2–14 metres below ground level.

The bore draws water from an aquifer approximately 35m below the surface. A bore pump is installed with a capacity of 40,000 litres per hour. The bore supplies water to the plant area and the main industrial area as required.

The bore's location is within the Highlands Groundwater Management Area as described in the Water Plan (Fitzroy Basin) 2011. At that location, taking of water for any purposes that are not exempt (e.g. stock and domestic) require an authorisation. The water plan has a moratorium on the taking of additional water.

JBT Consulting Pty Ltd "Fura Gems Groundwater Data Review" prepared a Conceptual Groundwater Model (Figure 6) for the Fura Gems leases including Subera.

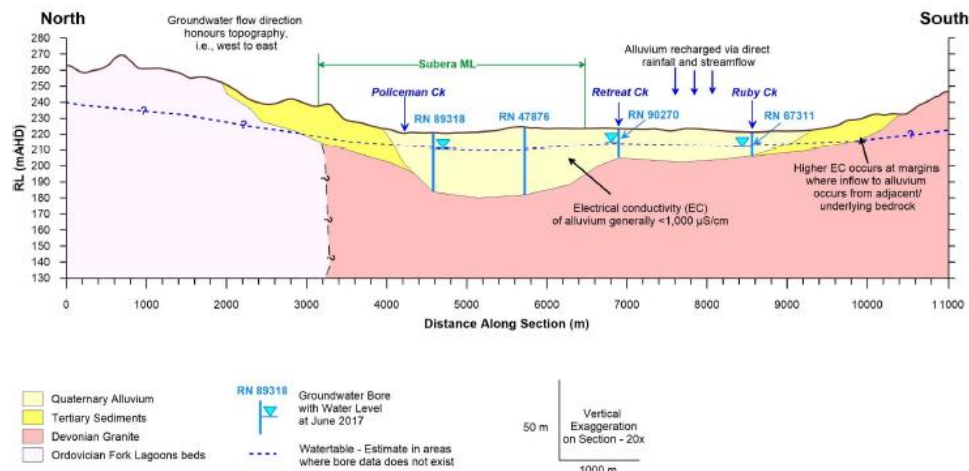


Figure 6: Conceptual Groundwater Model

Groundwater within the alluvium is of relatively low EC, generally $< 1,000 \mu\text{Siemens/cm}$. The bedrock aquifers (Fork Lagoons beds, Devonian granite) tend to record higher EC groundwater, generally $>5,000 \mu\text{Siemens/cm}$ and in some cases $>10,000 \mu\text{Siemens/cm}$. At the margins of the alluvium the EC of alluvial groundwater is closer to the EC of the bedrock aquifers indicating that inflow from the bedrock aquifers to the alluvium occurs at the marginal contacts. Recharge to the alluvium is via direct rainfall recharge, or via downward seepage from the various ephemeral creeks when they are in flow. The groundwater flow direction is generally from west to east and honours the regional topography.

Water quality in operating plant areas (Table 4) mimic the stated water quality in the Groundwater Data Review. Plants located on the northern lease boundary as predicted in the conceptual model have elevated levels of EC. As the plant water is recycled numerous times, the EC through evaporation climbs to 2,000 to 3,000 $\mu\text{Siemens/cm}$ in water away from the northern boundary.

Table 4: Plant water quality

Site	Date	pH	Electrical Conductivity microSiemens/cm or µSiemens/cm
Main Dam Site seepage	7/06/2023	8.30	3,565
Main Dam Site seepage	25/07/2024	8.71	2,725
Main Dam Site seepage	25/07/2024	8.67	4,700
Maybe Something Plant ²	6/11/2025	8.67	7,427
Nardoo Plant Pond ³	15/08/2022	9.28	7,920
New Laneway Return Water Pond	15/07/2009	8.69	2,180
New Laneway Return Water Pond	15/07/2009	9.27	2,550
Promised Land 2 Tails Pond Dry Tails	29/04/2020	8.01	2,670
Promised Land 2 Tails Return Water	29/04/2020	8.02	2,100
Tryangle East Plant	25/07/2024	8.44	453
Tryangle East Plant	6/11/2025	8.84	3,985
West Lagoon Dry Tails Pond	15/08/2022	8.45	2,647
West Lagoon Return Water Pond	15/08/2022	7.66	1,821
West Lagoon Return Water Pond	15/08/2022	8.87	1,537

Potential impacts

Mining is conducted in the oxidised zone in weathered alluviums. Salinity levels of this zone are consistent with surface water quality. This amendment proposes to increase the mining disturbance within the depths mined to date. To date no impacts have been observed on the groundwater from mining. There is no reason to expect any change in future with the proposed amendment.

Mitigation measures

No additional mitigation measures are proposed.

13.3.3. Wetlands

Qld Globe shows the nearest wetland of high significance as being 18km east of the mining operation.

Potential Impacts

The mining operation will not impact on this wetland.

Mitigation Measures

No additional mitigation measures are proposed.

² Plant located on northern lease boundary

³ Plant located on northern lease boundary of Nardo North ML east of Subera

13.4. Land

The area covered by the mining leases has been significantly altered since initial settlement. Mining areas encompass 1,515 hectares of grazing land on “Subera” (from a total of 3,048 ha) and 26 hectares of Scrub Lead designated fossicking land (from a total of 1,541 ha). Both “Subera” and the Scrub Lead Fossicking Area have experienced mining by various parties over the years, resulting in some land remaining unrehabilitated due to lapsed or abandoned leases.

“Subera” is beef cattle operation, supporting breeding, growing, and fattening operations. The property has been extensively modified for grazing through repeated control of woody regrowth and the introduction of improved pasture species. Ongoing clearing, poisoning, or chaining has led to sparse timber regrowth, with native vegetation largely restricted to drainage lines where cultivated pasture species cannot tolerate waterlogged conditions. Over 40 years of grazing has stressed the native grass species, resulting in dominance by Indian bluegrass and buffel except in periodically waterlogged locations, where native grasses and sedges prevail.

The Scrub Lead Fossicking Area forms part of the town common at Rubyvale and Sapphire, where local residents graze cattle, horses, and camels.

The Subera leases are classified as Land Capability Class V1 (*Reference - A Land Capability Classification for Agricultural Purposes by J Rosser et al., Division of Land Utilisation Technical Bulletin No. 14, May 1974*).

This land is not identified as an area of regional interests (ARI) under the Regional Planning Interests Act 2014 (RPI Act), according to the Queensland government's regional interests applications webpage.

The proponent has demonstrated that rehabilitated domains can sustain grazing as the post-mining land use. To date, two rehabilitation packages totalling 66.1 hectares have been certified, with the first completed in 2014.

Parthenium weed is widespread in the Gemfields and appears in varying densities across the leases, especially near creeks and drainage lines. Its prevalence can fluctuate significantly between seasons, often declining when pasture is well-established and not overgrazed.

The Regional Ecosystem mapping for the area delineates small patches of sub dominant Remnant Endangered Regional Ecosystems along Policeman Creek (see Figure 7.) Table 5 lists the Area percentage and Vegetation Management status of the 4 ecosystems. The remnant ecosystems are identified as occupying Land Zone 3 “Cainozoic alluvial plains with floodplain channels” and are mainly associations of brigalow, bulloak, poplar box and other shrub species associated with these tree species. The riparian vegetation is not fenced off and is subject to grazing. The EA requires a 20 metre buffer zone between mining disturbance and the remnant ecosystems, MSES and Essential Habitat.

Table 5: Remnant REs

RE	%	Description	VMA	BS	EPBC
11.3.2	45	Poplar Box (<i>E. populnea</i>) woodland on Alluvial Plains	Of concern	OC	-
11.3.25	35	Blue Gum (<i>E. tereticornis</i>) or Red River gum (<i>E. camaldulensis</i>) woodland fringing drainage lines	Not of concern	NC	-
11.3.3	15	Coolibah (<i>E. coolibah</i>) woodland on alluvial plains	Of concern	OC	-
11.3.1	5	Brigalow (<i>A. harpophylla</i>) and/or Belah (<i>Casuarina cristata</i>) open forest on alluvial plains. E	Endangered	E	E

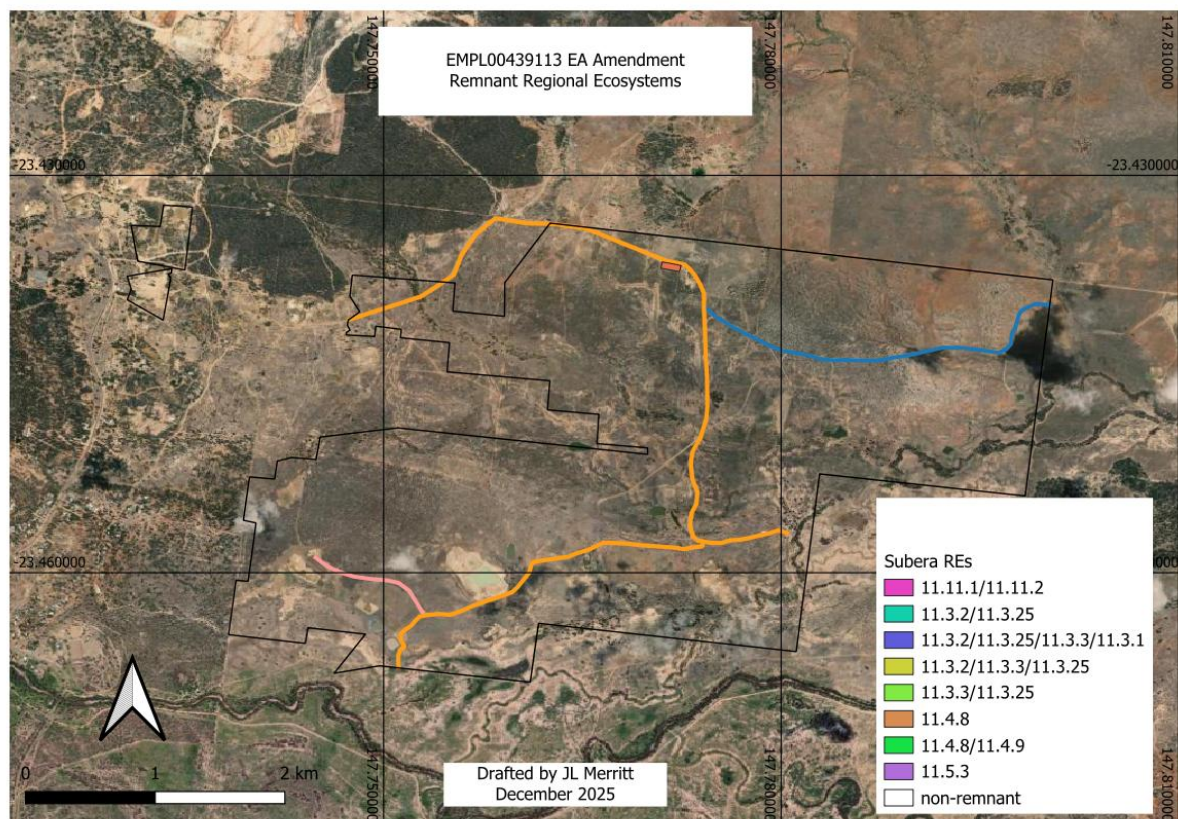


Figure 7: Remanent Regional Ecosystems

Figure 8: MSES shows the MSES vegetation mapped within the vicinity of the Mining Leases. Essential habitat shown in Figure 9 is consistent with the RE and MSES mapping.

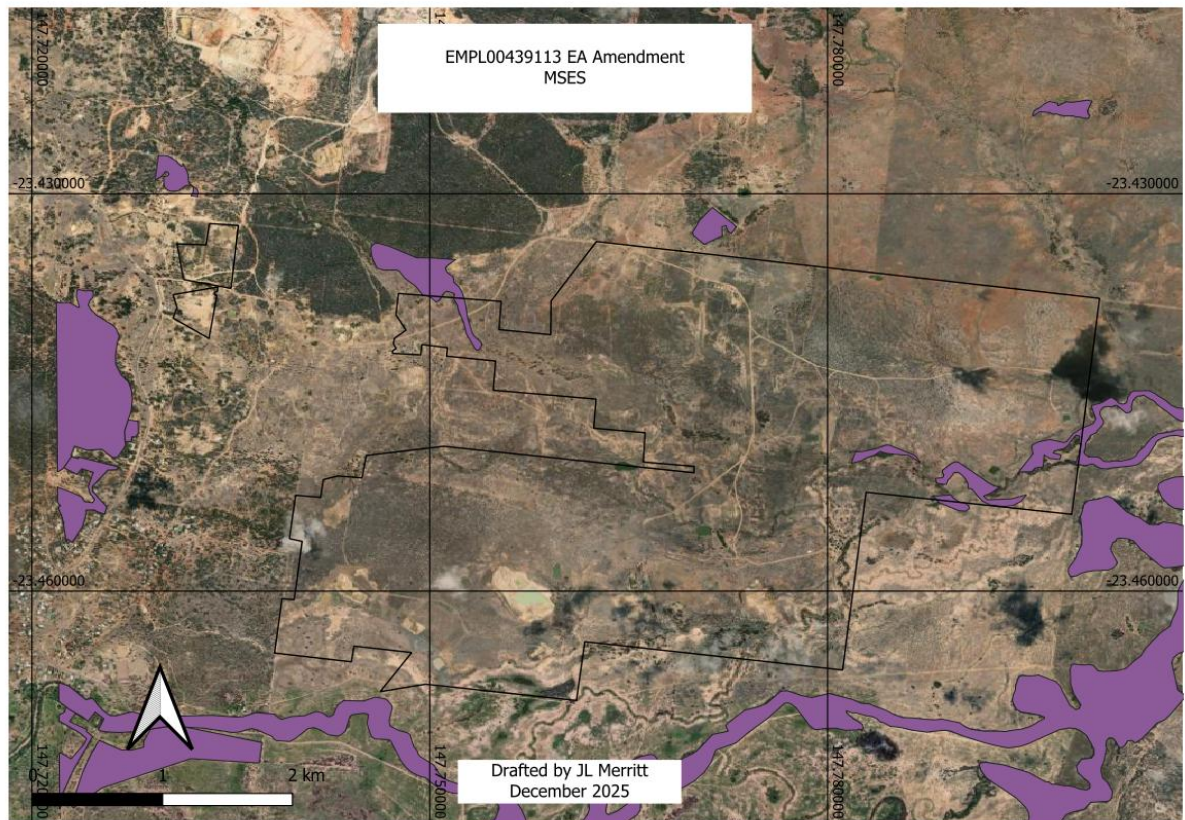


Figure 8: MSES

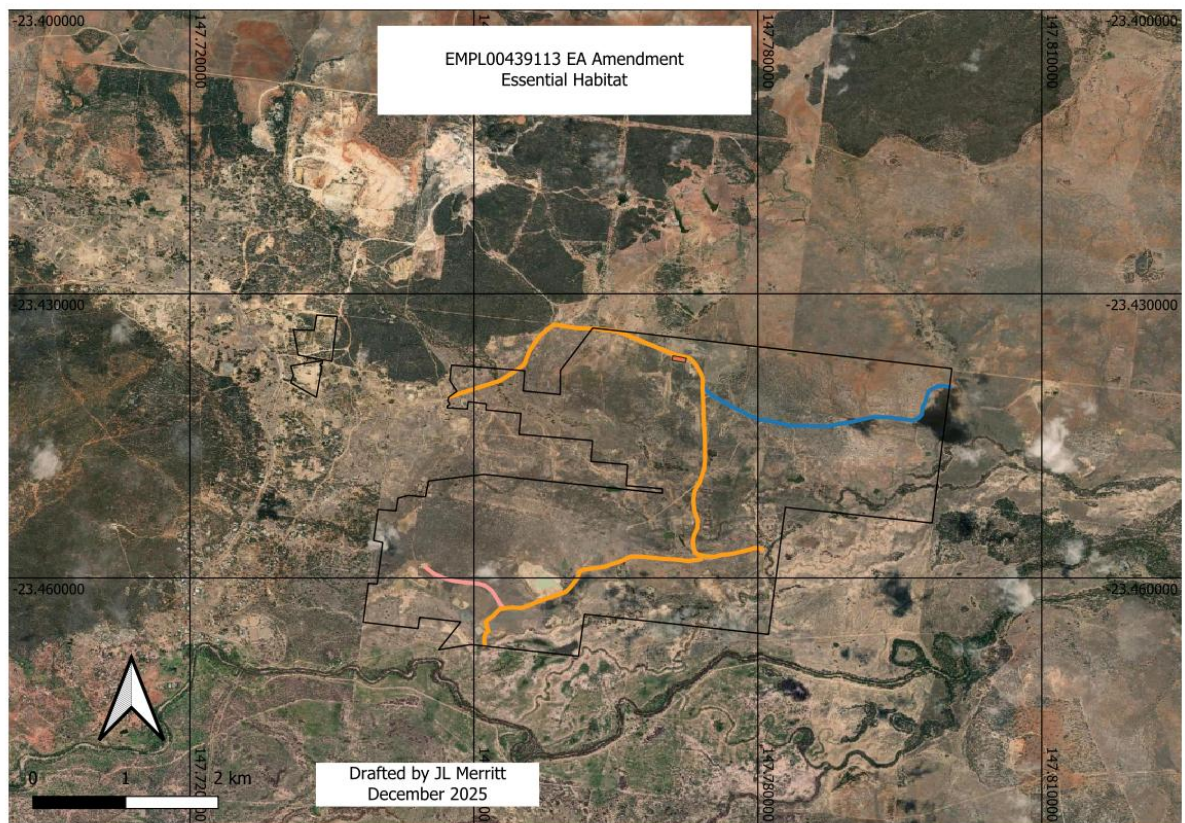


Figure 9: Essential Habitat

Potential impacts

The proposed EA amendment will increase the maximum area of land disturbed at any one time to 104 ha. This is 8% of the land available for mining on "Subera". Land previously mined is 22% of the area available with 22 ha estimated to be disturbed and rehabilitated every year.

No change to the mapped available land is proposed in this amendment. Available land excludes vegetated areas, Essential habitats and MSES matters.

Mitigation measures

No additional mitigation measures are proposed.

13.5. Air quality

The windiest months at Emerald are September, October and November, with prevailing winds coming from the southeast and typically remaining under 5 km/hr. Clay soils in the area are not prone to wind erosion, so despite increased disturbance from mining activities, no rise in wind-related impacts is expected. Mining operations may see a slight increase in activity, particularly with trucking wash from pits to the plant area. Carting is carried out on a campaign basis. Only one circuit operates at each Plant, and water trucks can control dust from road traffic effectively, meaning no change to dust management is anticipated. No blasting is conducted on site, and the wash plant is a small, mobile unit that does not generate vibration. Figure 2 shows the location of sensitive receptors and other mining and quarry operations in the region. Dwellings in Sapphire are the closest sensitive receptors to past mining activity at 1 km with the medical centre 2 km away.

To date, there have been no complaints from nearby sensitive receptors. Additionally, several other mining leases, claims and quarries exist in the vicinity, many of which are situated closer to sensitive receptors than Fura Gem's operations.

Potential impacts, emissions and releases

Sources of emissions include:

- Dust from mining and associated activities; and
- Vehicle emissions.

The only emission of any significance produced by mining and associated activities is dust. A major mitigating measure is that the wash has high moisture and overburden and topsoil a high clay content.

Mining rate will increase by 10% disturbing approximately 22 ha/year. The mining process will not change. As new tracks and new sites are opened, others will be closed and rehabilitated.

Mitigation measures

No additional mitigation measures are proposed with the current controls of road watering and timely rehabilitation considered adequate.

13.6. Noise

Fura Gems operate two Plants Areas simultaneously at present and in the future. Machine operation includes dozers moving overburden, excavator and truck carting wash and a

loader feeding wash into the Plant which is powered by a diesel generator. No blasting is conducted on site. To date, there have been no complaints from nearby sensitive receptors. Several other mining leases, claims and quarries exist in the vicinity, many of which are situated closer to sensitive receptors than Fura Gem's operations.

Machine operation and stationery generators in the pits or on haul roads are the major source of noise. The operation uses Komatsu 475 dozers which are not high track machines and do not suffer from track slap. Machines on site do not have reversing alarms.

Figure 2 shows the location of sensitive receptors and other mining and quarry operations in the region. **Dwellings in Sapphire are the closest sensitive receptors to past mining activity at 1 km with the medical centre 2 km away.**

Potential impacts, emissions and releases

Machine operation is the potential source of noise. A modest increase in machine operation is proposed with this amendment. Distance from sensitive sites, standard machine noise suppression and daylight operations only minimise the noise from site.

Mitigation measures

No additional mitigation measures are proposed.

13.7. Waste

Mining activities will result in a marginal increase across all waste streams. Putrescible and hazardous waste will continue to be removed from the site, and the workshop is organized to manage waste streams. No changes to staffing levels are anticipated so the existing septic system at the workshop remains sufficient.

Potential Impacts, Emissions, and Releases

Waste streams are currently managed through off-site disposal, **except for the septic system, which is handled internally.** The workshop provides appropriate receptacles for all waste streams.

Mitigation measures

No additional mitigation strategies are required, as the current measures are considered adequate.

13.8. GHG

Diesel usage is projected to increase by 10%, reaching 94,630 litres per month, or 1,135,560 litres annually (equivalent to 1,136 kilolitres) by 2026. Electricity at the site is produced via diesel generators. According to the Emissions and Energy Calculator, Scope 1 emissions are estimated at 3,083 tonnes of CO₂-e, confirming the site's status as a low emitter.

Potential impacts, emissions and releases

Greenhouse gas (GHG) emissions will rise commensurate with increased diesel consumption. However, given the mine's relatively low emission baseline, this increment remains minor when compared to the Australian mining industry's annual use of 9.6 billion litres of diesel. The mine recognizes that any increase in average wash depth in new pits or haul distance will

lead to higher diesel consumption; mitigation is only possible through overall reductions in fuel usage across mining operations.

Mitigation measures

The proponent is committed to reducing emissions by purchasing newer, more efficient machinery whenever feasible; for instance, two new loaders were acquired in 2021. Additionally, efforts are underway to accelerate rehabilitation of plant areas, thereby decreasing emissions by minimizing the required rehabilitation activities. The proponent also seeks improvements in wet tailings management, aiming to reduce rehabilitation time, effort, and associated GHG emissions.

14. Community Consultation

No community consultation was undertaken to support this amendment application as the only criteria changing is the area of disturbance on “Subera” a freehold property. No change in the PMLU is proposed.

The mining in RA2 takes place exclusively on the property “Subera”. “Subera” landholders as the interested party in this increase in area of disturbance have been consulted. This change in disturbance on their property is covered by the current compensation agreements.

15. Risk

The amendment increases the approved maximum disturbed area (not rehabilitated) for mining from the current combined footprint (43.7 ha) to up to 100 ha, which increases the scale of disturbance that may be present at any one time and therefore the potential exposure of land and surface water values to disturbance-related impacts.

In relation to tailings, the discharge from the wash plant is either dry or wet tailings. Wet tailings comprise fine particles that may require an extended period to consolidate before final rehabilitation activities (reshaping, topsoiling and seeding) can be completed. **Wet tailings/recycled water ponds may take up to five years to consolidate potentially delaying final rehabilitation of those components of the disturbed footprint.**

The consolidation of activity categories (mining and tailings) reflects that the disturbance is part of an integrated mining and processing system and is intended to remove ambiguity in classification between areas described as “mining” versus “tailings ponds”.

Table 6 is the matrix against each identified risk/threat is assessed. Table 7 is the risk register. The only high risk is a suite of risk/threats outside the control of the operator. All other threats are low to moderate risk and manageable.

Table 6: Risk Matrix

		Likelihood				
		Rare	Unlikely	Possible	Very likely	Extremely Likely
Consequence	Major	5	10	15	20	25
	Significant	4	8	12	16	20
	Moderate	3	6	9	12	15
	Minor	2	4	6	8	10
	Low	1	2	3	4	5

Very high risk
High risk
Moderate risk
Low risk

Table 7: Risk Register

	Overview of Current Controls, Measures & Actions In Place	Maximum Probable Outcome (With Current Control Measures)		
Risk / Threat (Aspect)		Consequence	Likelihood	Risk
Increased disturbed limit and mining rate limits mine's ability to achieve timely rehabilitation of mine disturbed area	Increased area will drive an increased efficiency of the rehabilitation effort as machinery transfers between mining and rehabilitation areas	4 Significant	2 Unlikely	Moderate
Rehabilitation				
Inadequate topsoil to rehabilitate discrete disturbance domain to depth equal to original topsoil depth	Topsoil Management Plan	4 Significant	2 Unlikely	Moderate
Water logging leads to subsidence of rehabilitated area making area unsafe	Maintenance & Monitoring Program e.g. backfill subsided areas if unsafe	4 Significant	2 Unlikely	Moderate
Settlement of tails is greater than planned making area unsafe	Maintenance & Monitoring Program - Redoze area to remove subsidence or cart in additional fill	3 Moderate	2 Unlikely	Moderate
Poor establishment of pasture preventing domain achieving criteria set out in RM6	Maintenance & Monitoring Program - Rip and seed area again	3 Moderate	2 Unlikely	Moderate
Overburden or topsoil changes across the project area preventing disturbance domains achieving RM6	Maintenance & Monitoring Program - Not occurred to date or expected in future with mining area distributed over entire available area; stockpiled topsoil will be inspected annually	3 Moderate	1 Rare	Low
External factors beyond the control of the Operator reduce the opportunity to achieve RM6 within the nominated PRCP schedule period e.g. climate change, critical pasture species not flourishing in area, property management changed resulting in a decline in property pasture productivity/ land condition.	Maintenance & Monitoring Program -internal review of annual monitoring program for any differences in soil types or management practices that highlight identified changes -reactive management of discussing observed alteration of pasture cover and condition with landholder - negotiation compensation for exclusion of select areas -Negotiation of amendment of completion criteria with background landholder and the Department	5 Major	3 Possible	High

Insufficient fill to create desired landform or cover wet tails in TSF	Oversize or dry tails carted from current plant area to negate volume deficit prior to reaching RM1	3 Moderate	1 Rare	Low
Rainfall accumulated in void slowing rehabilitation process.	Pump accumulated water to plant area for use	3 Moderate	1 Rare	Low
Environmental Values				
Surface Water	-separation of mine effected water from overland flows -low slopes of available land -short duration of mining to rehabilitation for majority of pits	3 Moderate	2 Unlikely	Moderate
Mining impacts on groundwater quality or quantity	-no groundwater intercepted with mining depth -mining occurs in alluvium above LOX line -no identified impact to date	3 Moderate	2 Unlikely	Moderate
Mining impacts matters of state significance	-all areas of MSES known to operator -20m standoff for mining	4 Significant	2 Unlikely	Moderate
Mined land cannot achieve PMLU with rehabilitation	-rehabilitation methodology has been practiced for 20 yrs leading to two tranches of certified rehabilitation being accepted	4 Significant	5 Rare	Low
Dust causing nuisance at sensitive receptors	-Short circuits due to mobile Plants with 1 truck -water truck available -distance from sensitive receptors	2 Minor	2 Unlikely	Low
Noise causing nuisance at sensitive receptors	-distance from sensitive receptors -engines fitted with mufflers and other methods of noise suppression	2 Minor	2 Unlikely	Low
Operation fails to manage waste causing environmental harm	-waste management practices well established at workshop -awareness amongst work crew on waste management -professional contractors engaged to dispose of waste	2 Minor	2 Unlikely	Low
GHG emissions increase significantly causing harm	-low emitter of GHG emissions -continuous improvement practices seek to increase mining and rehabilitation efficiency -ongoing program of machinery purchase of newer machines	2 Minor	2 Unlikely	Low