Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

Draft Environmental Impact Statement (EIS) – Executive Summary

Prepared pursuant to the Environment Protection Act 2019

October 2021

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Section 1 Overview

Rustlers Roost and Quest 29 are existing brownfield sites on Mineral Leases (ML) located within pastoral leases in the Mount Bundey locality, approximately 85 km south-east of Darwin in the Northern Territory (NT) (Figure E-1). These sites will be redeveloped for open-cut mining, involving connection of the non-contiguous areas by a haul road and construction of an accommodation camp (the Project). The sites have a history of gold mining activity, with gold being first discovered in the 1940s and activities occurring over intermittent periods during the past 70 years. Primary Gold Limited (PGO) (the Proponent) is proposing to redevelop and fully rehabilitate the existing legacy mines. Primary Gold is a fully owned subsidiary of Hanking Australia Investment Pty Ltd (Hanking).

The mine sites are located approximately 11 km apart and are connected by an existing unsealed access track, which will be upgraded to accommodate haulage of ore. Ore mined at both sites will be processed at a new purpose-built processing facility located at the Rustlers Roost site to produce gold bullion which will be trucked offsite for sale. The rate of production will be up to 5 million tonnes per annum (Mtpa) over an approximately 10 year life-of-mine (LOM). Following completion of mining activities, the Project area will be closed and rehabilitated in accordance with an approved Mine Closure Plan (MCP).

The main Project areas of Rustlers Roost and Quest 29 are located between 5 km and 12 km directly south-west of the Arnhem Highway on Old Mount Bundey Station, Perpetual Pastoral Lease (PPL) 1163 and McKinlay River Station (PPL 1184). An accommodation camp for the Project workforce will be located on ML 29814 which is part of the Toms Gully Mine tenements (Figure E-2). The proponent for Toms Gully Mine is PGO; however, that project has undergone a separate environmental assessment process and, with the exception of the camp, no additional activities or infrastructure for this Project are proposed in the Toms Gully Mine ML. The accommodation camp at Toms Gully Mine will be utilised for both the construction and operational phases of this Project.

Investigations are being progressed to construct a gas pipeline connecting the processing plant directly to the existing Amadeus Gas Pipeline. A direct connection would forego the requirement to transport gas to site via road. The route options, feasibility and planning for the gas pipeline are being progressed by a third-party and any environmental approvals required to facilitate that infrastructure will be completed separately from this Project.

The Project includes the expansion of existing pits, waste rock landforms, water storage dams and internal roads. Two new pits will be constructed at Rustlers Roost and new infrastructure includes an onsite processing plant, a tailings storage facility, a landfill, laydown area, magazine, administration office, accommodation camp and groundwater bores for water supply. The Project includes an entire development envelope of 790 ha. A large portion of the development envelope overlays historically disturbed areas, and therefore the maximum vegetation clearing extent within this area represents less than half of the development envelope (368.86 ha, 47%).

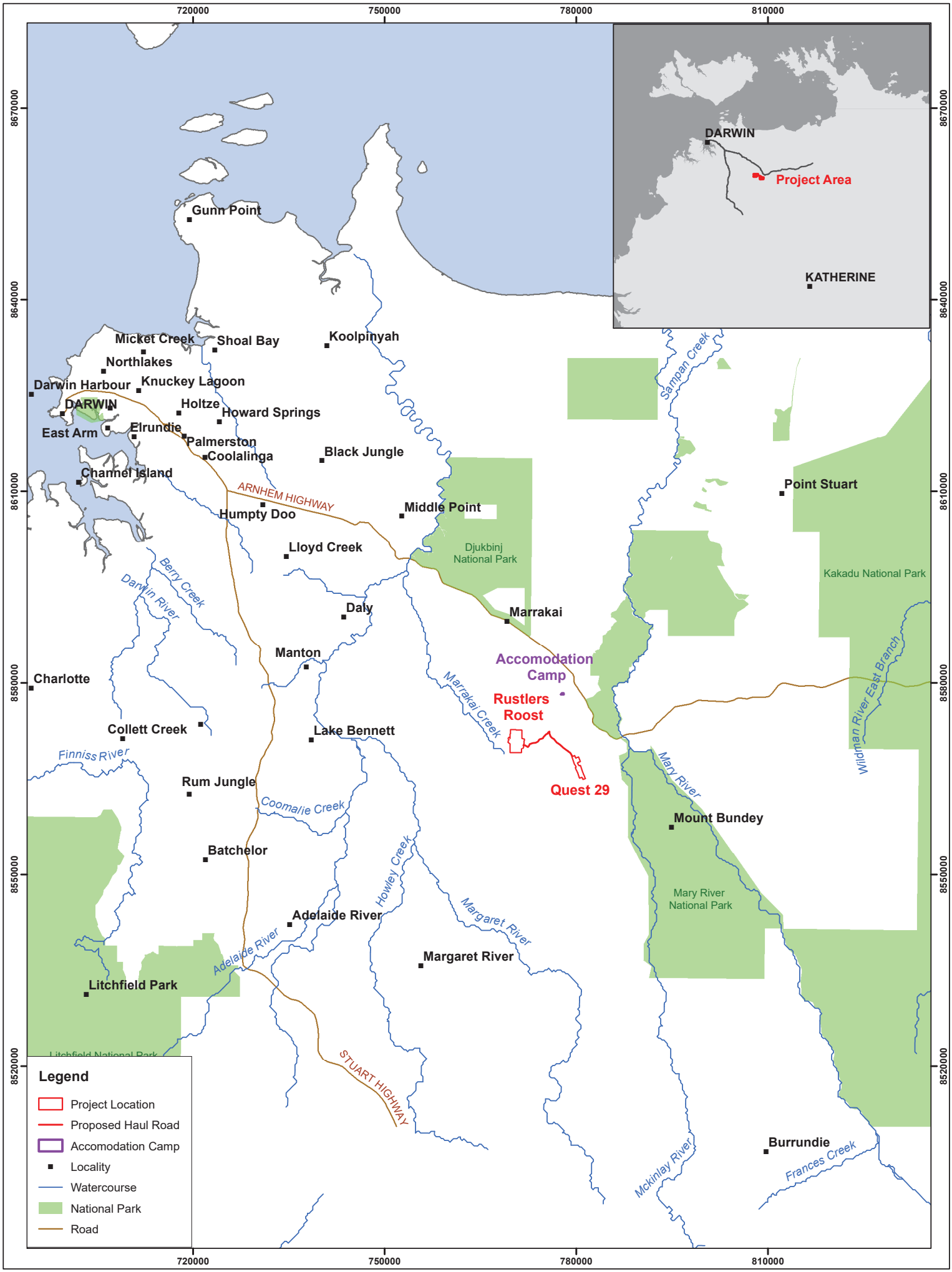
The recommencement of mining operations will enable the employment of approximately 210 people during production and represents an approximate $0.626 billion investment in the NT and Mount Bundey region. This investment consists of an estimated capital expenditure of $282 million with operational expenditure over the 10 year LOM of approximately $344.3 million. Approximately, 100 people will be required for the construction stage and locally sourced construction personnel and material will be prioritised.

The outcome is for the Project to realise economic and social benefits associated with recommencement of mining, combined with an opportunity to rectify and reduce the hazards associated with the historic activities by application of contemporary industry practice in environmental management.

A proponent initiated Environmental Impact Statement (EIS) referral was submitted by PGO to the NT Environment Protection Authority (NT EPA) on 3 February 2021 for consideration under the *Environment Protection Act 2019* (EP Act). The referral was accepted for consideration on 23 February 2021 and a public consultation period held from 25 February 2021 to 9 April 2021. The NT EPA determined a standard assessment by EIS to be an appropriate method of assessment for the proposed action to address the requirements of section 42 and section 43 of the EP Act. The NT EPA issued a formal Notice of Decision and Statement of Reasons on the assessment approach concurrently with the Terms of Reference (ToR) for the EIS on 11 May 2021.

Following the referral submission, Project engineering was subsequently refined and informed by additional data that has been recently acquired (e.g. environmental, geological, geochemical). The engineering refinement changes resulted in an increase to the development envelope, vegetation clearing extent, life-of-mine (LOM), processing throughput and waste volume outputs detailed in the original referral. As such, in accordance with Section 51 of the EP Act, PGO notified the NT EPA of a significant variation on 8 August 2021.

A notice of decision and statement of reasons about assessment of the significant variation was released by the NT EPA on 5 October 2021. It was determined the revised Project could be adequately assessed through the key environmental factors identified in the original ToR; however, minor amendments were made to the ToR to account for the Project changes. This Draft EIS addresses the key environmental factors identified in the ToR, outlining the basis for assessment of environmental risks and commitment of mitigation measures. In addition to the key environmental factors, three other factors were considered relevant for consideration based on analysis and findings during the environmental assessment process (Marine Ecosystems, Atmospheric Processes and Human Health). The assessment presented in the Draft EIS concludes that given the location, nature of the Project and proposed controls and studies, the potential environmental impacts can be successfully managed to meet regulatory and broader community expectations consistent with the NT EPA factors and objectives.



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2	Final	27/07/21
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APPROVED	TK	DATE	27/07/21

Notes:

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Meters

1 cm = 5,219 meters

GCS GDA 1994 MGA Zone 56

DATA SOURCE
NT Government Open Source Data

DESIGNER

CDM Smith

CLIENT

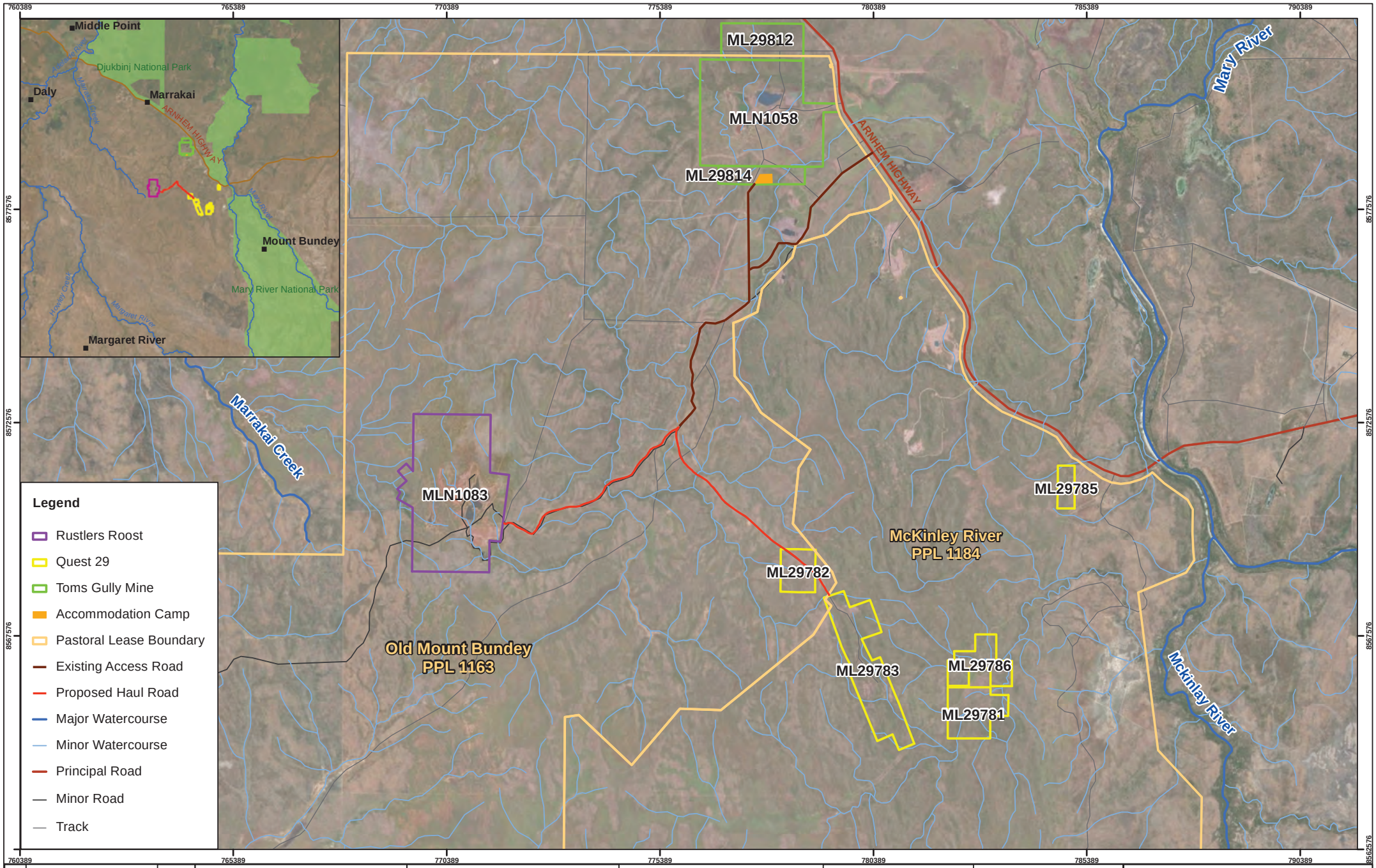
PRIMARY GOLD

FIGURE E-1

Project Location and Regional Setting

DRG Ref: 1001087-EIS-01-1.1

\\bga1svr1\Projects\US DOT\Aust\Roads\Hanking Gold Mine EIS\1001087 - Rustlers Roost EIS\1001087 - Rustlers Roost EIS\02 MXD\Chapter 1\Figure 1-1.mxd



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2	Second Draft	21/07/21
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APPROVED	-	DATE	22/09/21

Notes:

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Meters

1 cm = 800 meters

GCS GDA 1994 MGA Zone 52

DATA SOURCE
NT Government Open Source Data

DESIGNER

CDM Smith

CLIENT

PRIMARY GOLD

FIGURE E-2

Rustlers Roost and Quest 29 Project Location

DRG Ref: 1001087-EIS-01-1.4

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Section 2 Infrastructure

The Project will involve open-cut mining and expansion of all existing open-cut pits, and two additional new pits at Rustlers Roost and supporting infrastructure. The mine sites are located approximately 11 km apart and are connected by an existing unsealed access track, which will be upgraded to accommodate haulage of ore from the Quest 29 satellite pits to Rustlers Roost processing plant. Ore mined at both sites will be processed at a new purpose-built processing plant located at the Rustlers Roost site to produce gold bullion. The mining operations will use a drill and blast technique involving the use of ammonium nitrate (ANFO). The rate of production will be up to 5 Mtpa over an approximately 10 year LOM.

Waste rock generated in the extraction and production process will be deposited in surface waste rock dumps (WRDs) and will be used to backfill a number of pits where mine scheduling permits. At Quest 29, a new surface WRD is proposed to be developed to dispose of the waste from mining the largest pit (Zamu pit), with waste material from the remaining smaller pits (Taipan, South Koolpin, North Koolpin and BHS pits) to be backfilled into Zamu pit. A portion of oxide material from BHS pit will also be used for rehabilitation of the decommissioned heap leach facility in the Project area. At Rustlers Roost, the majority of the waste rock material will be deposited within the existing surface WRD (expansion to the north-west) and a portion backfilled into the existing Rustlers Roost pit and two smaller pits (Annie's Dam pit and Annie's Okaley pit).

Mined ore will be processed using a Carbon in Leach (CIL) processing method, which extracts gold from the ore by mixing with a cyanide solution. Tailings produced from the processing plant will be deposited in a tailings storage facility (TSF) to be constructed as part of the Project. The key components of the Rustlers Roost and Quest 29 proposed action are summarised below:

- Processing plant and Run of Mine (ROM) – The processing facility will be constructed in the northern portion of Rustlers Roost, immediately north of the northern WRD and will be contained in an area approximately 1,000 m long and 400 m wide. The area of direct disturbance will be approximately 40 ha. The processing plant area will include the crushed ore stockpile, process water and stormwater ponds, process plant infrastructure, power station and transformers, diesel facility, refuelling area, liquefied petroleum gas tanks, process plant and reagent stores, building infrastructure (administration, maintenance, ablutions, crib room, laboratory and prep room, mining contractor area);

- Expanded existing main pit and two minor pits at Rustlers Roost – The Rustlers Roost main pit is proposed to be expanded by approximately 57% to the east and west and increased in depth from 50 m to 175 m. Dewatering of the pits will be undertaken with diesel powered in-pit sumps. Dewatering will occur as required as a result of direct precipitation from rain events and groundwater in-flow. To access ore that has been recently identified through drilling and prevent future sterilisation through placement of the TSF over and immediately adjacent these areas, PGO is proposing to mine two small additional pits (Annie's Okaley and Annie's Dam Pits). Annie's Dam pit is proposed within the TSF area and following extraction, will be utilised for placement of overburden from the main pit and will eventually be encapsulated within the TSF;

- Expanded existing pits at Quest 29 – The five existing pits at Quest 29 are proposed to be expanded and mined to a depth of 75 m from the current depth of 25 m. On completion of mining Zamu pit, the pit will be backfilled with waste material from mining of the remaining Quest 29 pits;

- Haul road – A haul road is required to transport product ore from Quest 29 to the Rustlers Roosts ROM for processing. The 11 km existing access road between the Project areas will be upgraded to accommodate heavy vehicles for haulage of ore. This will require widening the existing road from approximately 10 m to 20 m, building up the road with screening of suitable material from the existing oxide WRDs, upgrade of existing culverts and construction of a new bridge at the Mount Bundey Creek crossing closest to Rustlers Roost;

- Accommodation camp – Due to the remote location of the Project area, construction of an accommodation camp is required to accommodate the construction and operational workforce within proximity to the mine. The accommodation camp, to be located at Toms Gully Mine, will have an overall capacity of approximately 202 personnel and will accommodate personnel for both the Rustlers Roost and Quest 29 operations;

- Tailings storage facility – The TSF will be located in the southern section of ML 1083 and will occupy 243.0 ha of land. The TSF size is based on a nominal tailings disposal volume of over 4 Mtpa for a total of 48 Mt capacity (i.e. 10 years production). The TSF will be raised in height progressively over a 10-year period to reach storage capacity for the LOM;

- Rustlers Roost waste rock dumps – The area including and to the north of the existing U-shaped WRD will be the designated location for the disposal of waste rock from Rustlers Roost pit. Waste rock will be placed in two separate WRDs termed the northern WRD and the southern WRD. A total of 50.9 Mt of waste material will be produced from main Rustlers Roost pit. Approximately 45.6 Mt will be placed within the surface WRDs and 5.36 Mt of fresh waste backfilled into the pit. The other two smaller pits will be mined and completely backfilled, including Annie Okaley pit (3.9 Mt oxide) and Annie's Dam pit (1.6 Mt);

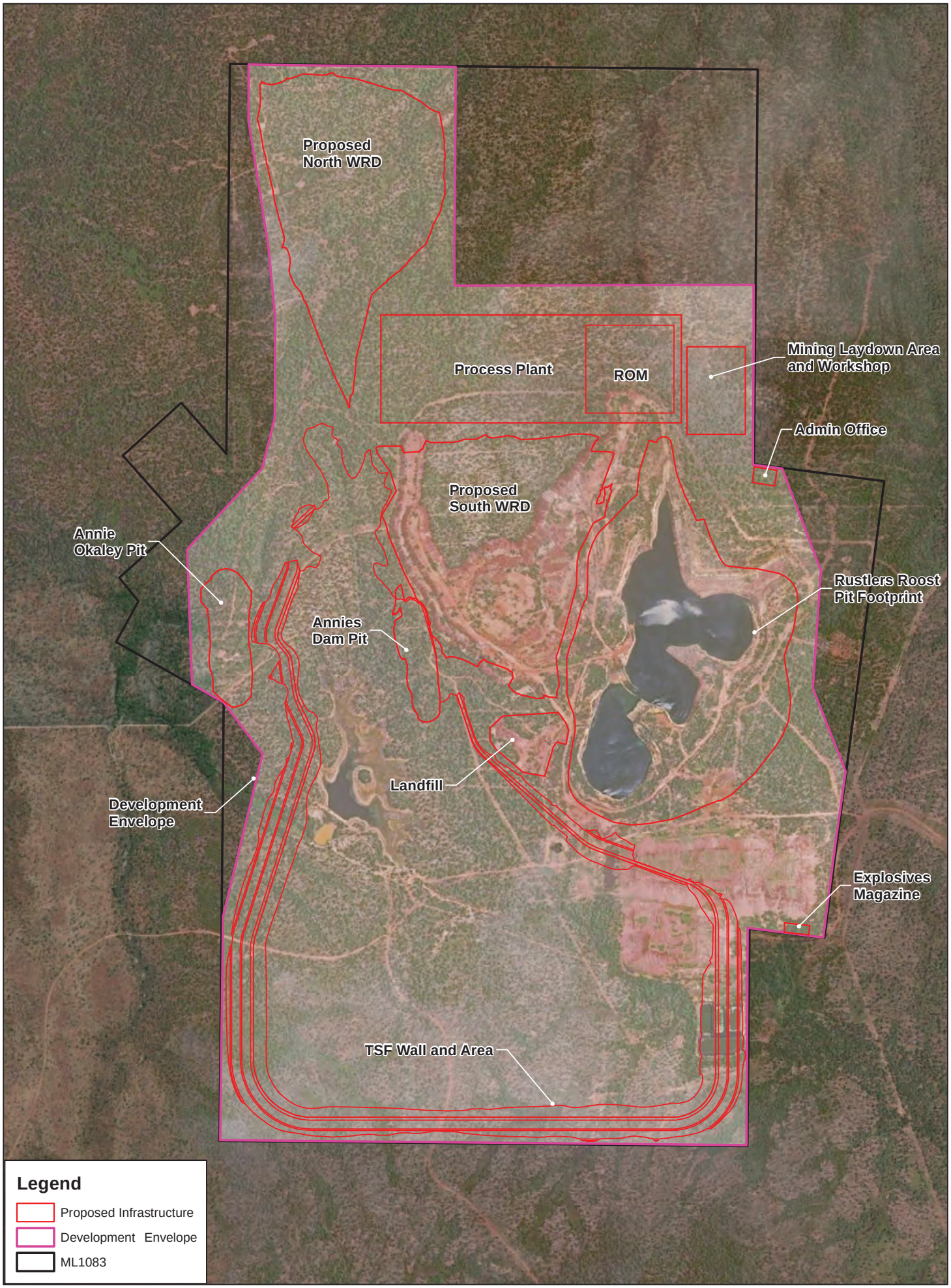
- Quest 29 waste rock dump – The proposed surface WRD at Quest 29 will be developed in the area north of Zamu Pit. This was selected to minimise haulage distances for the initial stage of mining Zamu pit. During construction the WRD face angle will be 37°, with a berm width of 19.5 m and 4 x 10 m lifts;

- Mine laydown area – A compacted earth mine laydown area covering approximately 6.0 ha will be constructed in the Rustlers Roost portion of the Project area;

- Administration facility – An administration facility covering approximately 0.42 ha will be constructed in proximity of the laydown area and processing facility in the north of Rustlers Roost; and

- Landfill – A landfill is proposed to be constructed at Rustlers Roost encompassing largely disturbed land to the west of the main pit and east of the TSF. The landfill will be constructed over 4.0 ha to a depth of 5 m and be utilised for the 10 year Project period.

The Project infrastructure layout for the Rustlers Roost and Quest 29 portion of the Project area are presented in Figure E-3 and Figure E-4, respectively.



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APPROVED	TK	DATE	27/07/21

Notes:

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Meters
1 cm = 119 meters
GCS GDA 1994 MGA Zone 52

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

DATA SOURCE
NT Government Open Source Data

DESIGNER
CDM Smith

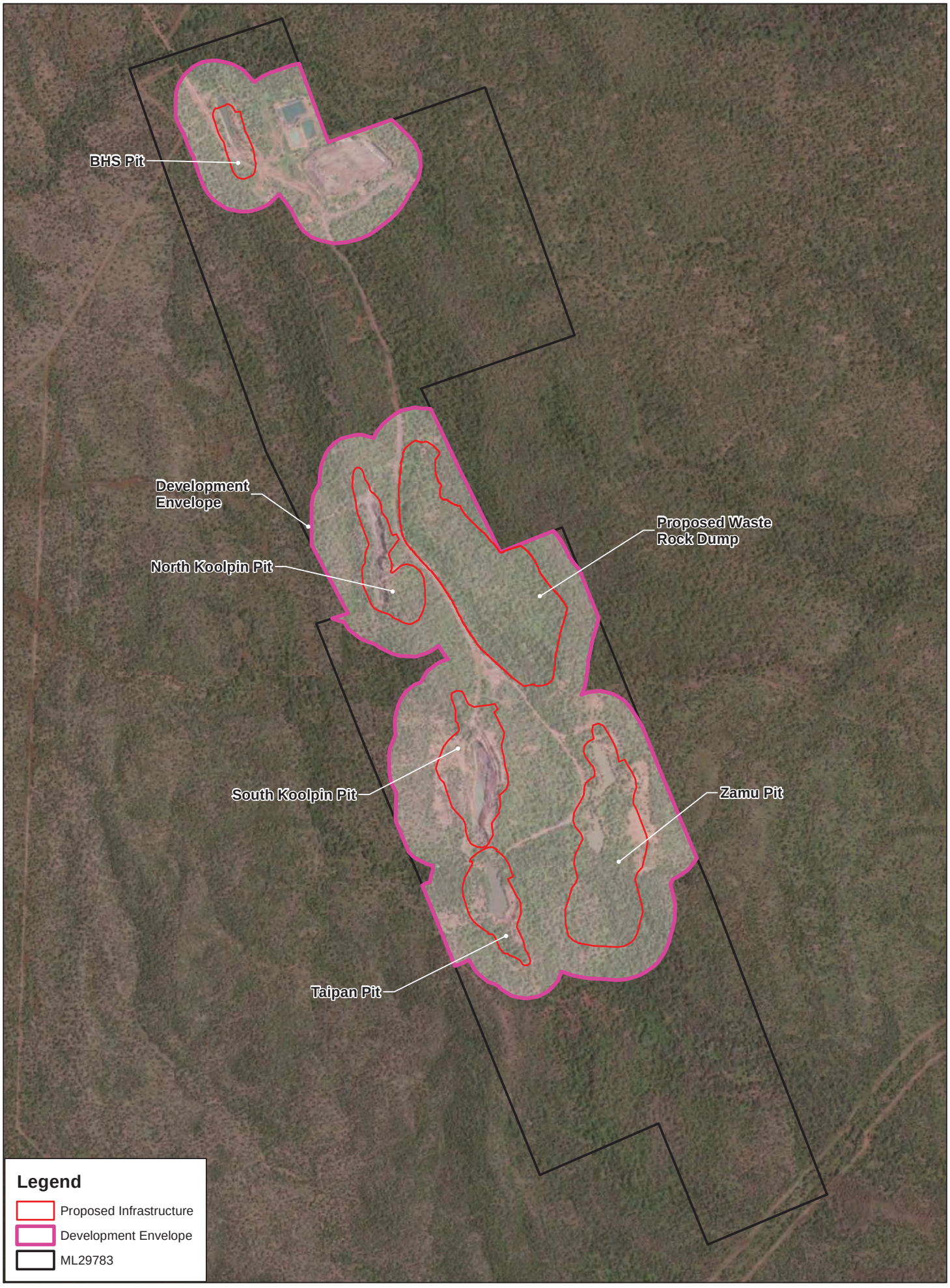
CLIENT
PRIMARY GOLD

FIGURE E-3

Rustlers Roost Proposed Site Layout

DRG Ref: 1001087-EIS-04-4.3

\\bga1 svr1 \Projects\US DOT\Aust\Roads\Hanking Gold Mine EIS\1001087 - Rustlers Roost EIS\1001087 - Rustlers Roost EIS\02 MXD\Chapter 4\Figure 4-3.mxd



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Meters
1 cm = 106 meters
GCS GDA 1994 MGA Zone 52

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DATA SOURCE
NT Government Open Source Data

DESIGNER
CDM Smith

CLIENT
PRIMARY GOLD

FIGURE E-4

Quest 29 Proposed Site Layout

DRG Ref: 1001087-EIS-04-4.4

\\bga1svr1\Projects\US DOT\Aust\Roads\Hanking Gold Mine EIS\1001087 - Rustlers Roost EIS\1001087 - Rustlers Roost EIS\02 MXD\Chapter 4\Figure 4-4.mxd

Section 3 Closure and Rehabilitation

Following completion of mining activities, the mine site will be closed and rehabilitated in accordance with an approved MCP. Final land use and closure objectives will be confirmed in consultation with the pastoral lease holders and other stakeholders.

The processing plant and associated mining infrastructure will be removed from site and the areas rehabilitated. The final WRD and TSF landforms will be suitably shaped, capped, rehabilitated and remain in-situ. Abandonment bunds will be constructed around the remaining open pits, which will be left to form pit lakes. The historical heap leach facilities will be capped and revegetated and the backfilled pits will be covered with topsoil, shaped and revegetated. Haul roads, ROM, go-line and all other disturbed areas will be ripped and revegetated.

PGO will revegetate with local native species as well as easily established ground covers. The following measures will be undertaken:

- Rehabilitation trials will commence during the first year of operations to determine the most adaptive plant species; and
- To benefit from wet season rains, revegetation will be conducted in the late dry season.

A post-closure monitoring programme will be implemented when closure commences. Monitoring will continue for an estimated 5 years after closure and decommissioning. Monitoring will include weed and pest management with monitoring and assessment, water quality monitoring, maintenance of firebreaks and monitoring of erosion with rehabilitation where necessary.

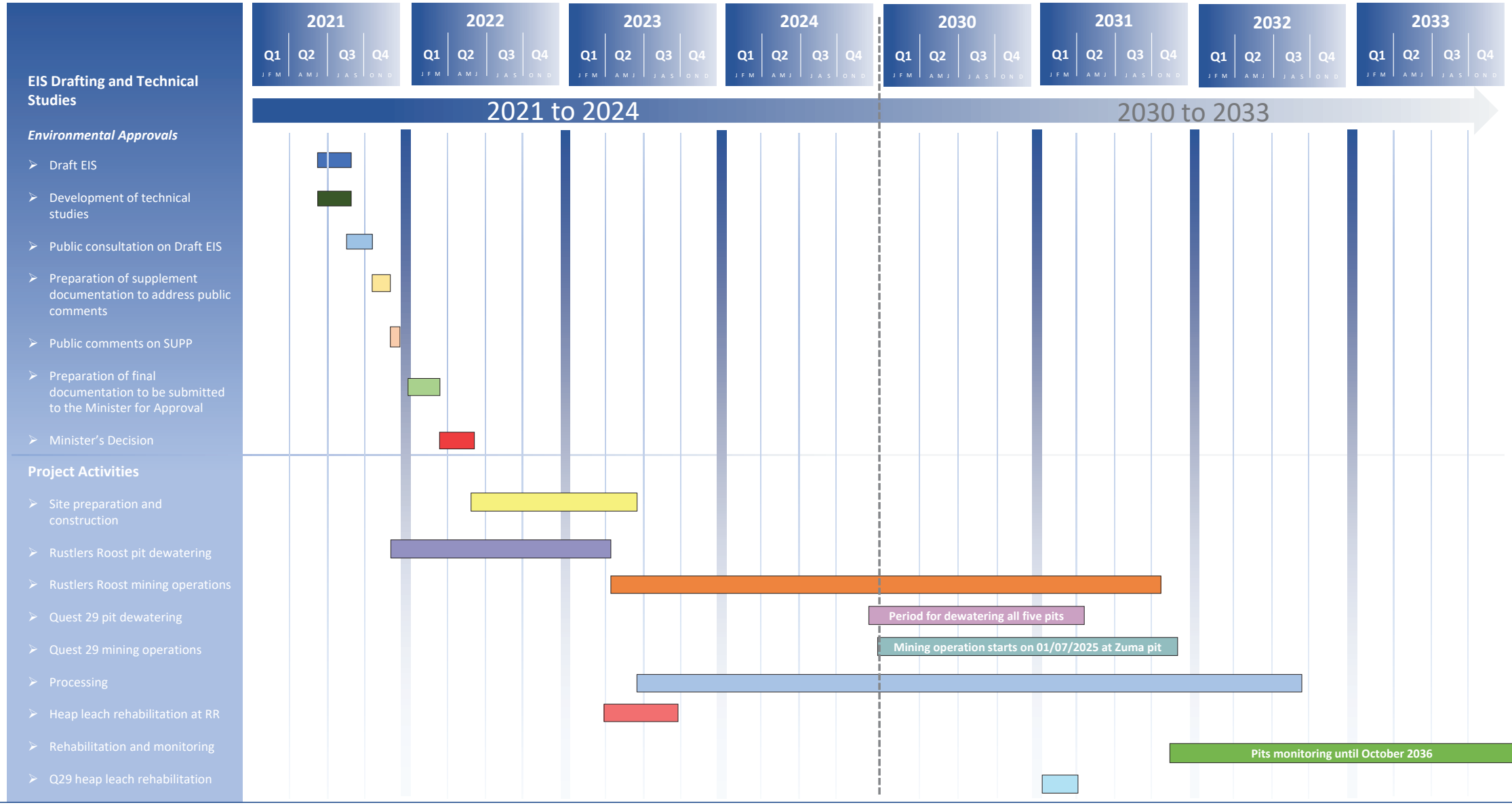
Post mining monitoring would be based on current management and monitoring practices with surface and groundwater monitoring plans for the water bodies and creeks. Weed management will be undertaken on site. Fire management will also be undertaken including controlled burning to manage weeds, maintain firebreaks and to keep fuel sources to a minimum.

Section 4 Schedule

Subject to receipt of all relevant government approvals, PGO intend to commence mining activities in Q2 of 2022 with site preparation and construction activities. Mining operations will commence in year two on completion of the critical infrastructure. The Rustlers Roost open-cut pit mining schedule is proposed to occur in five stages over an approximate 9 to 10 year duration. Quest 29 will be mined over a 4 to 6-year period in five stages as a satellite reserve to feed the processing plant located at Rustlers Roost.

Processing will occur in year two following commencement of mining and will be on-going (24/7 continuous operation) for the 10 year mine duration. Processing will continue for a number of months following cessation of mining until all remaining ore stockpiles have been processed. The proposed Project timeline is provided in Figure E-5.

Figure E-5: Project Timeline



Section 5 Alternatives

During the Project design process, a number of scenarios were considered and screened to evaluate the relative social, economic and environmental advantages and disadvantages of different Project alternatives. This included consideration of potential environmental effects, engineering feasibility, social and community acceptability and any cost implications. Similarly, considerations included those scenarios that are practicable, feasible and available to PGO. These included locality, technological and conceptual alternatives. While exploration continues within the Mount Bundey area, there are no alternative resource areas identified to be mined. Therefore, all Project alternatives considered were based on the Rustlers Roost and Quest 29 deposits. A summary of the alternatives considered is as follows:

- Waste Rock Dumps – Backfilling of the pits with waste rock is proposed to occur at Quest 29, and thus limit the area required for an external WRD. While this option was investigated for Rustlers Roost, complete backfilling was not considered feasible. Alternatives to disposal of the main pit waste rock have been considered and PGO will seek to backfill the two satellite pits (once exhausted) with waste rock from the main pit up to the previous ground level. However, this is only a fraction of the rock that will be produced during the mining process. Simultaneous placement of waste rock within the working pit was also considered as an alternative to external WRDs; however, this was not progressed as a feasible option due to the depth of the pit, limited working area, potential stability issues in the pit and potential for multiple movements (trucking);

- Tailings Storage Facility – A TSF location option study was undertaken in 2018 and an updated assessment was completed in 2021. Five locations were considered in the Rustlers Roost area during the 2018 analysis and a refined list of three options were considered in 2021. Locating the TSF in the Quest 29 ML was not considered in the analysis due to the distance from the proposed processing plant location, necessity to implement a conveyance or transport system and limited suitable topography within the ML. Use of the TSF in the nearby Toms Gully Mine was also considered; however, the approved storage volume of that structure is significantly less than required for the Project and similarly introduces risks associated with transporting the tailings. During 2021, PGO re-assessed these options and selected the location of the proposed TSF within the eastern and southern section of ML 1083. The location was selected on the basis that it was within available area of the existing ML 1083, suitable site topography, minimised the distance of tailing transport, included a large portion of historically disturbed land and due to further economic potential to the north-east of the ML 1083;

- Processing Plant – Initially, the processing facility at the Rustlers Roost mine was assessed for the processing of ore from all projects within the Mount Bundey Project area. However, the type of ore from Rustlers Roost and Quest 29 requires a different process to extract the gold from that at the Toms Gully Mine site meaning PGO could not use the Rustlers Roost mine process facility for Toms Gully ore. There were no nearby gold possessing plants to toll treat the ore from the Project, thus a new processing plant is required to be built. An assessment of power supply options to operate the processing facility has been undertaken. The existing power line running along the Arnhem Highway does not have the capacity for carrying load requirements for the processing plant. As such, it was determined the processing plant would need to be supplied by gas. Investigations into a potential direct gas pipeline connection are being progressed separately by a third-party and any necessary environmental approvals required for that project are separate to the Project considered in this Draft EIS;

- Accommodation Camp – PGO initially considered offsite accommodation options for Project personnel. However, due to the size of the workforce and the lack of local large-scale accommodation options necessitates a Project-specific accommodation camp. The Project area is also too far from Darwin and other neighbouring suburbs to make commuting each day a viable option. The specific location of the accommodation camp was assessed with regard to enabling efficient access for the workforce as well as safety considerations should workers require medical attention (e.g. location to the Arnhem Highway) and potential environmental impacts. The initial location included in the Project referral was to the north of Quest 29 on ML 29782. An alternative location was selected in proximity to Toms Gully Mine on ML 29814. The preferred location is on the primary access track leading to both

portions of the Project. The preferred location is no longer in proximity to the haul road and allows for more direct access to the Arnhem Highway;

- Landfill – Three areas were considered for placement of a landfill at Rustlers Roost, with two being on the east of the pit expansion and the third on the west, between the pit and the TSF. Each of the three options were in the proposed development envelope and within areas of historic disturbance. The 4 ha size of the landfill proved challenging to locate on the eastern size of the pit and would likely necessitate construction of a non-standard cell shape which could increase construction and management challenges. Furthermore, the target gold bearing ore is more prominent in the eastern portion of the ML and should future expansion beyond the current Project be progressed in the future placement of a landfill to the east of the current pit, this would necessitate re-excavation of the waste to access the resource; and

- Haul Road – Two options for the haul road were considered, with the first being a new dedicated haul road directly linking the two non-contiguous areas and the second being an upgrade to the existing access road. A direct haul road would be shorter at 7 km versus the existing road route at 11 km; however, upgrading the current road provides an existing formation and largely cleared area to preferentially utilise. A direct option would necessitate the clearing of approximately 14 ha of native vegetation (based on a 20 m wide disturbance footprint, whereas upgrading the existing alignment is anticipated to intersect 2 ha of additional native vegetation. Therefore, the upgrade and use of the existing access road represents a better environmental outcome.

Section 6 Stakeholder Engagement

A Stakeholder Engagement Plan (SEP) was developed to guide the consultation and engagement for the Draft EIS. The SEP was developed to meet the requirements under the EP Act and the *NT EPA's guidance for proponents: Stakeholder engagement guidance* (2021). Engagement for the Project has been focused on achieving the following outcomes:

- All identified key stakeholders are appropriately informed of the Project;
- The Project environmental assessment is completed in a manner that is consistent with the EP Act;
- Stakeholders are provided with meaningful opportunities to participate in consultation for the Project;
- Traditional Owners feel as if they have been provided opportunities for meaningful engagement, that they have been listened to, and their culture and values respected; and
- The Project specific environmental risk assessment has been actively informed by the input and feedback received from stakeholders and where necessary, any adjustments to the Project because of this consultation has been considered.

Stakeholder analysis was undertaken with a focus on understanding stakeholder values, understanding concerns and opportunities arising from the Project, and understanding potential impacts, risks, and levels of interest and influence. Key stakeholder groups were identified during development of the SEP and the levels of engagement were informed by the NT EPA recommended IAP2 principles. Based on the analysis, levels of engagement were identified for stakeholder groups. These levels were based on the principle that engagement has been tailored by considering levels of stakeholder impact, interest and influence, and risk – with the assumption that the higher the level of impact and risk – the deeper the level of engagement required. Direct and targeted consultation was completed with several key stakeholder.

Section 7 Existing Environment

7.1 Physical Environment

The current condition of the Project area is largely disturbed from past mining activities, with the surrounding area also subject to pastoral activities. Topsoil has been removed and the previously disturbed areas have largely not been rehabilitated. There is evidence of localised erosion, in particular inspections have recorded erosion around the Rustlers Roost heap leach pad. The Project is located in the Pine Creek bioregion. Land types in the Pine Creek bioregion typically consist of hilly to rugged ridges with undulating plains. The Project area is located predominantly in low hills to rises. Mount Bundey, an area of outcropping granite, is a significant landform in the region located approximately 12 km north-east of Rustlers Roost and 7 km north of the Quest 29 ML.

The main topsoils in this area are classified as Rudosols. Rudosols are characterised as shallow with minimal soil development and very high sand content (80-100%). Furthermore, these topsoils are acidic with a pH between 4.3 – 4.9 and contain low organic carbon (<1%). In addition, Kandosols and Hydrosols were identified in the Project area. An erosion risk assessment has shown that the surface slopes on the externally draining catchments range from effectively 0% to 55% with a mean of 5.3% in the Project area, with a calculated mean soil loss rates of approximately 236 t/ha/yr. In the analysis of surface slope (%), it was found that the majority of the Rustlers Roost site had surface slopes >0.75% and was classified as Class S3 – Class S5 regarding the erosion risk indicating that the soil landscapes have a moderate to very high risk of erosion.

7.2 Biological Environment

Ecological surveys in 2016 and 2017 identified the vegetation in the lease areas at a scale of 1:100,000 and found two vegetation types over the Project area for Rustlers Roost and Quest 29. These vegetation types are described as 'Woodlands', and 'Low Woodlands'. The vegetation at Rustlers Roost consists entirely of 'Woodlands' vegetation dominated by *Eucalyptus tectifica, Eucalyptus latifolia* woodland with *Sorghum* grassland understorey which is common in the broader region. The majority of the vegetation type at Quest 29 consists of 'Low Woodlands' which is comprised of *Eucalyptus tintinnans* low woodland with *Sorghum* grassland understorey, with a minor portion of the area mapped as 'Woodlands', similar to the Rustlers Roost site. Areas within the Quest 29 Project area were classified as the riparian land unit 6a and comprised of riparian and contained monsoon vine species. Much of these riparian areas have been disturbed by previous clearing and stockpiling of fill material; weeds and feral animals were observed in these areas.

Habitat modelling indicates that two threatened species, *Helicteres macrothrix* and *Stylidium ensatum* could potentially occur in the Project Area. However, *H. macrothrix* surveys in 2016 and 2017 did not detect the species. Additional targeted surveys for both *H. macrothrix* and *S. ensatum* were completed in 2020 and 2021, for portions of the Project area intersecting modelled potential habitat. Neither were detected and no other threatened flora species were identified as part of these surveys.

Field surveys for fauna were undertaken in the region during November 2016 and May 2017 for the locations of Rustlers Roost and Quest 29. Rustlers Roost recorded 316 observations of fauna over the 2016 and 2017 survey period, primarily comprised of birds, accounting for 245 of the records. Other groups of animals included amphibians (19 observation), arthropods (2 observations), mammals (28 observations) and reptile (22 observations). Quest 29 recorded a total of 257 fauna observations. Similarly, the survey results were dominated by birds, accounting for 206 observations, followed by mammals (28 observations), reptiles (13 observations), amphibians (8 observations) and arthropods (2 observations). During the field surveys, five fauna species classified under the TPWC Act as threatened, near threatened and data deficient were recorded during the 2016 and 2017 field surveys. The NT threatened species included the Merten's Water Monitor (*Varanus mertensi*) recorded at Rustlers Roost in 2017. Two near threatened species were recorded at Rustlers Roost in 2017; these were the Orange Leaf-nosed Bat (*Rhinonicteris aurantia*), and Arnhem Sheath-tailed Bat

(*Taphozous kapalgensis*). Two data deficient species were recorded. These were the Red-cheeked Dunnart (*Sminthopsis virginiae*), and Black-spotted Ridge-tailed Monitor (*Varanus baritji*), both species were recorded during the 2016 survey at Rustlers Roost. No fauna species listed as migratory were recorded during either survey.

Six species of introduced fauna were recorded during the November 2016 and May 2017 field surveys. These were cane toads, horses, house mice, cattle, water buffalo and pigs. Feral cats are also known to be present in the area. During a 2020 vegetation survey, invasive weed species incidentally observed within the Project area were recorded, with the majority established in disturbed areas, and occasionally occurring in native bushland. The declared weed species, Hyptis was the most abundant weed within the Project area. Hyptis was recorded in high densities in the southern section of the Quest 29 Project area. Scattered Perennial Mission Grass and Gamba Grass were also observed, mostly within Quest 29 and along roadsides. Other weed species included Spinyhead sida.

7.3 Socio-Economic

The existing environment associated with community and economy of the region relate predominantly to use of the surrounding and downstream Mary River catchment for recreational activities (principally fishing), grasslands for pastoral land use, extractive resource operations, use of the region for military training and traditional land uses associated with cultural activities.

The most extensive land use in the vicinity of the Project area is pastoral, involving the grazing of beef cattle over the woodland terrain. There has been some improvement to pasture on Old Mount Bundey station. Land use in the region includes agriculture (orchards and pastoral operations) and mining, with historic iron ore mining at Mount Bundey and gold mining at Toms Gully, Quest 29 and Rustlers Roost mines. The economic input of the region is predominantly based on extracting civil and building material and pastoral properties utilised for cattle farming. Ranging from 3 km to 9 km from Quest 29 are a number of quarries which provide construction material for civil and residential buildings around the NT. Tourism, including recreational fishing, is growing in the region. A number of conservation reserves and parks managed by the Parks and Wildlife Commission of the NT occur within a 50 km radius of the Project area.

7.4 Cultural Heritage

Historically, there have been a number of Aboriginal Areas Protection Authority (AAPA) Certificates issued over the Project area. Most recently, PGO was issued an Authority Certificate in 2016, for the purpose of exploration activities and ongoing maintenance of the Rustlers Roost and Quest 29 mines (C2016/168). No recorded or registered sacred sites were identified within the current Project area and the closest site to the Project area is approximately 1.5 km north-west of the accommodation area. Several registered sacred sites also occur downstream and in the wider Mount Bundey locality. An application for an Authority Certificate covering the current Project area has been submitted and is being processed. The AAPA process involves desktop anthropological research, Aboriginal custodian consultation and fieldworks.

Section 8 Environmental Assessment

In accordance with the ToR, the NT EPA considers that the proposed action has the potential to significantly impact environmental values associated with six environmental factors. These factors are broad divisions of the environment that may be impacted by a proposed action. The environmental objectives are the desired outcome, goal or direction for change identified for each environmental factor. The factors are outlined in the ToR, as approved by the NT EPA for this Project and are listed in Table E-1.

Table E-1 Relevant Environmental Factors and Objectives

Theme	Factor	Objective
Land	Terrestrial environmental quality	Protect the quality and integrity of land and soils so that environmental values are supported and maintained.
	Terrestrial ecosystems	Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.
Water	Hydrological processes	Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.
	Inland water environmental quality	Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.
	Aquatic ecosystems	Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.
People	Community and economy	Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.

In accordance with the environment impact assessment guidance for proponents prepared by the NT EPA, and standard good practice, a risk assessment was developed for the Project. This risk assessment has also been developed with consideration of the NT EPA Environmental Factors and Objectives, inputs from stakeholders during Project consultation and submissions received on the Project referral documentation, and subsequent ToR. The Project and associated activities have been subject to a site-specific risk assessment. The objective of the risk assessment is to ensure that any significant risks are identified, evaluated and 'treated' to mitigate these risks.

Assessment of risk has been conducted through pragmatic consideration of the circumstances around risks, identifying necessary controls to address potential impacts and assuming effective implementation of planned and committed mitigation of potential impacts. While prioritisation has been given to avoidance as per the environmental decision-making framework, mitigation is proposed, where possible, to achieve a reduced residual risk (risk after mitigation)

In total, 47 different sources of environmental, health, social and economic risks were identified and evaluated. Of these, 26 of the risks applied to the land theme, 29 to the water theme and 11 to the people theme. The risk assessment was completed against each of the environmental factors and many of the risks applied to multiple factors. As shown in Table E-2 below, the majority of the residual risks for all environmental factors are found to be either low or moderate. Several of the key findings are as follows:

- Hydrology and flooding – Surface water modelling for Quest 29 indicated that mining and the planned water management during dewatering activities will have insignificant impact on downstream environmental flows. From a flood risk assessment standpoint, for a 1% Annual Exceedance Probability (AEP) event, the modelling indicates

there are flood risks, but these are not widespread. For a Probable Maximum Flood (PMF) scenario, there is a high risk in nearly every drainage channel around the Taipan pit, however appropriate post-mine safety bunding to 2 m should ameliorate this.

For the Rustlers Roost portion of the Project there is little risk to humans due to direct rainfall and runoff from the mine site as access to the site is through fences and locked gates. The broader area of the mine site is entered from the Arnhem Highway through fenced private property and through the quarry at Mount Bundey. All remaining water bodies will be bunded;

- Geochemistry – Based on a preliminary risk assessment completed for the Draft EIS, there are a range of chemicals of potential concern (COPC) with respect to freshwater quality in surface water bodies. Development of site-specific criteria is warranted, as opposed to the conservative approach of applying the default Australia and New Zealand Government (ANZG) Guidelines for Fresh and Marine Water Quality (2018) criteria.

  Oxide waste materials (all lithologies assessed) are predominantly non-acid forming (NAF); however, not all material in the oxide zone can be classified as NAF, given at the boundary into the transitional zone, the oxide materials can classify as potentially acid forming (PAF). Additional NAF waste rock (in the shales) is present in the fresh zone at depth at Rustlers Roost. Transitional zone waste is generally classified as uncertain (UC) (long lag PAF) or PAF. The ore (from Quest 29) is also PAF. For the ore transported from Quest 29 to Rustlers Roost for processing, measures to manage both acidic leachate and natural occurring radioactive material (NORMS) are considered necessary and have been nominated in the Draft EIS.

  Based on the geochemical analysis there is risk of transporting waste rock material throughout the site that could result in contamination if not appropriately managed (inclusive of AMD and NORMS). However, there is high certainty that runoff from WRDs can be captured onsite and management and that seepage from both WRDs and the TSF can be prevented based on the chosen design criteria. The determination that runoff can be contained and treated is supported by the water balance model and implementation of the proposed control measures, including development of a geochemical block model. With appropriate implementation and design and controls, the Project should not contribute to impacts associated with release of chemicals into the environment.

- Pit lake water quality – Pit lake water quality as an aquatic ecosystem habitat for the Rustlers Roost pit lake was moderately poor, with high nutrient concentrations and low oxygen concentrations. However, pit lake water quality as COPC concentrations was good, with only slight exceedances of ecosystem values for total iron and ammonium and drinking water for ammonium.

  Based on two pit lake water quality campaigns (November 2020 and June 2021), temperature stratification was apparent in the dry season but not in the wet season sampling event. If the pit lake has not mixed and remains stratified it is likely that the water quality discharging from overtopping of the pit would be similar to site runoff;

- Site water balance – A site water balance model was developed to estimate the viability of the proposed water management plan in its ability to prevent uncontrolled spills to the environment; to keep a dry working environment during mining phases and to evaluate the likelihood of overflowing of the pit lakes.

  The output of the water balance model indicated that groundwater seepage is the biggest contributor to the water balance amounting to ~83% of all inflows. While there is a notable amount of uncertainty regarding the degree of groundwater inflow to be managed (i.e. 100 L/s to 600 L/s), monitoring of pit seepage during the initial phase of operation will significantly reduce this uncertainty. Water is planned to be released from the mine site and directed to Mounty Bundey or Marrakai Creeks at times when it cannot be stored or utilised onsite. Over the LOM, it is estimated that around 65 GL of water may be released between 2022 and 2031, which is considered to be well within the limits of environmental water flows for these water bodies;

- Groundwater – A numerical groundwater model was developed to estimate the potential maximum drawdown induced by mining the pits at Rustlers Roost and Quest 29, and the potential groundwater inflows to the proposed mining pits. The model predicted that the drawdown induced by the proposed pumping may extend up to 5 km to

the north and 3 km to the south of the Rustlers Roost pits and 2 km the south-west of the Quest 29 pits. The modelling demonstrates that the probability of Marrakai Creek, May River and McKinlay River being impacted by the proposed pits is minimal; and

- Ecology – Targeted, on-ground surveys were conducted by qualified scientists within habitats defined as suitable for the threatened species identified by the NT EPA, as well as other listed species identified from searches of the EPBC PMST and NT Fauna Atlas. Sampling of the survey area including the accommodation camp and area to the north covering Toms Gully Mine, but no threatened flora or fauna species were recorded in the on-ground surveys and habitat was found to be marginal or minor.

  The two species of particular attention were the Yellow-snouted Gecko (*Lucasium occultum*) and the sub-shrub *H. macrothrix* (both listed as Endangered under the EPBC Act). The 2021 ToR for the Project also identified the flora species *S. ensatum* (Endangered) for consideration, due to the Project area intersecting modelled habitat for the species. For the Yellow-snouted Gecko, no individuals were recorded and it was determined that, due to marginal quality of habitat in the area, there was a low residual likelihood of species occurrence.

  With regard to potential presence of threatened flora, *H. macrothrix* surveys in 2016 and 2017 did not detect the species. Additional targeted surveys for both *H. macrothrix* and *S. ensatum* were completed in 2020 and 2021, for portions of the Project area intersecting modelled potential habitat. Neither species were detected and no other threatened flora species was identified. Furthermore, quality of the habitats present in the Project area are marginal and significant impacts to NT or Commonwealth Government listed species is considered unlikely.

The assessment also considered potential indirect and cumulative impacts from the Project and other activities at varying spatial extents from the Project location.

Table E-2 Summary of Risks

	Land				Water						People	
	Terrestrial Environmental Quality		Terrestrial Ecosystems		Hydrological Processes		Inland Water Environmental Quality		Aquatic Ecosystems		Community and Economy	
Risk Level	**Inherent**	**Residual**	**Inherent**	**Residual**	**Inherent**	**Residual**	**Inherent**	**Residual**	**Inherent**	**Residual**	**Inherent**	**Residual**
Extreme	2	0	2	0	4	0	5	0	5	0	2	0
High	12	0	13	1	8	1	9	0	8	0	2	0
Moderate	6	11	4	12	7	9	9	12	7	11	2	2
Low	0	9	0	6	1	10	1	12	1	10	5	9
Total	**20**	**20**	**19**	**19**	**20**	**20**	**24**	**24**	**21**	**21**	**11**	**11**

Section 9 Potential Impacts and Measures to Avoid, Mitigate or Manage

For each of the key environmental factors identified in Table E-1, a detailed assessment was prepared addressing existing environmental values, potential impacts and risks, avoidance or management measures, monitoring and reporting and predicted outcomes. Table E-3 provides a summary of the potential consequences of the Project to the relevant factor environmental values and a summary of representative measures proposed to manage the risk and consequence of impact to achieve the NT EPA environmental objectives. All proposed avoidance, management and mitigation or rehabilitation measures are available in the respective sections of the Draft EIS.

Table E-3 Potential Project Impacts and Selection of Avoidance, Mitigation and Management Measures

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
Terrestrial Environmental Quality	
Loss of biological, physical, chemical and aesthetic function in soils affected by clearing	**Avoid** ▪ Only clearing the practical minimum footprint necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; ▪ Make use of already disturbed areas where possible; and ▪ Avoid land clearing during the December to March portion of the wet season. **Mitigation and Management** ▪ Adherence to Ground Disturbance Procedures; ▪ Implement erosion and sediment controls in accordance with an Erosion and Sediment Control Plan (ESCP); and ▪ Implementation of Biodiversity Management Plan. **Rehabilitation** ▪ Monitoring and active rehabilitation of disturbed soils and landscapes; ▪ Implementation of detailed Mine Closure Plan (MCP); ▪ Review options for WRD Rehabilitation; ▪ Financial provisioning for closure and rehabilitation implementation; and ▪ Recover topsoil from TSF, WRD and processing plant footprints.
Contamination of surrounding land and soils from chemicals and hydrocarbons spills	**Avoid** ▪ Design, storage and handling of hazardous materials to Australian Standards and regulations; ▪ Specific adherence of the ANFO storage to *Dangerous Goods Act 1998* and the NT *Work Health and Safety (National Uniform Legislation) Act 2011*; ▪ Chemical and hydrocarbon storage and processing within containment bunding; ▪ Pipelines, pumps, and tanks selected for appropriate capacity; ▪ Pumps operated in accordance with supplier specification and operating manuals; ▪ Drainage to processing plant area sump to prevent contaminant export; and ▪ Maintenance of relevant infrastructure as per manufacture scheduled recommendations. **Mitigation and Management** ▪ Develop Emergency Response Plan (ERP) and include in inductions; ▪ Safety Data Sheets (SDS) available on site; ▪ Spill kits available around the site and procedures and training for the cleaning up of hazardous spills; ▪ Implementation of hazardous materials management plan training for emergency response; ▪ Emergency Management and Response Plan, spill response for transport incidents on site; ▪ Implementation of Water Management Plan; and ▪ Implementation of Biodiversity Management Plan.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	Rehabilitation ▪ Implementation of detailed Mine Closure Plan; ▪ Review options for WRD Rehabilitation; and ▪ Financial provisioning for closure and rehabilitation implementation.
Run-off, discharge of contaminants (AMD, metals, NORMS) altering soil quality	**Avoid** ▪ Make use of already disturbed areas where possible; ▪ Clearly mark limits of clearing; ▪ Adhere to buffer widths recommended by the NTLand Clearing Guidelines with regard to riparian vegetation in drainage lines; ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2016); ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; and ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure. **Mitigation and Management** ▪ Implement erosion and sediment controls in accordance with an ESCP; ▪ Implementation of Biodiversity Management Plan; ▪ Groundwater and surface water monitoring to check quality and any seepage; ▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; and ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF and process water dam, survey pins to monitor the embankment and piezometers to measure pore water pressure. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Implementation of detailed mine closure plan; ▪ Review options for WRD Rehabilitation; ▪ Financial provisioning for closure implementation; and ▪ Recover topsoil from TSF, WRD and processing plant footprints.
Erosion and sedimentation associated with mining activities and infrastructure altering soil quality and land forms	**Avoid** ▪ Make use of already disturbed areas where possible; ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to riparian vegetation in drainage lines; ▪ Avoid land clearing during the December to March portion of the wet season; ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry (Australian Government 2016); and ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	Mitigation and Management ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the process water dams; ▪ Adherence to Ground Disturbance Procedures; ▪ Implement erosion and sediment controls in accordance with an ESCP; and ▪ Implementation of Biodiversity Management Plan. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Implementation of detailed Mine Closure Plan; ▪ Review options for WRD Rehabilitation; ▪ Financial provisioning for closure implementation; and ▪ Recover topsoil from TSF, WRD and processing plant footprints.
Terrestrial Ecosystems	
Direct loss of vegetation and flora	**Avoid** ▪ Baseline flora and vegetation surveys completed prior to commencement of development activities to characterise the receiving environment values and inform mine planning; ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to Sensitive or Significant vegetation Types, e.g. riparian vegetation in drainage lines; ▪ Avoid land clearing during the December to March portion of the wet season; and ▪ Identification and protection of 'No-Go Areas' in accordance with the Environmental Management Plan. **Mitigation and Management** ▪ Only clearing what is absolutely necessary for the portion of the Project to be implemented; ▪ Adherence to Ground Disturbance Procedures; ▪ Implement erosion and sediment controls in accordance with an ESCP; ▪ Clearly mark limits of clearing; and ▪ Have a trained fauna spotter on site during clearing operations. **Rehabilitation** ▪ Progressive rehabilitation will be undertaken on those areas that are no longer required to service the operation of the Project; ▪ Rehabilitation activities will be undertaken in accordance with internal rehabilitation procedures; ▪ Vegetative material removed in the early stages of clearing (e.g. stumps, branches and debris) will be placed in rehabilitated areas to be used as fauna habitat; ▪ Rehabilitation will be planned to support local ecological linkages.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
Introduction or Spread of Invasive and Pest species	**Avoid** ▪ Annual weed mapping (by June each year) to understand nature of the spread of weeds and plan weed control activities accordingly; ▪ Weed inspections completed regularly and prior to commencement of development activities to inform weed management and detection; ▪ Construction material required for site will be inspected prior to entry to site (e.g. any fill material); and ▪ No unauthorised plant or vegetative material to be brought to site. **Mitigation and Management** ▪ Develop and implement a Weed and Pest Management Plan for the Project that specifically addresses the following: - Reduction and management of the local cane toad population – to reduce the threat to listed monitor species in the area; - Active management of invasive grass species (particularly Gamba Grass) within the Project area – to reduce the risk of inappropriate fires; - Reduction and management of feral predators in the local area particularly cats which are known to predate on Pale Field-rats, Red-cheeked Dunnarts and Partridge Pigeon. ▪ Conduct seasonal weed control activities in consultation with local landholder (in and surrounding the Project boundary) in accordance with the site Weed and Pest Management Plan (grazing control as option); ▪ Implementation of the biodiversity management actions within the Project-wide EMP; ▪ Weed hygiene procedures - including inspection and wash down of all vehicles and machinery entering site; ▪ Compliance with ground disturbance and clearing procedures; and ▪ Ensure all employees are aware of the Declared weeds and WoNS during inductions. **Rehabilitation** ▪ Progressive rehabilitation of disturbed areas, including areas of disturbance generated from previous disturbance within the mining envelope; and ▪ Vegetation materials removed prior to clearing, to the extent practicable, for subsequent re-use.
Change to fire regime	**Avoid** ▪ Liaise with Bushfires NT regarding regional (and site) fire break; ▪ Project to establish designated smoking areas; and ▪ Vehicles not to park in vegetation areas (to prevent hot engines causing bush fire). **Mitigation and Management** ▪ PGO to implement appropriate fire regime within the Project tenements in consultation with leaseholder and in accordance with best management practices (to be informed by guidance material on regimes to support best ecological outcomes); ▪ Establish and implement hot work procedures; ▪ Regular inspections of generators and other sources of heat/power; ▪ Fire extinguishers available around site and on all vehicles and machinery; ▪ Training and inductions include Emergency Response Plan (ERP); ▪ Develop Fire Management Plan (or inclusion in ERP above); ▪ Vehicles, plant and machinery to be switched off when not in use; and ▪ Implementation of Project Environmental Management Plan (EMP) (incorporating fire and dust management measures).

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
Fauna injury, morality and displacement	**Avoid** ▪ Baseline fauna surveys completed prior to commencement of development activities to characterise the receiving environment values; ▪ Vehicles to remain on designated tracks; ▪ Implement speed limits of 40 km/hr on internal Project roads and the 60 km/hr on the haul road; and ▪ Vehicles to drive to conditions (e.g. dawn and dusk, fog). **Mitigation and Management** ▪ Areas identified to assist in mining operations will be cleared progressively to minimise impact of local fauna and creation of dust; ▪ Implementation and compliance with internal procedures and standards related to clearing, including: - Pre-clearance surveys will be undertaken to identify and relocate any animals found to be directly impacted from clearing activities; and - Pre-clearance surveys will involve the inspection of all visible tree hollows for the presence of roosting fauna, notably Bare-rumped Sheath-tailed Bat. ▪ Inductions to include information regarding identification and reporting of sightings of fauna species on site, including those that have been previously identified: - Merten's water monitor (*Varanus mertensi*); - Orange leaf-nosed bat (*Rhinonicteris aurantia*); - Arnhem sheath-tailed bat (*Taphozous kapalgensis*); - Red-cheeked dunnart (*Sminthopsis virginiae*); and - Black-spotted ridge-tailed monitor (*Varanus baritji*). **Rehabilitation** ▪ Progressive rehabilitation of disturbed areas, including areas of disturbance generated from previous disturbance within the mining envelope; ▪ The timeframes between mining and rehabilitation will be minimised as far as practicable to ensure that rehabilitation is progressive and allowing fauna habitats to establish for recolonisation; ▪ Rehabilitation activities will be undertaken in accordance with Closure Plan as approved for the Project; ▪ Vegetative material removed in the early stages of clearing (e.g. stumps, branches and debris) will be placed in rehabilitated areas to be used as fauna habitat; and ▪ Rehabilitation will be planned to support local ecological and habitat linkages.
Emissions (dust, noise, vibration and light)	**Avoid** ▪ Areas identified to assist in mining operations will be cleared progressively to minimise impact of local fauna and creation of dust. ▪ Site planning to consider only the necessary clearing of areas and avoid clearing on significantly windy days; ▪ Enforcing speed limits to ensure that all operations are operating at the lowest possible noise level to minimise the impacts of noise and vibration upon wildlife; ▪ Mitigate noise by properly maintaining all equipment in accordance with manufacturers specifications; ▪ Where possible, choose the "Buy Quiet" option for the purchase of equipment; ▪ Vehicles, plant and machinery to be switched off when not in use; and

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Lighting to be switch off when not in use at administration, crib and work areas. **Mitigation and Management** ▪ Development and implementation of Dust Management Plan; ▪ Develop and implement an ESCP; ▪ ESCP controls implemented where ground cracking identified; ▪ Employees will carry out visual monitoring and individual assessment of dust emissions prior to undertaking tasks or attending work areas; ▪ Operations in line with noise regulations; and ▪ Use of low voltage/wattage light bulbs where possible. **Rehabilitation** ▪ Progressive rehabilitation of disturbed areas, including areas of disturbance generated from previous disturbance within the mining envelope.
Uncontrolled discharges	**Avoid** ▪ Manage the site water balance to reduce any build-up of water; ▪ Design the location of water storage facilities away from wetlands and drainage channels; ▪ Chemical storage will be located a minimum 30 m from any drainage line or watercourse; ▪ Design, storage and handling of hazardous materials to Australian Standards and regulations; and ▪ Specific adherence of the ANFO storage to *Dangerous Goods Act 1998* and the NT *Work Health and Safety (National Uniform Legislation) Act 2011*. **Mitigation and Management** ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF; ▪ Develop and implement programme for the monitoring of groundwater; ▪ Implementation of Acid and Metalliferous Drainage Management Plan; ▪ Develop and implement Water Management Plan; and ▪ The management of tailings from processing activities will be undertaken in alignment with the Department of Industry guideline Leading Practice Sustainable Development Program for the Mining Industry – Tailings Management (or as amended).
Waste	**Avoid** ▪ All water storage facilities geotechnically stable and engineered to ANCOLD guidelines; ▪ Weekly inspections of freeboard, structural integrity and pipelines; ▪ Material will be supplied in bulk where appropriate to reduce the among of packaging material going to landfill/offsite disposal; and ▪ Landfill will be set out as prescribed by the Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the NT. **Mitigation and Management** ▪ Compliance with the Waste Discharge Licence; ▪ Implementation of Acid and Metalliferous Drainage Management Plan; ▪ Implementation of Water Management Plan; and ▪ Water quality monitoring program including annual sediment and macroinvertebrate monitoring.
Rehabilitation	**Avoid** ▪ Clearing and ground disturbance will only take place within areas of the mining footprint;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Areas will not be clear areas unless they are approved for direct mining or supporting infrastructure and activities; ▪ Early planning and financial provision for closure works; and ▪ Financial provisioning for closure implementation. **Mitigation and Management** ▪ Implementation of detailed Mine Closure Plan; ▪ Final closure design to account for rehabilitation potential; and ▪ Infrastructure design to withstand extreme events. **Rehabilitation** ▪ Progressive rehabilitation of disturbed areas, including areas of disturbance generated from previous disturbance within the mining envelope; ▪ Erect signage at areas that have been rehabilitation; and ▪ Ongoing monitoring of rehabilitation.
Environmental Management Systems	**Avoid** ▪ Corporate commitment to EMS implementation via policy; ▪ The EMS will align with AS 14001; and ▪ Environmental Management System will include management plans and procedures (EMP, WMP, MMP etc.). **Mitigation and Management** ▪ All events/incidents to be reported and managed through to resolution via event/incident reporting procedures; ▪ All personnel will be inducted into the area and informed of the hazards and relevant management protocols of the areas; and ▪ All personnel will be trained in the appropriate management practices as is relevant to their position.
Hydrological Processes	
Alteration of drainage lines, disruption of natural alignment of creeks and streams	**Avoid** ▪ Only clearing the practical minimum footprint necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; ▪ Make use of already disturbed areas where possible; and ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to riparian vegetation in drainage lines. **Mitigation and Management** ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry; ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; ▪ An operational emergency spillway to be constructed as part of each embankment raise; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Manage the site water balance to reduce any build-up of water; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Geotechnical studies and assessment to ensure structural stability Engineering design to ANCOLD standard; ▪ Tracking of the waste rock and dumping locations; ▪ Waste rock dump plan; ▪ Maximisation of placement within pit; and ▪ Ongoing and regular (weekly) inspections of Project areas and after rainfall events. **Rehabilitation** ▪ Monitoring and active rehabilitation of disturbed soils and landscapes; ▪ Progressive clearing and rehabilitation; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Stable design of landforms; ▪ Implementation of detailed mine closure plan; ▪ Early planning and financial provision for closure work; ▪ Review options for WRD Rehabilitation; ▪ Closure Plan updated and refined throughout mining operations including LOM closure planning and contingency planning; ▪ Financial provisioning for closure implementation; and ▪ Implement fencing and access restriction to prevent vehicle and livestock accessing rehabilitation areas.
Groundwater drawdown from pit dewatering activities	**Mitigation and Management** ▪ Groundwater monitoring; and ▪ Water Management Plan. **Rehabilitation** ▪ Implementation of detailed mine closure plan; ▪ Early planning and financial provision for closure work; ▪ Closure Plan updated and refined throughout mining operations including LOM closure planning and contingency planning; and ▪ Financial provisioning for closure implementation.
Groundwater interaction with site infrastructure seepage	**Avoid** ▪ Design TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry; ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; ▪ An operational emergency spillway to be constructed as part of each embankment raise; ▪ Install seepage control and underground drainage including a cut-off trench, compact soil liner, basin underdrainage collection system, underdrain collection sump and embankment tow drain; and ▪ Sump below pit base to reclaim contaminated water. **Mitigation and Management** ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Groundwater monitoring to check quality and any seepage; ▪ Implementation of Water Management Plan; ▪ Manage the site water balance to reduce any build-up of water; ▪ Capping of the WRDs to reduce ongoing water infiltration and seepage; ▪ Geotechnical studies and assessment to ensure structural stability, engineering design to ANCOLD standard; ▪ Implementation of AMD Management Plan including ore and waste rock controls and tailings controls; ▪ Treatment of pit and underground water to within SSTV criteria; ▪ Minimise concentrated flow of surface water and ponding (drain lines, sediment bunds, liners etc; ▪ Daily monitoring of waste rock handling and tailings disposal; ▪ Tailings and Waste Rock will be managed in accordance with the Tailings Management Plan and Operational Manual (including inspections); ▪ Use of a perimeter spigot with regular movement to evenly distribute tailings; ▪ Regular surveys to measure the tailings and waste rock deposition and water depths; and ▪ Ongoing management of levels in water infrastructure. **Rehabilitation** ▪ Implementation of detailed Mine Closure Plan; ▪ Monitoring and active rehabilitation of disturbed soils and landscapes; ▪ Progressive clearing and rehabilitation; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Stable design of landforms; ▪ Implementation of detailed Mine Closure Plan ▪ Early planning and financial provision for closure work; ▪ Review options for WRD Rehabilitation; ▪ Closure Plan updated and refined throughout mining operations including LOM closure planning and contingency planning; and ▪ Financial provisioning for closure implementation.
Change in volume, spatial and temporal distribution of surface water flows	**Avoid** ▪ Improve and maintain site drainage infrastructure Adherence to Ground Disturbance Procedures; ▪ Implement erosion and sediment controls in accordance with an ESCP; ▪ Only clearing what is absolutely necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; ▪ Make use of already disturbed areas where possible; ▪ Avoid land clearing during the December to March portion of the wet season; and ▪ Discharge of dewatering effluent into drainage lines only during wet-season. **Mitigation and Management** ▪ Implement erosion and sediment controls in accordance with an ESCP;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; ▪ An operational emergency spillway to be constructed as part of each embankment raise; ▪ Install TSF seepage control and underground drainage including a cut-off trench, compact soil liner, basin underdrainage collection system, underdrain collection sump and embankment tow drain; ▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Use of a perimeter spigot with regular movement to evenly distribute tailings; ▪ Groundwater monitoring to check quality and any seepage; ▪ Ongoing and regular (weekly) inspections of Project areas and after rainfall events; and ▪ Minimise concentrated flow of surface water and ponding (drain lines, sediment bunds, liners etc.). **Rehabilitation** ▪ Implementation of detailed Mine Closure Plan; ▪ Monitoring and active rehabilitation of disturbed soils and landscapes; ▪ Progressive clearing and rehabilitation; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Stable design of landforms; ▪ Implementation of detailed mine closure plan; ▪ Early planning and financial provision for closure work; ▪ Review options for WRD Rehabilitation; ▪ Closure Plan updated and refined throughout mining operations including LOM closure planning and contingency planning; and ▪ Financial provisioning for closure implementation.
Flooding	**Avoid** ▪ Only clearing the practical minimum footprint necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; and ▪ Make use of already disturbed areas where possible. **Mitigation and Management** ▪ Adherence to Ground Disturbance Procedures; ▪ Design TSF to contain a range of design storm and rainfall sequence events up to and greater than the required design criteria; ▪ Manage the site water balance to reduce any build-up of water; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the process water dams; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the Pits; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Implement drainage diversions as per the ESCP; ▪ Ongoing and regular (weekly) inspections of Project areas and after rainfall events; ▪ Minimise concentrated flow of surface water and ponding (drain lines, sediment bunds, liners etc.); and ▪ Stable design of landforms.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	Rehabilitation ▪ Progressive clearing and rehabilitation of disused areas; ▪ Implementation of detailed Mine Closure Plan; ▪ Monitoring and active rehabilitation of disturbed soils and landscapes; ▪ Progressive clearing and rehabilitation; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Stable design of landforms; ▪ Implementation of detailed mine closure plan; ▪ Early planning and financial provision for closure work; ▪ Review options for WRD Rehabilitation; ▪ Closure Plan updated and refined throughout mining operations including LOM closure planning and contingency planning; and ▪ Financial provisioning for closure implementation.
Inland Water Environmental Quality	
Increased erosion and sedimentation of surface water courses	**Avoid** ▪ Avoid land clearing during the December to March portion of the wet season; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Construction of Project infrastructure with suitable materials; and ▪ Infrastructure design to withstand extreme events. **Mitigation and Management** ▪ Daily inspections for runoff and drainage problem areas; ▪ Compliance with the Waste Discharge Licence; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Weekly inspections of freeboard, structural integrity, and pipelines; and ▪ Tracking of the waste rock and dumping locations. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Stable design of landforms; ▪ Implementation of detailed mine closure plan; and ▪ Early planning and financial provision for closure works.
Increased turbidity of surface water from sedimentation	**Avoid** ▪ Only clearing what is absolutely necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; ▪ Make use of already disturbed areas where possible; ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to riparian vegetation in drainage lines;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Avoid land clearing during the December to March portion of the wet season; ▪ Revegetation of exposed areas where not proposed to be utilised; ▪ Construction of Project infrastructure with suitable materials; and ▪ Infrastructure design to withstand extreme events. **Mitigation and Management** ▪ Adherence to Ground Disturbance Procedures; ▪ Implement erosion and sediment controls in accordance with an ESCP; ▪ TSF to be planned, designed, constructed, and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Weekly inspections of freeboard, structural integrity, and pipelines; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the pits, WRD, TSF, water storage and process facilities; ▪ Tailings and Waste Rock will be managed in accordance with the Tailings Management Plan and Operational Manual (including inspections); and ▪ Improve site drainage controls. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Stable design of landforms; ▪ Implementation of detailed mine closure plan; ▪ Early planning and financial provision for closure works; ▪ Recover topsoil from TSF, WRD and processing plant footprints; and ▪ Financial provisioning for closure implementation.
Surface water contamination with AMD, cyanide, metals, hydrocarbons, and other chemicals	**Avoid** ▪ Pit-dewatering only during wet season; ▪ Install seepage control and underground drainage including a cut-off trench, compact soil liner, basin underdrainage collection system, underdrain collection sump and embankment tow drain; ▪ Design, storage, and handling of hazardous materials to Australian Standards and regulations; ▪ Bunding of the process plant; ▪ Diesel in bunded storage tanks, waste oil in stored bunded tank; ▪ Chemical storage will be located a minimum 30m from any drainage line or watercourse; and ▪ Design and construct landfill in accordance with relevant standards, implement leachate prevention and capture into landfill design. **Mitigation and Management** ▪ Capping of the WRD to reduce ongoing water infiltration and seepage; ▪ Calculations, identification, and provisioning of suitable cap material; ▪ TSF to be planned, designed, constructed, and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Groundwater and surface monitoring to check quality and any seepage; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF and process water dams; ▪ Geotechnical studies and assessment to ensure structural stability; ▪ All water storage facilities geotechnically stable and engineered design to ANCOLD standard; and ▪ Continued use of drainage controls and bunds. **Rehabilitation** ▪ Implementation of detailed mine closure plan; ▪ Investigation and consideration of long-term closure options; ▪ Progressive rehabilitation of disused areas; ▪ Early planning and financial provision for closure works; ▪ Financial provisioning for closure implementation; ▪ Recover topsoil from TSF, WRD and processing plant footprints; ▪ Clearing and Topsoil Procedures Implementation of Mine Closure; and ▪ Ongoing monitoring of rehabilitation.
Groundwater water contamination with AMD, cyanide, metals, hydrocarbons and other chemicals	**Avoid** ▪ Pit-dewatering only during wet season; ▪ Install seepage control and underground drainage including a cut-off trench, compact soil liner, basin underdrainage collection system, underdrain collection sump and embankment tow drain; ▪ Design, storage and handling of hazardous materials to Australian Standards and regulations; ▪ Bunding of the process plant; ▪ Diesel in bunded storage tanks, waste oil in stored bunded tank; ▪ Chemical storage will be located a minimum 30m from any drainage line or watercourse; and ▪ Design and construct landfill in accordance with relevant standards, implement leachate prevention and capture into landfill design. **Mitigation and Management** ▪ Capping of the WRD to reduce ongoing water infiltration and seepage; ▪ Calculations, identification and provisioning of suitable cap material; ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry; ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Groundwater and surface monitoring to check quality and any seepage; ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF and process water dams; ▪ Geotechnical studies and assessment to ensure structural stability; ▪ All water storage facilities geotechnically stable and engineered design to ANCOLD standard; ▪ Continued use of drainage controls and bunds; ▪ Maximise runoff pond capacity prior to wet season; and ▪ Daily inspections for runoff and drainage problem areas. **Rehabilitation** ▪ Implementation of detailed mine closure plan; ▪ Investigation and consideration of long-term closure options; ▪ Progressive rehabilitation of disused areas; ▪ Early planning and financial provision for closure works; ▪ Financial provisioning for closure implementation; ▪ Recover topsoil from TSF, WRD and processing plant footprints; ▪ Clearing and Topsoil Procedures Implementation of Mine Closure; and ▪ Ongoing monitoring of rehabilitation.
Aquatic Ecosystems	
Sedimentation and erosion altering water quality impacting on aquatic fauna and flora	**Avoid** ▪ Only clearing the practical minimum footprint necessary for the portion of the Project to be implemented; ▪ Clearly mark limits of clearing; ▪ Make use of already disturbed areas where possible; ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to riparian vegetation in drainage lines; ▪ Avoid land clearing during the December to March portion of the wet season; ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry; ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; and ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure. **Mitigation and Management**

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the process water dams; ▪ Daily monitoring of waste rock handling and tailings disposal; ▪ Tailings and Waste Rock will be managed in accordance with the Tailings Management Plan and Operational Manual (including inspections); ▪ Infrastructure design to withstand extreme events; ▪ Improve site drainage controls; ▪ Clearing and Topsoil Procedures Implementation of Mine Closure; and ▪ Corporate commitment to EMS implementation via policy. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Implementation of detailed mine closure plan; ▪ Review options for WRD Rehabilitation; ▪ Financial provisioning for closure implementation; and ▪ Recover topsoil from TSF, WRD and processing plant footprints.
Run-off, discharge of contaminants (AMD, metals, NORMS, and hydrocarbons) altering water quality impacting on aquatic fauna and flora	**Avoid** ▪ Make use of already disturbed areas where possible; ▪ Adhere to buffer widths recommended by the NT Land Clearing Guidelines with regard to riparian vegetation in drainage lines; ▪ TSF to be planned, designed, constructed and operated in accordance with approaches details in the guideline Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry; ▪ Design TSF to contain a range of design storm and rainfall sequences events up to and greater than the required design criteria; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the TSF, survey pins to monitor the embankment and piezometers to measure pore water pressure; ▪ Install seepage control and underground drainage including a cut-off trench, compact soil liner, basin underdrainage collection system, underdrain collection sump and embankment tow drain; ▪ Capping of the WRDs to reduce ongoing water infiltration and seepage; ▪ Continued use of drainage controls and bunds; ▪ Implementation of fencing and access restriction to prevent vehicle and livestock accessing significant creek lines; ▪ Construction of abandonment bund around the processing plant; ▪ Maximise runoff pond capacity prior to wet season; ▪ Cap WRD with suitable waste rock; ▪ Design, storage and handling of hazardous materials to Australian Standards and regulations; ▪ Specific adherence of the ANFO storage to *Dangerous Goods Act 1998* and the NT *Work Health and Safety (National Uniform Legislation) Act 2011*; ▪ Regular maintenance of storage facilities; ▪ Limit pit catchment post closure to reduce inflow;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
	▪ Design and construct landfill in accordance with relevant standard; and ▪ Implement leachate prevention and capture into landfill design. **Mitigation and Management** ▪ Implement erosion and sediment controls in accordance with an ESCP; ▪ Implementation of Biodiversity Management Plan; ▪ Groundwater monitoring to check quality and any seepage; ▪ Tailings performance monitoring (e.g. TSF water volume, collection efficiency of underground system); ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan; ▪ Development of Monitoring Plan / Operational Manual which includes weekly inspections of the process water dams; ▪ Manage the site water balance to reduce any build-up of water; and ▪ Daily monitoring of waste rock handling and tailings disposal. **Rehabilitation** ▪ Progressive clearing and rehabilitation of disused areas; ▪ Implementation of detailed mine closure plan; ▪ Review options for WRD Rehabilitation; ▪ Financial provisioning for closure implementation; and ▪ Recover topsoil from TSF, WRD and processing plant footprints.
Discharge of pit dewatering effluent altering seasonal flow regimes impacting on fish migratory patterns	**Avoid** ▪ Pit-dewatering in drainage lines only during wet season. **Mitigation and Management** ▪ Implementation of Biodiversity Management Plan; ▪ Manage the site water balance to reduce any build-up of water; and ▪ Ongoing surface water monitoring program. **Rehabilitation** ▪ Implement drainage diversions as per the ESCP.
Construction of water way crossing altering flow regimes with increased risk of erosion and sedimentation	**Avoid** ▪ Pit-dewatering in drainage lines only during wet season. **Mitigation and Management** ▪ Implementation of Biodiversity Management Plan; ▪ Manage the site water balance to reduce any build-up of water; and ▪ Ongoing surface water monitoring program. **Rehabilitation** ▪ Reconstruction of original channel landform.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
Construction of water way crossing posing barrier for fish movements	**Avoid** ▪ Construction of creek crossings with culverts and bridge during dry season. **Mitigation and Management** ▪ Construction of fish-friendly water way crossings; ▪ Culverts and bridge to maintain the cross-sectional area of channels to retain the hydraulic characteristics of the area; ▪ Implementation of Biodiversity Management Plan; ▪ Manage the site water balance to reduce any build-up of water; and ▪ Ongoing surface water monitoring program. **Rehabilitation** ▪ Reconstruction of original channel landform.
Community and Economy	
Alteration of water quality impacting community uses (recreation and cultural site and activities)	**Avoid** ▪ Adhere to buffer widths recommended by the NT Land Clearing; Guidelines with regard to riparian vegetation in drainage lines; ▪ Avoid land clearing during the December to March portion of the wet season; ▪ Identification and protection of 'No-Go Areas' in accordance with a Project Environmental Management plan; and ▪ Implementation of Acid and Metalliferous Drainage Management Plan and Water Management Plan. **Mitigation and Management** ▪ Only clearing what is absolutely necessary for the portion of the Project to be implemented; ▪ Adherence to Ground Disturbance Procedures; and ▪ Implement erosion and sediment controls in accordance with an ESCP. **Rehabilitation** ▪ Progressive rehabilitation will be undertaken on those areas that are no longer required to service the operation of the Project; and ▪ Rehabilitation activities will be undertaken in accordance with internal rehabilitation procedures.
Decreased visual amenity	**Avoid** ▪ Retain native vegetation for screening around the accommodation camp and on the boundary of the Project area; ▪ With exception of signage, no storage of plant and equipment in sight of the Arnhem Highway; and ▪ Implement a dust management plan. **Mitigation and Management** ▪ Implementation of dust suppression proactively and when dust lift off is identified; and ▪ Monitor and actively address complaints. **Rehabilitation** ▪ Progressive rehabilitation will be undertaken on those areas that are no longer required to service the operation of the Project; and
Artificial light and noise emissions	**Avoid** ▪ Retain native vegetation for screening around the accommodation camp and on the boundary of the Project area;

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
impacting neighbouring landholders	▪ Lighting to only be installed and used in operational areas; ▪ All light sources will be aimed towards specific work areas requiring light for safe construction and/or operation; and ▪ All lighting is to be of low vertical angle to minimise light spill over. **Mitigation and Management** ▪ Implementation of dust suppression proactively and when dust lift off is identified; and ▪ Monitor and actively address complaints. **Rehabilitation** ▪ Progressive rehabilitation will be undertaken on those areas that are no longer required to service the operation of the Project; and ▪ Rehabilitation activities will be undertaken in accordance with internal rehabilitation procedures.
Employment opportunities	**Avoid** ▪ Prioritise employment from the local area and region (aimed at directing positive economic impacts locally); ▪ Ongoing Project updates and information to the public detailing recruitment (aimed at avoiding missed community expectations); and ▪ PGO to provide training and development to local residents for placement (aimed at maximising local benefit). **Mitigation and Management** ▪ Establish a complaints and feedback register; and ▪ Undertake ongoing stakeholder engagement in accordance with the SEP.
Transportation and site access issues	**Avoid** ▪ Maintain existing access controls; ▪ Combine freight transports and limit vehicle movements for all Project phases; ▪ Provide worker education and company policy expectations through induction material to include traffic safety requirements (e.g. no commuting after long shifts, adherence to road rules etc.); and ▪ Transport of hazardous goods is in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail. **Mitigation and Management** ▪ Implement more stringent controls, where required to limit access to operations to reduce access concerns to sensitive environmental and cultural areas.
Disruption of community cohesion	**Avoid** ▪ Develop and maintain a positive organisation culture that benefits all employees; ▪ Develop a roster that will be sustainable for the majority of employees; and ▪ Regularly update stakeholders regarding Project status. **Mitigation and Management** ▪ Establish a complaints and feedback register; and ▪ Undertake ongoing stakeholder engagement in accordance with the SEP.
Increased demand on community and essential services	**Mitigation and Management** ▪ Acquire any additional services on commercial terms; ▪ Provide in-house first aid treatment to staff (aimed at avoiding the need to utilise external services for minor health issues); and ▪ Undertake ongoing stakeholder engagement in accordance with the SEP.

Potential Impact	Selection of Avoidance, Mitigation and Management Measures
Demographic changes	**Avoid** ▪ Prioritise employment from the local area and region. **Mitigation and Management** ▪ Establish a complaints and feedback register; and ▪ Undertake ongoing stakeholder engagement in accordance with the SEP.
Impacts to cultural heritage values	**Avoid** ▪ Survey over the Project area with the AAPA regarding Aboriginal Sacred Sites; ▪ Undertake consultation with the NTG Heritage Branch with regards to potential heritage sites in the area; ▪ Implement all avoidance, mitigation and management measures identified to address the potential impact of altered water quality; and ▪ Identification and protection of 'No-Go Areas' in accordance with a Project Environmental Management plan. **Mitigation and Management** ▪ Adherence to ground disturbance/clearing procedures; and ▪ In the event that potential archaeological sites are discovered, all works in the immediate area should cease and the Heritage Branch will be contacted for comment.
Regional labour shortage	**Avoid** ▪ Work with local training providers to develop local training programs to provide unskilled people with opportunities to gain employment; ▪ Actively work with the NT Government on placement of redundant mining industry personnel (e.g. from the Ranger Uranium Mine and Union Reef Mine closures); and ▪ Adoption of recruitment policies that allow for appropriate notice periods to be served for new employees. **Mitigation and Management** ▪ Develop programs to assist local businesses retain workers where it is identified the Project is directly impacting labour availability.
Increased demand and reduced housing affordability	**Avoid** ▪ Prioritise employment from the local area and region; and ▪ Accommodate workers in a purpose-built camp for those personnel travelling in to work on the Project.
Economic contribution	**Avoid** ▪ Develop and implement a procurement policy that prioritises local and NT procurement; and ▪ All costs associated with the Project have to be analysed by a financial model (aimed at minimising the risk associated with insufficient funds being available to fully implement the Project (including closure and rehabilitation costs)).

Section 10 Environmental Management

PGO is committed to proactively identifying and mitigating environmental and social risks, including risks posed by historic activities and new developments for the Project. Since taking over the site, PGO has commissioned a range of studies to improve understanding around site conditions to inform the management approach, and has actively engaged with the NT EPA and other stakeholders and community representatives.

The company has been operating in accordance with approved separate Mining Management Plans (MMP) for both the Rustlers Roost and Quest 29 areas (both re-submitted in 2020), which are regulated by the NT Department of Industry, Tourism and Trade (DITT). PGO has also been operating in accordance with the Mine Closure Plan (MCP) for the Rustlers Roost area which was also updated in 2020 (these documents can be found at https://www.hankingmining.com/en/plus/list.php?tid=19). There have been no proceedings against PGO in relation to environmental performance associated with these activities or any other actions.

PGO will continue to develop its Environmental Management System (EMS) which includes an Environmental Policy, Environmental Management Plans (EMPs) and Standard Operating Procedures (SOPs) which enable the systematic review and management of site environmental aspects and impacts. Electronic records of all key environmental information and data are stored digitally on a server, with appropriate back up procedures.

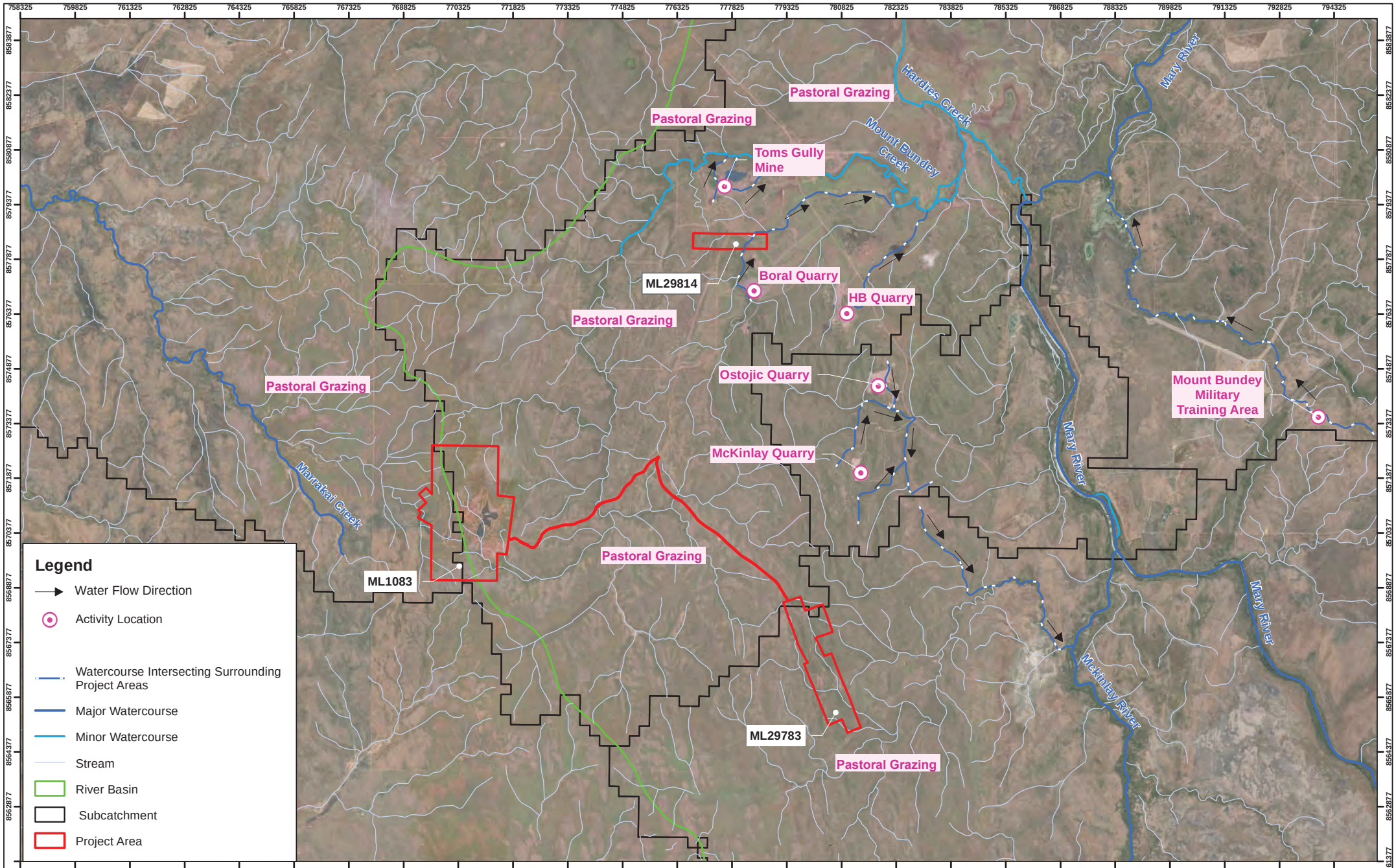
PGO believes that effective environmental management is paramount to a successful future. The company is committed to compliance with legal and other requirements, developing an effective EMS, continuous improvement, and minimising environmental impacts.

Section 11 Holistic Impacts

The Draft EIS provides a detailed assessment of the potential environmental impacts associated with the Project and the management strategies for each relevant environmental factor. The holistic impacts section provides information regarding the key themes of Land, Water and People and how these connect and interact both indirectly and cumulatively as relevant to the Project.

PGO acknowledges the interrelationships between environmental factors require consideration and management to achieve positive environmental outcomes. Given the context of historic mining and extractive industry disturbance within and nearby the Project area (refer to Figure E-6), management and mitigation measures have been considered from a holistic impacts perspective. Therefore, the approach applicable to the management of key environmental factors in the Draft EIS is a natural extension of the established site practices contemporised to reflect current expectations for environmental outcomes to be achieved.

The connections and interactions between the environmental factors have been identified, and the mitigations proposed in the Draft EIS meet the principles contained in the EP Act and the NT EPA's objectives for individual factors. Figure E-6 provides the key activities surrounding the Project in the Mount Bundey locality and Figure E-7 provides the associated diagram of connections and interactions of potential impacts. A summary of the potential source of impacts and predicted outcomes are presented in in Table E-4 below. Where significant residual impacts were identified, offsets have been proposed.



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APPROVED	TK	DATE	25/08/21

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Meters

1 cm = 950 meters

GCS GDA 1994 MGA Zone 52

DISCLAIMER
CDM Smith has endeavoured to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

DATA SOURCE
NT Government Open Source Data

DESIGNER

CDM Smith

CLIENT

PRIMARY GOLD

FIGURE E-6

Surrounding Activities with Potential Indirect or Cumulative Impacts

DRG Ref: 1001087-EIS-07-7.28

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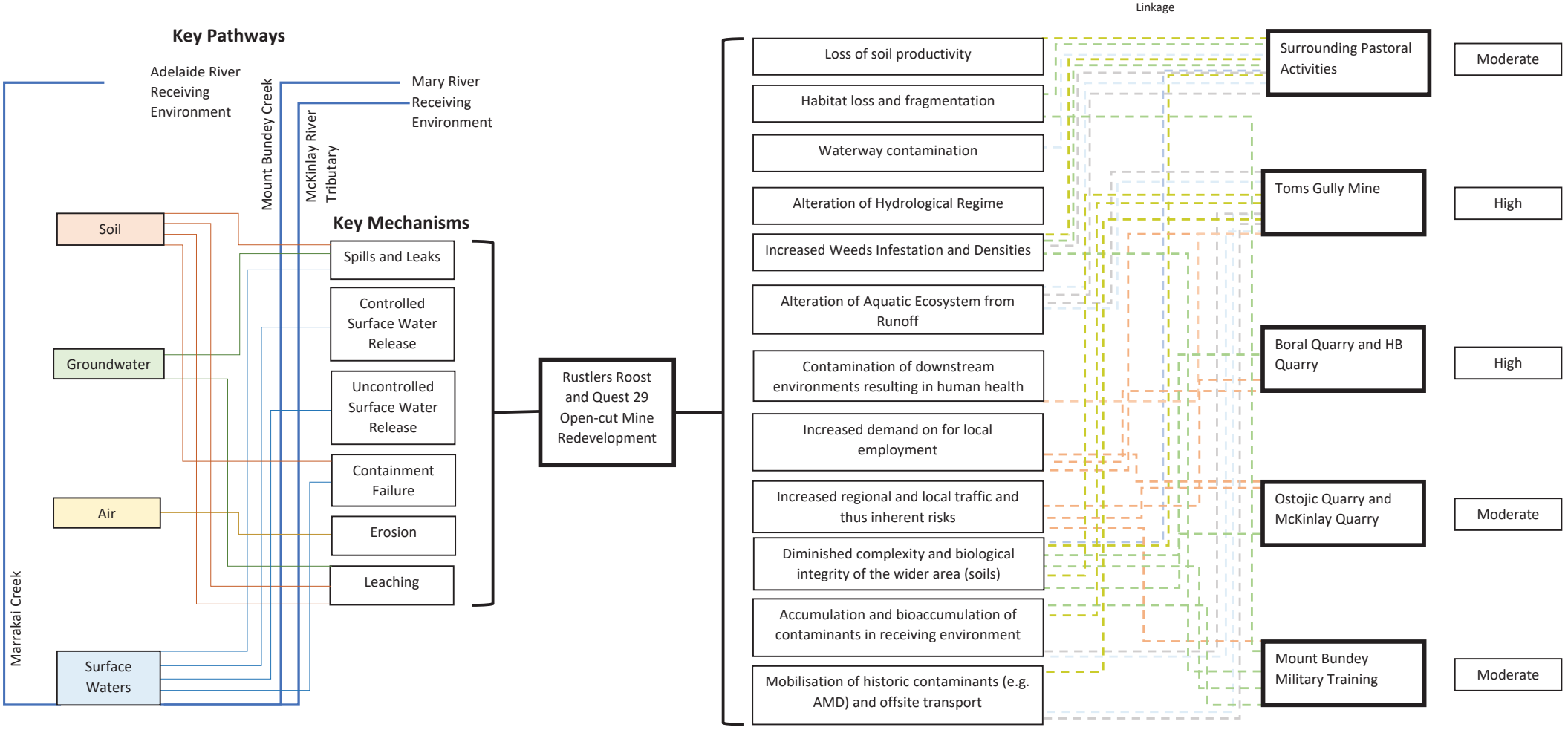
Relevant Factor
Terrestrial Environmental Quality
Terrestrial Ecosystem
Hydrological Processes
Inland Water Environmental Quality
Aquatic Ecosystems
Community and Economy



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Meters

1 cm = 950 meters

GCS GDA 1994 MGA Zone 52

DESIGNER

CDM Smith

CLIENT

PRIMARY GOLD

FIGURE E-7

Potential Indirect and Cumulative Interactions with Surrounding Projects and Activities

DRG Ref: 1001087-EIS-11-11.2

Table E-4 Summary of Potential Indirect and Cumulative Impacts and Predicted Outcomes

Source of Impacts	Predicted Outcomes
Vegetation clearing for the Project	Disturbing an additional 333.4 ha of land for the Rustlers Roost, 26.16 ha for Quest 29, 7.3 ha for the accommodation camp, and 2 ha for the haul road (total of 368.86 ha). The clearing may result in some localised destabilisation of soils and erosion; however, through implementation of the ESCP, erosion and loss of topsoil is anticipated to be retained within the site with minimal offsite movement of material. Based on the review of the selected Projects at varying spatial scales it is estimated that cumulative impacts at the property and catchment scale consist of approximately 592.36 ha of Eucalyptus woodland and fauna habitat1, approximately 602.36 ha in the region and approximately 904.99 ha in the bioregion. As a comparison, using total extent of mapped Eucalyptus woodland and Eucalyptus open forest in these four extents indicates the cumulative impact will constitute roughly 1.28% of Eucalyptus woodland and Eucalyptus open forest at the property scale, 0.32% at the catchment scale, 0.15% at the region scale and 0.03% at the bioregion scale.
Inability to establish native vegetation by local provenance species with resultant cover comparable to nearby areas	Characteristics of soils, including chemical, physical, biological, and aesthetic qualities will be degraded in the vegetation clearing areas. Resulting in less productive soils within the clearing areas; however, this impact is anticipated to be contained within the site disturbance area. Also, the Project commitments include the stripping and retention of topsoils and organic matter for progressive rehabilitation purposes. Therefore, while it is predicted certain areas may be more challenging to rehabilitate with native vegetation of local provenance (e.g. WRDs) this can be overcome through progressive rehabilitation, appropriate planning, management of weeds and fire regime, and limiting access/disturbance of these areas. After the application of mitigation measures, the Project will result in the direct loss of 368.86 ha of native vegetation and subsequently, associated fauna habitat. Although only a single TPWC Act listed species, the Merten's Water Monitor has been recorded in the Project area, the clearing still constitutes potential habitat; however, none of the habitat is considered high quality for listed species and would not support an important population of a listed species, should they occur. In accordance with the NT Offsets Principles (Northern Territory Government 2020), PGO will seek to implement voluntary offsets as part of its corporate responsibilities. PGO commits to directly or indirectly implement biodiversity improvement initiatives in consultation with the NT EPA and in alignment with the forthcoming NT Biodiversity Offset Policy and Biodiversity Technical Guidelines NT EPA.
Overtopping, embankment failure or seepage from the new TSF at Rustlers Roost leading to uncontrolled release of tailings material to surrounding environment.	Strict design requirements have been nominated for the TSF, which will contain Annie's Dam and be utilised for return water. Design criteria will be set in accordance with ANCOLD and therefore the likelihood of failures is considered extremely low. Uncontrolled releases from the spillway into the environment under 'emergency' conditions (e.g. extreme rainfall) is also highly unlikely as the TSF wall is to be built higher than the level of the waste and the spillway during each of the operational stages. The risk is only possible when the tailings dam is in the final stage. Based on the hydrology assessment there is a risk under extreme flood scenarios that runoff could result in erosion and scouring that would contribute to the transportation of sediment. However, the risk of transporting sediments from the Project area to the environment at levels that would result in detrimental impacts to ecosystem functioning, is largely limited to extreme rainfall scenarios that exceed the ESCP design
Overtopping, embankment failure or seepage from the process water storage at Rustlers Roost leading to uncontrolled release of process water to surrounding environment.	

[1] Note – much of this calculated Eucalyptus woodland disturbance has already occurred with development of the quarries.

Source of Impacts	Predicted Outcomes
Embankment failure of Annie's Dam water storage and uncontrolled water and sediment release.	criteria. During operation, the implementation of erosion and sediment controls in accordance with the management plans is anticipated to maintain soil and structure stability and limit the release of sediment from the site to acceptable levels. Furthermore, through the closure, rehabilitation and capping of historic mining features currently contributing to erosion (e.g. heap leach pads) it is possible the Project will result in a net reduction in the offsite movement of sediments. Thus, it is considered highly unlikely the Project would introduce contaminants to the receiving environments through sedimentation that would cumulatively increase contaminates to a level that would impact ecosystem functioning, cause a human health risk or impacts either recreation or cultural uses. Based on the material characterisation study there is risk of transporting material throughout the site that could result in contamination if not appropriately managed (inclusive of AMD and NORMS). However, there is high certainty that runoff from WRDs can be captured onsite and managed and that seepage from both WRDs and the TSF can be prevented based on the chosen design criteria. The determination that runoff can be contained and treated is supported by the water balance model and implementation of the proposed control measures, including development of a geochemical block model. With appropriate implementation and design and controls, the Project should not contribute to cumulative impacts associated with release of chemicals into the environment. The groundwater model predicted that the cone of depression induced by the proposed groundwater extraction may extend up to 5 km to the north and 3 km to the south of the Rustlers Roost pits and 2 km to the south-west of the Quest 29 pits. The modelling demonstrates that the probability of Marrakai Creek, Mary River and McKinlay River being impacted by the proposed pits is minimal. Further, there is only a minor potential area of overlap in the modelled maximum extents of influence between the Project and Toms Gully Mine. Therefore, the likelihood of cumulative groundwater interactions with Toms Gully is considered low. While the groundwater modelling and water balance assessment indicate connectivity with the groundwater aquifers and potential loss of water from the pits into the aquifers (more likely during the dry season), the Pit Lake Water Quality Analysis indicates good water quality with only two contaminants of potential concern slightly exceeding ecosystem values for iron and ammonium. Therefore, it is predicted that seepage of pit lake water into groundwater is unlikely to contribute significant contaminants that would adversely affect the surrounding environment and cumulatively increase contaminants in groundwater from other uses. In accordance with the Pit Lake Water Quality Analysis there is potential for species to bioaccumulate heavy metals should they be feeding on animal species that reside or utilise the pit lakes. There could be localised cumulative impacts with any bird species that utilise the nearby Toms Gully Mine and quarry pits. However, there are no known fish species within the pit lakes and macroinvertebrates are expected to be limited. Furthermore, the edge environment surrounding the pits is sub-optimal for bird and animal species and therefore the risk of bioaccumulation, particularly of species that may be utilised by humans, is considered extremely low. Based on the proposed design approach, management and monitoring measures the risk of overtopping, embankment failure or seepage occurring and contributing contaminants to the environment that would result in bioaccumulation is considered low.
Poor quality runoff or seepage from the historic WRDs and Heap Leaches.	
Embankment failure or seepages from the new WRDs at Rustlers Roost and Quest 29 to surrounding environment.	
Pit and groundwater dewatering exposing PAF and causing AMD.	
Planned pit over topping or release to surface water features during extreme rainfall and flooding events.	
Unplanned pit overtopping or release to surface water features during extreme rainfall and flooding events.	
Poor handling and management of tailings and waste rock	

Source of Impacts	Predicted Outcomes
Indiscriminate use of existing waste rock for construction. Storage of waste rock outside of pit footprint for too long.	Based on the material characterisation study there is risk of transporting material throughout the site that could result in contamination if not appropriately managed (inclusive of AMD and NORMS). However, there is high certainty that runoff from WRDs can be captured onsite and management and that seepage from both WRDs and the TSF can be prevented based on the chosen design criteria. The determination that runoff can be contained and treated is support by the water balance model and implementation of the proposed control measures, including development of a geochemical block model. With appropriate implementation and design and controls, the Project should not contribute to cumulative impacts associated with release of chemicals into the environment. While the lower reaches of Mount Bundey Creek have been subject to AMD a cumulative increase in AMD within the watercourses is unlikely if the site is managed as per the Acid and Metalliferous Drainage Management Plan and the closure commitments implemented (e.g. capping the WRDs).
Failure of process tanks/pipes/ pumps.	The Project will maintain hazardous chemicals onsite. There are established guidelines associated with the storage and handling of hazardous chemicals in Australia and the proponent has committed to operating in accordance with these guidelines. Furthermore, the Project design incorporates significant bunding around the process plant and a sump. Therefore, the risk of stored or transport hazardous chemical release from the site contributing cumulatively to contamination in the surrounding environment is low. While the risk of small scale leaks and spills during operation is an inherent risk in any mining operation, release of these chemicals to the environment during such a scenario can be prevented though employment of appropriate standard operating procedures, training and provision of spill kits. All these measures are proposed for the Project and therefore the risk of release to the environment is low. It is predicted the design, implementation of standard operating procedures and implementation of the environmental management system will sufficiently prevent chemical releases and any incident would be sufficiently minor to be contained and treated with spill kits and through appropriate landfilling of contaminated material. Based on the material characterisation study there is risk of transporting material throughout the site that could result in contamination if not appropriately managed (inclusive of AMD and NORMS). However, there is high certainty that runoff from WRDs can be captured onsite and management and that seepage from both WRDs and the TSF can be prevented based on the chosen design criteria. The determination that runoff can be contained and treated is support by the water balance model and implementation of the proposed control measures, including development of a geochemical block model. With appropriate implementation and design and controls, the Project should not contribute to cumulative impacts associated with release of chemicals into the environment.
Erosion of site infrastructure leading to sedimentation	
Unfinished/ unsuccessful rehabilitation of Project due to inadequate funds or natural disaster (e.g. cyclone).	
Major mechanical failure of processing plant	
Release of hazardous chemicals or materials during storage and handling onsite.	
Release of hazardous chemicals or materials during transportation to site.	
Production of domestic waste and storage of the waste onsite	
Inappropriate liquid and solid waste disposal.	
Poor water quality released from site during wet season (stormwater).	
Lack of rehabilitation materials leads to inadequate tailings closure and poor-quality site rehabilitation.	Based on geochemical analysis, an estimate of NAF and PAF waste volumes has been generated. Based on the data, 46% of the waste rock at Rustlers Roost will not contain sulfur and thus up to 54% (~30.46 Mt) of this waste rock could be PAF, with 46% NAF (~25.94 Mt) available for construction purposes. Based on the data, all waste at Quest 29 will contain sulfur and approximately 60% (~7.26 Mt) of this waste rock will be PAF, with 40% NAF (~4.84 Mt). Based on these quantities, there is sufficient NAF for construction, encapsulation and rehabilitation requirements for the Project. Characteristics of soils, including chemical, physical, biological, and aesthetic qualities will be degraded in the vegetation clearing areas. Resulting in less productive soils within the clearing areas; however, this impact is anticipated to be contained within the site disturbance area. Also, the Project commitments include the stripping and retention of topsoils and organic matter for progressive rehabilitation purposes. Therefore, while it is predicted certain areas may experience difficulty with establishing native vegetation of local provenance (e.g. WRDs) this can be overcome through
Inappropriate management of the decommissioned site, post closure landform.	

Source of Impacts	Predicted Outcomes
Ineffective operational implementation of site environmental management system, plans and procedures.	progressive rehabilitation, appropriate planning, management of weeds and the fire regime, and limiting access/disturbance of these areas. During operations, rehabilitation will be undertaken on the decommissioned heap leach facilities using suitable available oxide waste material. The proposed surface WRD at Quest 29 will be rehabilitated during year three following mining of the first pit (Zamu). The Rustlers Roost surface WRD will be rehabilitated on completion of mining during year eleven, as oxide material from the existing WRD will be utilised to ensure sufficient available oxide capping material for the WRD expansion. The TSF will be rehabilitated at completion of processing (year eleven) following sufficient drying time prior to capping and revegetation. The predicted outcome of this approach is an end stable and safe post-closure landform that does not contribute to ongoing cumulative impacts in the surrounding environment.
Use of Project machinery, equipment, vehicles, and activities causing fire through sparks or heat ignition source.	Bushfires commonly occur in the dry season within the region. Should fires be started due to Project activities (other than controlled burns) they could impact onsite fauna and flora and easily spread offsite. This could couple with fire regimes triggered or associated with nearby projects and activities (e.g. Mount Bundey Military Training Area). However, through the appropriate implementation of the proposed avoidance, management and mitigation measures the predicted outcome for the area will be implementation of a fire regime that is more suited to ecosystem functioning and maintenance of surrounding habitats.
Dust generation from Project activities such as vehicular movements and earthworks.	While there is potential for cumulative contribution to airborne particulates with surrounding activities, this is only likely to occur during severe weather events. Such circumstances are unlikely to result in detrimental impacts to ecological or human receptors in the area. Furthermore, any impacts to fauna through noise and artificial light are predicted to be localised and result in temporary behavioural changes (e.g. avoidance of areas) and will not result in long-term impacts.
Noise and vibration emissions from construction and operational activities (e.g. vehicle movements and blasting).	
Artificial light emissions from construction and/or operation of the mine site.	
Emissions from clearing, dust, noise, artificial light associated with construction and/or operation of the mine site.	
Construction and operational activities (incl. vegetation clearing) result in introduction of new weeds and spread of existing weeds into new areas.	The declared weed species, Hyptis was the most abundant weed within the Project area. Hyptis was recorded in high densities in the southern section of the Quest 29 Project area. Scattered Perennial Mission Grass and Gamba Grass were also observed, mostly within Quest 29 and along roadsides. Other weed species included Spinyhead sida. Introduced weeds and pest animals are a key threatening process to native and listed threatened species in the region. Weed species also contribute to fire regimes and intensities that are adverse to ecosystem functioning. The Project presents opportunities to gain a better understanding of the terrestrial ecological values that are in the area; and will be able to contribute to the management

Source of Impacts	Predicted Outcomes
Increased density of weed infestations.	of introduced and feral species, including weed management, and the control of wild dogs, pigs and cats. Based on the proposed avoidance, mitigation and management measures it is predicated proactive management will reduce pest fauna and flora within and surrounding the Project. With implementation of the proposed measures there is unlikely to be an adverse cumulative impact to the area. The Project commitments include the stripping and retention of topsoils and organic matter for progressive rehabilitation purposes. Therefore, while it is predicted certain areas may experience difficulty with establishing native vegetation of local provenance (e.g. WRDs) this can be overcome through progressive rehabilitation, appropriate planning, management of weeds and the fire regime, and limiting access/disturbance of these areas.
Pit lake becomes a groundwater source.	At Rustlers Roost, the behaviour of the pit lake is not clearly defined as a sink and may be behaving as a through flow with the lake receiving groundwater from the western side and recharging the aquifer on the eastern side. Groundwater level data at Quest 29 indicates that the Zamu pit lake may act as a through flow lake receiving groundwater from the northern side and losing to groundwater on the southern side. The Taipan pit is likely to be leaking to the groundwater aquifer at least on the north-east side of the pit. The pit lake may possibly be working also as a through flow lake as the higher ground elevation on the southern side may suggest higher groundwater level on this side. The South Koolpin pit likely experiences infiltration on the southern end of the pit and higher ground surface elevation on the other sides of the pit also suggest likely groundwater seepage to the pit. The North Koolpin pit lake is likely losing to groundwater. However, the location of the pit along a ridge indicates that groundwater along the ridge may be flowing toward the pit. The BHS pit lake level is standing above the monitoring groundwater level of adjacent bores suggesting that the pit lake is standing above surrounding groundwater level, hence recharging the aquifer. While the groundwater modelling and water balance assessment indicate connectivity with the groundwater aquifers and potential loss of water from the pits into the aquifers (more likely during the dry season), the Pit Lake Water Quality Analysis indicates good water quality with only two contaminants of potential concern slightly exceeding ecosystem values for iron and ammonium. Therefore, it is predicted that seepage of pit lake water into groundwater is unlikely to contribute significant contaminants that would adversely affect the surrounding environment or cumulatively increase contaminants in groundwater from other uses.
Skilled labour shortages	The Project presents economic and community opportunities at a scale that is not problematic for services, existing infrastructure or social fabric and are expected to have on balance an overall positive socio-economic impact. Risks to the community from transport related interactions, altered water quality (affecting downstream recreational and cultural uses) and the risk of unexpected closure resulting in legacy issues that affect the community will remain. However, both the likelihood and consequence of such risks are considered to be sufficiently low through the application of controls applied in accordance with the environmental decision-making framework. The environmental objective identified in the ToR for community and economy risk is to enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians. The Project provides an opportunity to enable further mining increment to generate local economic opportunities with minimal environmental risk and creates the opportunity to manage the unrehabilitated historic disturbance area, waste rock and water management according to international best practice for mine closure such that the ToR objective for this factor is able to be met. Any cumulative impact associated with surrounding Projects is largely expected to be positive (e.g. increased local employment).
Additional highway commuter traffic and associated road safety concerns.	
Influx of workers to the local community seeking housing	
Influx of workers to the local community in general	
Increased demand for local services and supplies	
Disturbance of sites/objects of heritage significance heritage items or places and sacred sites.	