PRIMARY GOLD

Appendix D - Greenhouse Gas Abatement Plan

CDM Smith

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Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

Supplementary Environmental Impact Statement (SEIS)

Appendix D – Greenhouse Gas Abatement Plan

Prepared pursuant to the Environment Protection Act 2019

September 2022

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Document History and Status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
A	13/05/22	T.Kinny	J.Herron	16/05/22	Draft
B	13/05/22	M.Harclerode	J.Herron	17/05/22	Draft
0	23/06/2022	T.Kinny	J.Herron	23/06/2022	Final

Distribution of Copies

Version	Date issued	Quantity	Electronic	Issued to
B	17/05/22	1	Word & PDF	Primary Gold Ltd
0	23/06/2022	1	PDF	Primary Gold Ltd

Last Saved:	23 June 2022
File Name:	Appendix D - GHGAP_Rustlers-Roost-Quest-29-Supplementary EIS
Author:	CDM Smith
Project Manager:	Paul Davey
Client:	Primary Gold Ltd (PGO)
Document Title:	**Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment: Supplementary Environmental Impacts Statement (SEIS)**
Document Version:	Rev 0
Project Number:	1001087

Acronyms, Abbreviations and Units

Abbreviation, Acronym or Unit	Definition
AAPA	Aboriginal Areas Protection Authority
AFANT	Amateur Fishermen's Association of the Northern Territory
ANFO	Ammonium Nitrate
CER	Clean Energy Regulator
CH_4	Methane
CO_2	Carbon Dioxide
CO_2-e	Carbon Dioxide Equivalent
CCUS	Carbon Capture Utilization and Storage
C&D	Construction and Demolition
C&I	Commercial and Industrial
DISER	Department of Industry, Science, Energy and Resources
EIS	Environmental Impact Statement
EP Act	*Environment Protection Act 2019*
ERS	Emission Reduction Strategy
GHGAP	Greenhouse Gas Abatement Plan
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LOM	Life-of-Mine
LPG	Liquefied Petroleum Gas
MCP	Mine Closure Plan
ML	Mineral Lease
Mtpa	Million Tonnes Per Annum
MW	Megawatt
N_2O	Nitrous Oxide
NAF	Non-Acid Forming
NGER	National Greenhouse Energy Reporting
NGER Act	*National Greenhouse Energy Reporting Act 2007*
NT	Northern Territory
NT EPA	Northern Territory Environment Protection Authority
PAF	Potentially Acid Forming
PFC	Perfluorocarbon
PGO	Primary Gold Limited, a wholly owned subsidiary of Hanking Australia Investment Pty Ltd
PPL	Perpetual Pastoral Lease
ROM	Run of Mine
SEP	Stakeholder Engagement Plan
SF_6	Sulfur Hexafluoride
t	Tonne
TJ	Terajoules
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

Section 1 Introduction

1.1 Project Overview

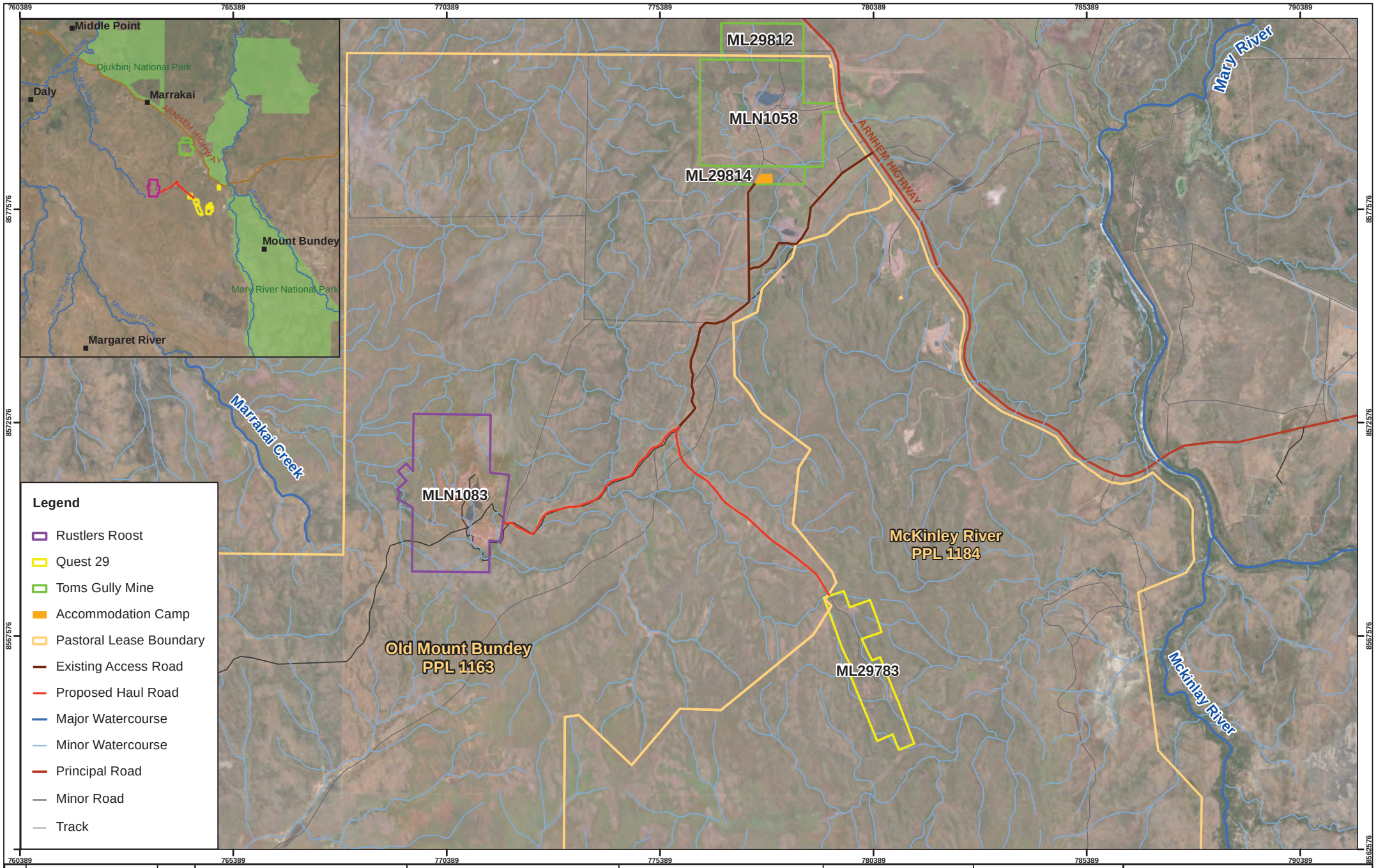
Rustlers Roost and Quest 29 are historic brownfield mining sites on Mineral Leases (ML) located in the Mount Bundey locality, approximately 85 km south-east of Darwin in the Northern Territory (NT). These sites will be redeveloped for open-cut mining, involving connection of the non-contiguous areas by a haul road and construction of an accommodation camp (the Project). The sites have a history of gold mining activity, with first gold being 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 the existing mine by expanding open-cut gold mining operations and connecting the two non-contiguous sites with a haul road. PGO 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 from the Quest 29 satellite pits to a proposed processing facility at Rustlers Roost (Figure 1-1). 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 Pastoral Station (PPL 1184) (Figure 1-1). An accommodation camp for the Project workforce will be located on ML 29814 which is part of the Toms Gully Mine tenements (Figure 1-4). 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 ML. The accommodation camp will be utilised for both the construction and operational phases of the 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 (Annie's Dam pit and Annie's Oakley pit) 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 (Figure 1-2). The accommodation camp layout is provided in Figure 1-5. At Quest 29, the Project includes expansion of the five existing pits (Zamu, Taipan, South Koolpin, North Koolpin and BHS pits) (Figure 1-3). The Project includes an entire development envelope of 790 ha which is the maximum area within which the Project disturbance could occur. However, a large portion of the additional Project footprint is within historically disturbed areas and the Project footprint is not required to encumber the entire Project development envelope. Therefore, the maximum vegetation clearing extent within this area represents less than half of the development envelope (368.86 ha, 47%).



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2	Second Draft	21/07/21
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DESIGNED	SS	CHECKED	JM
DRAWN	SS	CHECKED	JM
APPROVED	-	DATE	22/09/21

Notes:

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0 850 1,700 3,400

Meters

1 cm = 800 meters

GCS GDA 1994 MGA Zone 52

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DATA SOURCE
NT Government Open Source Data

DESIGNER

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FIGURE 1-1

Rustlers Roost and Quest 29 Project Location

DRG Ref: 1001087-EIS-01-1.4

\\bga1svr1\Projects\US DOT\AustRoads\Hanking Gold Mine EIS\1001087 - Rustlers Roost EIS\1001087 - Rustlers Roost EIS\02 MXD\Chapter 1\Figure 1-4.mxd

1.2 Proposal Pathway and Background

A proponent initiated Environmental Impact Statement (EIS) referral was submitted by PGO to the Northern Territory 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.

In accordance with the ToR, the NT EPA considered that the proposed action has the potential to significantly impact environmental values associated with the following six environmental factors:

1. Terrestrial Environmental Quality;
2. Terrestrial Ecosystems;
3. Hydrological Processes;
4. Inland Water Environmental Quality;
5. Aquatic Ecosystems; and
6. Community and Economy.

The NT EPA considered other environmental factors during its assessment of the referral; however, the impact on those factors was not considered to be significant. The Draft EIS was prepared to address the requirements of the ToR and the NT EPA 'Preparing an environmental impact statement (EIS): environmental impact assessment guidance for proponents' (NT EPA 2021a). The key environmental factors listed for assessment in the ToR were addressed in Section 7 Of the Draft EIS (Primary Gold 2021), while other factors not considered likely to be significantly impacted were addressed in Section 8 of the Draft EIS, including Atmospheric Processes.

The Draft EIS for the Project was submitted to the NT EPA on 5 November 2021 with the public exhibition period finishing on 13 January 2022. The NT EPA subsequently provided the formal request for supplementary information to the Draft EIS on 17 February 2022.

The public exhibition process resulted in two submissions relating to greenhouse gases (GHG) and other atmospheric emissions. The Draft EIS committed that the Project would develop and implement a Greenhouse Gas Abatement Plan (GHGAP) (this Plan) prior to construction activities commencing. This GHGAP will also address some of the comments and issues that have been identified through the public exhibition review process.

1.3 Project Description and Activities

The Project will involve open-cut mining and expansion of existing open-cut pits at Rustlers Roost and Quest 29, with two additional pits at the Rustlers Roost location and supporting infrastructure. This section provides an overall description of the Project activities related to this GHGAP. A comprehensive Project description is provided in Section 4 of the Draft EIS.

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 facility. Ore mined at both sites will be processed at a new purpose-built processing facility located at the Rustlers Roost site to

produce gold doré. 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 facility will be deposited in the proposed TSF. The key physical components and activities of the Project relevant to this GHGAP are summarised below:

Rustlers Roost

- Processing plant and Run of Mine (ROM) – The processing facility will be located in the northern portion of Rustlers Roost, immediately north of the South WRD (Figure 1-2) and will be contained in an area approximately 1000 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 pond, process plant infrastructure, power station and transformers, diesel facility, refuelling area, Liquefied petroleum gas (LPG) tanks, process plant and reagent stores, smelter, building infrastructure (administration, maintenance, ablutions, crib room, laboratory and prep room, mining contractor area). The 31 Megawatt (MW) gas-fired power station will be located adjacent to the processing plant and within the nominated plant and ROM footprint. Power will be generated and supplied to the main switchboard at the process plant at 11 kV. The power station will initially be supplied by trucking gas to the site until a permanent gas pipeline is connected from the existing network. The route of a connecting pipeline is currently under investigation;
- 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. 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 Oakley 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;
- 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. more than adequate for LOM). 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 the 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 pits;
- 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;
- 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 LOM. Solid waste materials including non-putrescible commercial and industrial (C&I) waste, non-putrescible construction and demolition (C&D) waste, green waste and limited hazardous waste in the form of contaminated soils will be placed in the landfill. Other hazardous wastes will not be landfilled onsite and will be taken from site by a licenced contractor to an authorised collection or licenced waste disposal facility. The proposed wastes to be disposed in the landfill align with the 'Industrial Waste Landfill' type detailed in the NT EPA Guidelines (NT EPA 2013); and
- Haul road – A haul road is required to transport product ore from Quest 29 to 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. The haul road development envelope will encompass 21.7 ha, of which 19.7 ha is mapped as being previously disturbed by the

existing haul road and bridges. The Project will require clearing of a further 2 ha of land. This clearance value is based on disturbing the entire development envelope.

The Rustlers Roost mine development envelope will encompass 611.0 ha (including all infrastructure), of which 277.6 ha is mapped as being previously cleared/disturbed by historic mining or pastoral activities. The Project will require clearing of a further 333.4 ha of land mapped as containing native vegetation. This clearance value is based on disturbing the entire development envelope, which is considered overly conservative.

Quest 29

- 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. The Quest 29 mine development envelope will encompass 139.5 ha, of which 46.7 ha is mapped as being previously cleared/disturbed by historic mining or pastoral activities. The Project will require clearing of a further 26.16 ha of land mapped as containing native vegetation. This clearance value is based on infrastructure footprints within the development envelope; and

- 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. The WRD construction will commence with the placement of non-acid forming (NAF) material for the base and outer annulus. Potentially acid forming (PAF) material encountered will be placed onto of the NAF base and encapsulated within the centre of the WRD. No PAF material will be placed on outer perimeter, slopes, toe, surface or base of the dump.

Tom's Gully

- 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 in the Toms Gully ML (Figure 1-4), will have an overall capacity of approximately 202 personnel and will accommodate personnel for both the Rustlers Roost and Quest 29 operations. The accommodation camp will have an approximate maximum disturbance area of 9.6 ha (7.3 ha native vegetation and 2.3 ha existing disturbed area) within a 17.8 ha development envelope.

  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 camp is within close proximity to the main powerline adjacent to the Arnhem Highway. As such, selection of the new location for the camp allows for connection to the electricity grid, no longer requiring diesel generators and thus reducing noise and direct atmospheric emissions from the Project. The revision also reduces the amount of diesel required to be trucked to site and thus vehicle movements on the external network.

The disturbance footprint is defined as the direct disturbance area. The mine development envelope is defined as the maximum area within which the proposed footprint will occur. This terminology has been used in the Draft EIS to assess the overall extent of potential disturbance. The total mapped vegetation clearing extent for the Project is conservatively calculated at 368.86 ha (considering that the entire development envelope would be cleared). The existing and proposed disturbance footprints for the Rustlers Roost, Quest 29 and accommodation camp portion of the Project area are presented in Figure 1-2, Figure 1-3 and Figure 1-4 respectively.

The mining operations will use a drill and blast technique involving the use of ammonium nitrate (ANFO). The mining methodology will be consistent over Rustlers Roost and Quest 29, with the open-cut mining operation being conducted with conventional truck and shovel methods. The rate of production will be up to 5 Mtpa over the LOM. Mined ore from Rustlers Roost will be hauled directly to the ROM pad adjacent to the pit. Mined ore from each of the Quest 29 pits will

be placed on the surface crest of the pit where it will be loaded into a haul truck and carted to the Rustlers Roost ROM for processing.

Open-cut mining involves the removal and storage of the waste material to allow access to the metal bearing ore. The overburden and ore are mined using drill and blasting techniques to break up the materials to allow extraction, usually via excavator loading into trucks (DISER 2021).

DISER (2021) have calculated that the primary source of Scope 1 emissions from gold mining is derived from the combustion of liquid fuel, which is usually diesel. These fuels are used to operate equipment such as excavators, bulldozers, haul trucks, drilling rigs and stationary diesel engines, such as those used for water management, electricity generation, and sometimes in-pit or primary ROM crushing. However, it is noted this project is proposing to utilise gas fired generators for operations at Rustlers Roost (including the processing plant) and electricity from the utility grid for the accommodation camp, with diesel only proposed for back-up generators.

Blasting activities from the Project will generate atmospheric emissions, including the oxidation of hydrocarbons, which have been mixed with other material, usually in the form of ANFO, to assist with generating the explosive reaction (DISER 2021).

During the LOM, waste material from the overburden, may be required to be moved multiple times, in response to the evolving nature of the mine plan. Consideration of the movement of waste material, by the Safeguard default emissions intensity value has taken these movements in it account when determining the production variable (DISER 2021).

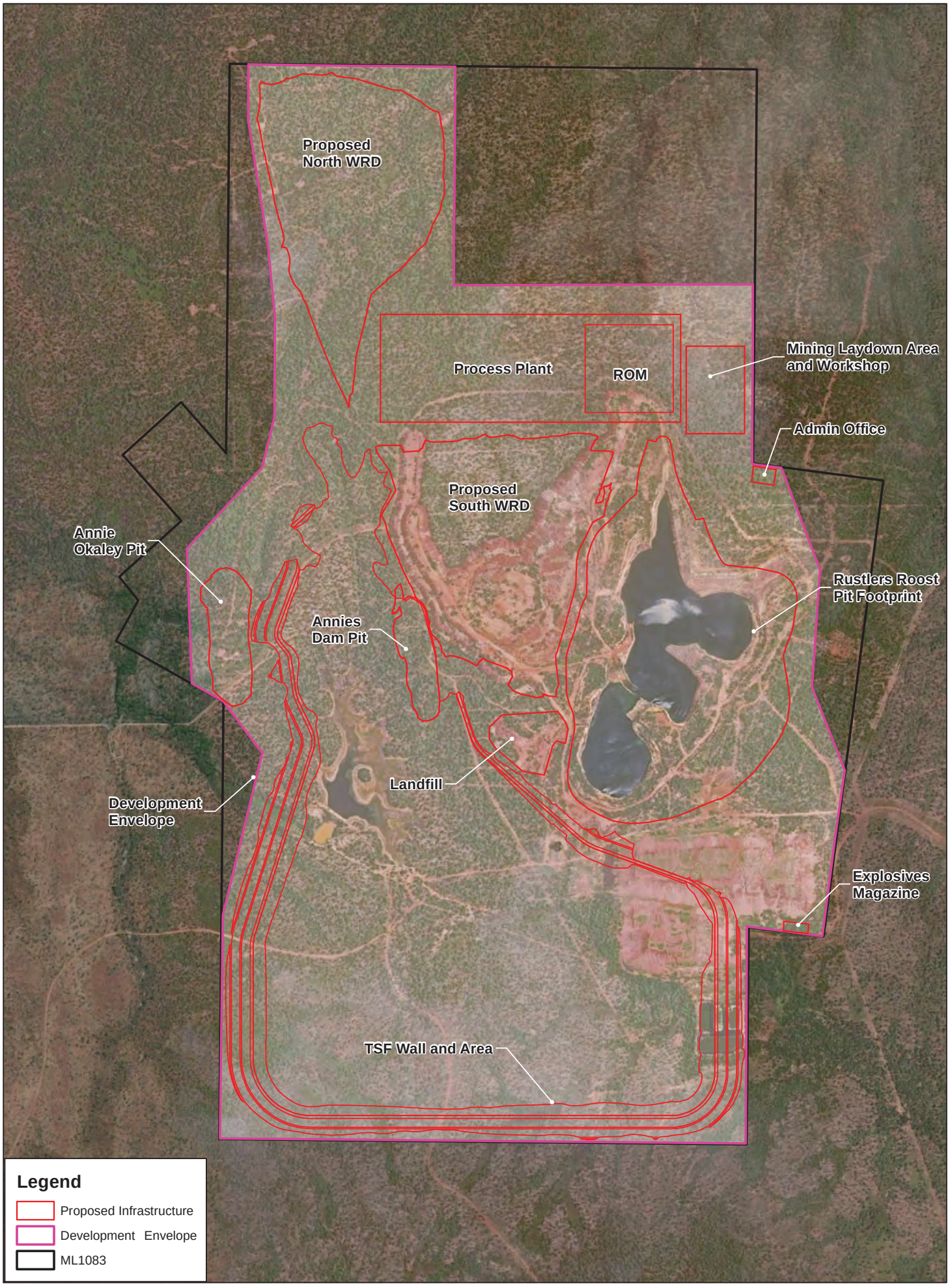
1.3.1 Mining and Processing Equipment

It is expected that the mining equipment will be a combination of readily available new and used fit-for-purpose equipment. Due to the size of the operation an experienced earthmoving contractor will be engaged to undertake mining and haulage of waste rock and ore. The type and quantities of mining equipment expected to be required, are outlined in Table 1-1. The mining equipment inventory will be finalised once further technical studies are completed and contracts are awarded for the mining, crushing and screening operations.

Table 1-1 Mining and Processing Equipment

Type	Size	Maximum Quantity
Excavator	125 – 200-t class	2
Excavator	30-t class	1
Trucks	90 – 100-t class	8
Dozer	50-t class	2
Grader	4.3-m Moldboard	1
Water Cart	80 kL	1
Drill	Track mounted top hammer	3
MMU	Open pit unit	1
Stemming loader	$3m^3$ class	1
Crusher loader	$6.5m^3$ class	1
Fire tender	TBD	1
Workshop truck	TBD	1
Service truck	TBD	1
Boiler makers truck	TBD	2

Type	Size	Maximum Quantity
Light vehicles	Various	10
Lighting plants	5 Head LED	5
Crane	25 t	1
Forklift	TBD	1



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2	Final	27/07/21
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DESIGNED	SS	CHECKED	TK
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APPROVED	TK	DATE	27/07/21

Notes:

N

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Meters
1 cm = 119 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 1-2

Rustlers Roost Proposed Site Layout

DRG Ref: 1001087-EIS-04-4.3

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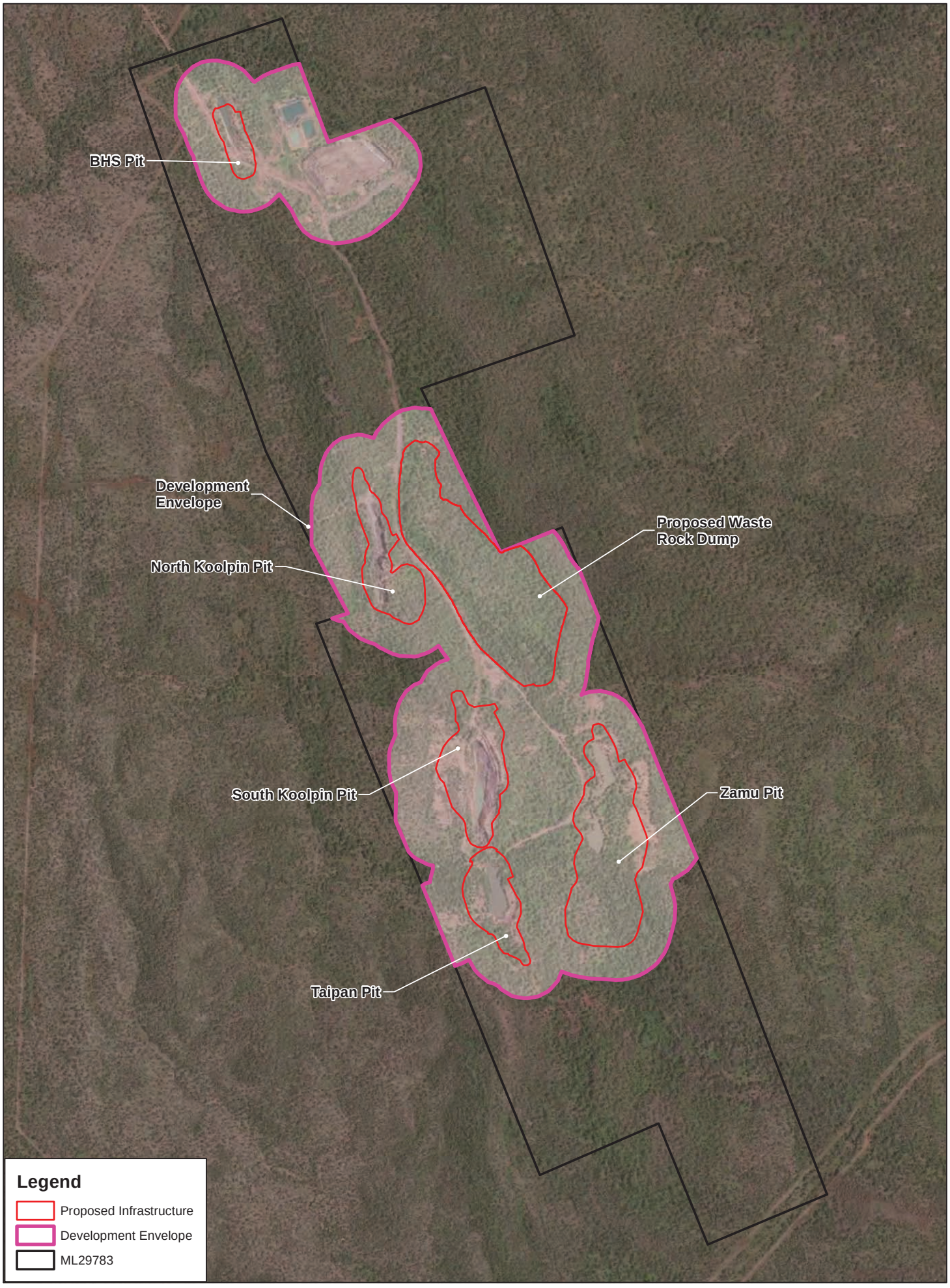

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APPROVED	TK	DATE	27/07/21

Notes:

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

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FIGURE 1-3

Quest 29 Proposed Site Layout

DRG Ref: 1001087-EIS-04-4.4

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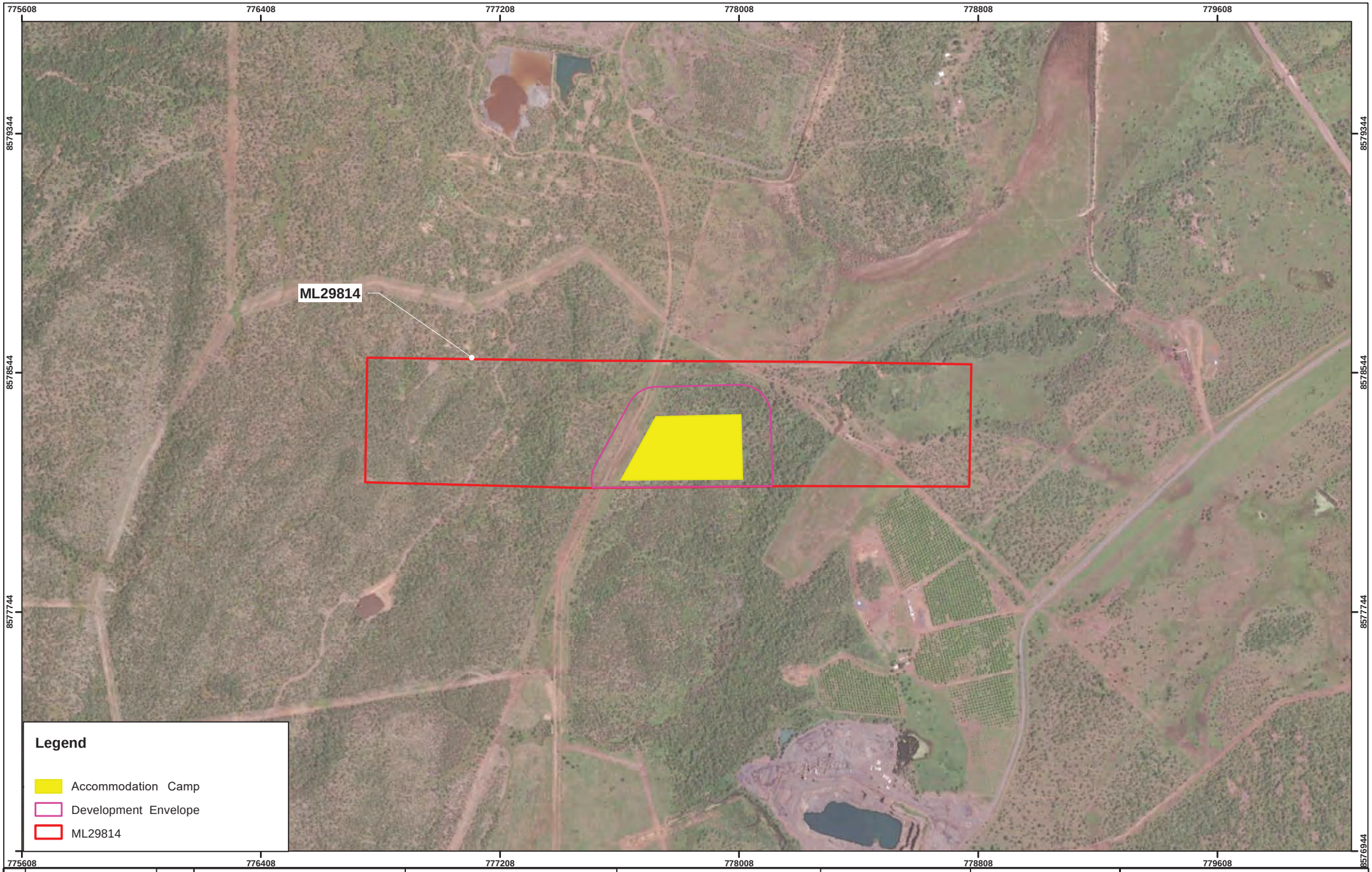

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APPROVED	TK	DATE	07/09/21

Notes:

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Meters

1 cm = 114 meters

GCS GDA 1994 MGA Zone 52

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NT Government Open Source Data

DESIGNER

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Figure 1-4

Accommodation Camp Disturbance Area

DRG Ref: 1001087-MCP-1.3

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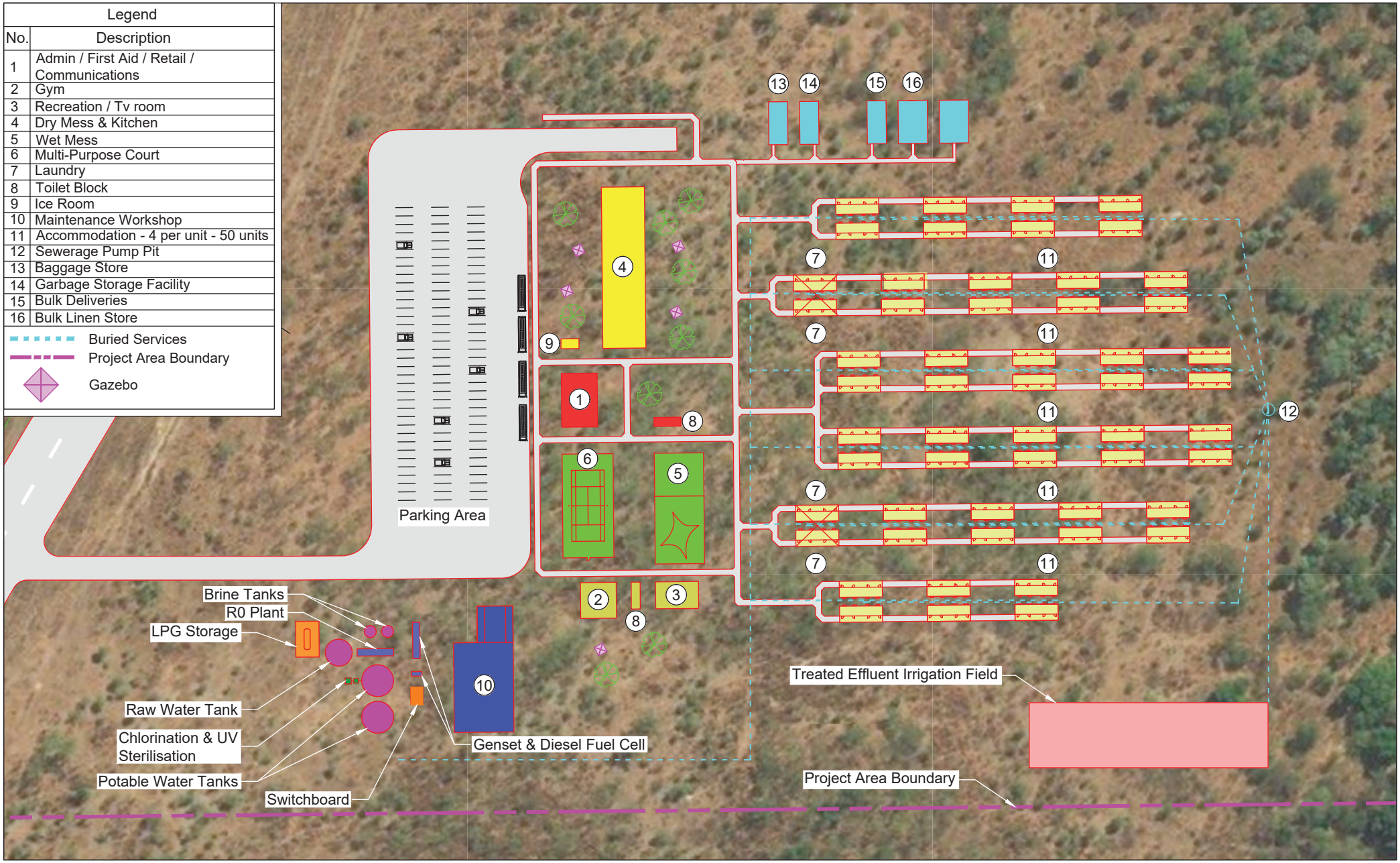

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DRAWN	SS	CHECKED	TK
APPROVED	TK	DATE	18-08-21

Notes:

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Meters

1 cm = 150 meters

GCS GDA 1994 MGA Zone 56

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DATA SOURCE
NT Government Open Source Data

CONSULTANT

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FIGURE 1-5

Accommodation Camp Layout

DRG Ref: 1001087-EIS-04-4.16

1.4 Objectives of the Greenhouse Gas Abatement Plan

PGO has prepared this GHGAP to assist with the identification and mitigation of potential Scope 1, Scope 2 and Scope 3 GHG emission sources. The objectives of this Plan are to:

- Support the assessment, approval and implementation of the Project under the relevant legislation identified in Section 2 of this Plan;
- Estimate Scope 1, Scope 2 and Scope 3 total GHG emissions during the Project construction and operation phases;
- Provide for ongoing GHG emission reductions over the life of the Project;
- Set regular interim emission reduction targets over the life of the Project that drive incremental reductions in net operational emissions (i.e. Scope 1 and 2 emissions), supported by regular review and evaluation reporting on a minimum 2-yearly basis; and
- Summarise current and future strategies and activities that demonstrate all reasonable and practicable measures are considered and applied in accordance with the mitigation hierarchy to reduce operational emissions from the Project in line with the interim targets.

The Plan has applied the framework from the NTG of avoid, mitigate and manage GHG emissions, to all phases of the Project's lifecycle (planning and design, construction, operation and closure) (DEPWS (2021).

PGO is committed to avoiding GHG emsissions through the use of low emission technologies where practicable, ensuring consideration of measure to improve operational performance and the setting of targets for emission intensity improvements over the LOM (WA EPA, 2019).

Section 2 Regulatory Context

NT EPA Environmental Objective	Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.
Relevant Policy and Guidance	▪ *National Greenhouse and Energy Reporting Act 2007* (NGER Act); ▪ National Greenhouse and Energy Reporting Regulations (NGER Regulation) 2008; ▪ National Greenhouse Accounts Factors (DotEE 2017); ▪ State and Territory Greenhouse Gas Inventories 2018 (DISER 2020); and ▪ Greenhouse Gas Emissions Management for New and Expanding Large Emitters (DEPWS 2021b).

2.1 Australia's International Commitments

International commitments regarding climate change and global action are addressed by the United National Framework Convention on Climate Change (UNFCCC). There are currently 192 Parties to the UNFCC including Australia. Australia's global commitments to climate change is overseen by DISER.

The Kyoto Protocol is an international agreement created under the UNFCCC in Kyoto, Japan in 1997. Australia ratified the Protocol in 2007, and this came into effect in 2008. The Kyoto Protocol aims to reduce global GHG emissions by requiring developed countries to meet internationally agreed emission reduction or limitation targets for the period 2008-2012. This was then extended to 2020.

Under the Paris Agreement, the most recent progression of the UNFCCC, Australia has set a target to reduce emissions by 26-28% below 2005 levels by 2030, building on the 2020 target of reducing emissions by 5% below 2000 levels. The objectives of the Paris Agreement include:

- A goal to limit the increase in global temperatures to well below 2°C and pursue efforts to limit the rise to 1.5°C;
- A commitment to achieve net-zero emissions globally, by the second half of the century;
- Differentiated expectations for developed nations, including Australia, that they will reduce their emissions sooner than developing nations; and
- A five year review and ratchet process which is likely to lead to more ambitious commitments from countries in the future.

The GHG reportable under international commitments are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF_6).

These gases vary in effect and longevity in the atmosphere, however a system named Global Warming Potential (GWP) allows them to be described in terms of CO_2, called carbon dioxide equivalents (CO_2-e). A unit of one tonne of CO_2-e is the basic unit used in carbon accounting.

2.2 Commonwealth

2.2.1 National Greenhouse Energy Reporting Requirements

The Clean Energy Regulator (CER) was established on 2 April 2012 as an independent statutory authority by the *Clean Energy Regulator Act 2011*. The CER administers the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and this legislation establishes the framework for the National Greenhouse and Energy Reporting (NGER) Scheme, a national framework for reporting GHG emissions, GHG and energy consumption and production by corporations in Australia.

The objectives of the NGER Scheme are to:

- Inform government policy;
- Inform the Australian public;
- Help meet Australia's international reporting obligations;
- Assist Commonwealth, state and territory government programmes and activities, and
- Avoid duplication of similar reporting requirements in the states and territories (CER 2022).

The "Safeguard Mechanism" is administered through the NGER Scheme and, together with the reporting obligations under the NGER Act, provides a framework for Australia's largest emitters to measure, report and manage their emissions. It does this by encouraging large facilities, whose net emissions exceed the Safeguard threshold, to keep their emissions at, or below, emission baselines set by the CER. The Safeguard mechanism applies to those facilities with scope 1 emissions of more than 100,000 t CO_2-e/annum.

The NGER Act is applied when a corporation, or single facility, exceeds the threshold values as detailed in section 13 of the NGER Act. The NGER Act details and allowable calculation methodologies that are contained in the following:

- National Greenhouse and Energy Reporting Regulations 2008 (NGER Regulation); and
- National Greenhouse and Energy Reporting Determination 2008 (NGER Determination).

Registration and reporting are mandatory for corporations that have energy production, energy use or GHG emissions that exceed specified thresholds. Current NGER Act reporting thresholds are summarised in Table 2-1.

Table 2-1 NGER Reporting Thresholds

	Threshold Type		
	GHG (kilotonnes CO_2-e) Scope 1 and Scope 2	Energy Consumption (TJ)	Energy Production (TJ)
Facility	25	100	100
Corporate	50	200	200

Source: CER (2021)

Australian corporations that meet the following facility thresholds must report their emissions and energy information annually under the NGER scheme:

- 25,000 t or more of GHG (CO_2-e) (scope 1 and scope 2 emissions);

- Production of 100 terajoules (TJ) or more of energy; or
- Consumption of 100 TJ or more of energy.

Gold mines and their processing facilities, generally trigger these facility threshold limits and therefore are required to report GHG emissions, energy production, energy consumption under the NGER scheme.

The Commonwealth Department of Industry, Science, Energy and Resources (DISER) published the Safeguard Mechanism document: *Prescribed production variables and default emissions intensities* (the 'Safeguard Mechanism Document') in July 2021.

2.3 Northern Territory

2.3.1 Northern Territory Climate Change Response: Towards 2050

The *Northern Territory Climate Change Response: Towards 2050* (NTG 2020) presents the NT's response to the challenge of climate change. The NT's objective is to progressively reduce net GHG emissions, with the goal of achieving net zero emissions by 2050. This long-term objective sets expectations about future emission constraints to help NT's industries, inform businesses plan's and adapt. Aiming to achieve net zero emissions aligns the NT with the other States and Territories across Australia. The objective of net zero emissions is proposed to be achieved by strategies and actions aimed at reducing emissions, investing in renewable energy and supporting opportunities for carbon sequestration and storage.

2.3.2 Greenhouse Gas Emissions Management for New and Expanding Large Emitters

The NTG's 'Greenhouse Gas Emissions Management for New and Expanding Large Emitters' policy (DEPWS 2021a) identifies the minimum requirements for the management of GHGs from new or expanding industrial and land use development projects. It has been established in recognition of the NT's target of net zero GHGs by 2050. The policy applies to all new and expanding existing projects that are likely to be large emitters that meet an emission threshold of 100,000 t CO_2-e of scope 1 emissions in any financial year over the life cycle of a project. This policy does not consider the emissions generated from land clearing directly associated with the project.

The Project's annual GHG scope 1 operational emissions are estimated to be in the order of 215,000 t CO_2-e (refer to Section 3.1).

2.3.3 Draft Greenhouse Gas Emissions Offset Policy and Technical Guidelines

The NTG has released a draft *Greenhouse Gas Emissions Offsets Policy and Technical Guidance* (NTG 2021) for public consultation in September 2021. The policy establishes how and when to use offsets in the Northern Territory to compensate for emissions. The policy applies to offsets in relation to emissions only and biodiversity offsets are subject to a separate biodiversity offset policy and technical guidelines. Where an emissions offset is considered appropriate, the decision maker for the approval may require residual emissions to be offset as a condition of the approval (an emissions offset approval condition). This may require proponents to deliver on their offset proposal or may apply different offset requirements than those proposed by the proponent.

PGO has applied the NT Government's Policy for Greenhouse Gas Emissions Management for New and Expanding Large Emitters (Large Emitters Policy) (DEPWS 2021b) in preparation of this GHGAP and will continue to engage with the NTG as the framework and policies for the NT become ratified.

Section 3 Greenhouse Gas Emissions

For the purposes of this GHGAP, Scope 1, 2, and 3 emissions were calculated in accordance with guidance provided in the Northern Territory's *Greenhouse Gas Emissions Management for New and Expanding Large Emitters* (DEPWS 2021b), Department of the Environment and Energy *National Greenhouse Accounts Factors* (DotEE 2017), and the Greenhouse Gas Protocol *Technical Guidance for Calculating Scope 3 Emissions (version 1.0).* A summary of the GHG emissions for the site are provided in Table 3-1, below and explained in the subsequent sections.

Table 3-1 Baseline Annual GHG Emissions for Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

	Yearly Scope 1 Emissions (t CO_2e)	Yearly Scope 2 Emissions (t CO_2e)	Yearly Scope 3 Emissions (t CO_2e)
Construction Phase (2022-2023)	38,600	Not Applicable	99.7
Operational Phase (2023 – 2032)	215,000	1,790	23,500

3.1 Estimated Scope 1 Emissions

Scope 1 emissions are defined as emissions released to the atmosphere as a direct result of an activity or series of activities at the project site (i.e. within the boundaries of the Rustlers Roost and Quest 29 sites). These activities include emissions released from stationary sources such as the burning of natural gas in an onsite power plant and mobile sources such as burning of diesel in trucks operating onsite. For this GHGAP, Scope 1 emissions were calculated separately for the construction phase and operational phase of this project. The construction phase is expected to occur for one year, starting at the end of 2022 and extending into 2023. The operational phase is expected to occur for 10 years, starting in 2023 and ending in 2032.

The Scope 1 emissions for the construction phase of the project include emissions associated with vegetation clearing, generator usage, construction machinery usage for all new infrastructure (processing plant, administration facilities, landfill etc.), and transport within the boundaries of the Project site. In total, the Scope 1 emissions associated with construction are expected to be 38,600 t CO_2e. Approximately 95% of these emissions are associated with vegetation clearing. For purposes of this calculation, it was assumed that 368.86 hectares would be cleared as part of construction.

The Scope 1 emissions for the operational phase of the project include emissions associated with the onsite power plant, proposed landfill, wastewater treatment plant, operational machinery usage (including mining and haulage), smelter and transport within the boundaries of the Project site. In total, the annual Scope 1 emissions associated with operation are expected to be 215,000 t CO_2e. Over the lifetime of operations (i.e., 10 years), the total Scope 1 emissions are expected to be 2.15 Mt CO_2e.

The release of gas from the onsite landfill comprises 56% of the total Scope 1 emissions associated with operation. This calculation is conservative in that it assumes that 100,000 tons of commercial and industrial waste is deposited into the landfill annually and the emission factors used for this calculation from Department of Environment and Energy *National Greenhouse Accounts Factors* (DotEE 2017) reflect lifetime emissions from commercial and industrial waste degradation in the landfill assuming no methane recovery. This project will dispose of primarily construction and demolition debris which will have a lower organic content and thus, less methane generation than typical commercial and industrial waste. A large portion of the actual waste is likely to be construction and demolition waste which has a lifetime emissions factor six times lower than construction and industrial waste. Nevertheless, given the exact proportion of waste types is currently unknown, the higher emission factor has been applied for the entire waste.

The NGA factor calculation assumes that lifetime emissions from that tonnage of waste are released in Year 1 which is unrealistic given the landfill will be newly constructed and waste degrades and releases methane over time. While the waste will continue to degrade and release emissions post-closure, all of these emissions are accounted for in the calculation of the 10 years of project operation.

The landfill will be closed appropriately at the end of the project (10 years) to minimise methane emissions. Nevertheless, this is a conservative estimate used for the purposes of this GHGAP. More accurate data on the landfill may be obtained as it is constructed and utilised.

Operation of the onsite power plant is an additional significant source of Scope 1 emissions, expected to comprise 39% of the total Scope 1 emissions associated with operation. Emissions associated with operational machinery comprise 5% of the total, while emissions associated with wastewater treatment, smelter and transportation within the boundaries comprise less than 1% of the total.

The overall annual Scope 1 emissions for the Northern Territory are approximately 16,000,000 t CO_2e (DISER 2020). The expected annual Scope 1 emissions from the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project would increase overall emissions in the Northern Territory by approximately 1.3%.

3.2 Estimated Scope 2 Emissions

Scope 2 emissions are defined as emissions released to the atmosphere from the indirect consumption of an energy commodity. Scope 2 emissions include emissions associated with purchased electricity, steam, and heating/cooling. No Scope 2 emissions are expected to occur during the construction phase of this project. As a result, Scope 2 emissions for this project only occur during the operational phase.

The Scope 2 emissions for the operational phase of the project include emissions associated with the consumption of purchased electricity from Jacana Energy, the anticipated electrical utility. In total, the annual Scope 2 emissions associated with operation are expected to be 1,790 t CO_2e. Over the lifetime of operations (i.e. 10 years), the total Scope 2 emissions are expected to be 17,900 t CO_2e. For purposes of this GHGAP, it is assumed that 2.8 GWh will be purchased per year to operate the accommodation camp. An electricity emission factor for the Northern Territory was used for this calculation.

The Scope 2 emissions for the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project would be considered Scope 1 emissions for the Northern Territory. As described in Section 3.1, the overall annual Scope 1 emissions for the Northern Territory are approximately 16,000,000 t CO_2e (DISER 2020). The expected annual Scope 2 emissions from the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project would increase overall emissions in the Northern Territory by approximately 0.01%.

3.3 Estimated Scope 3 Emissions

Scope 3 emissions are defined as indirect emissions generated in the wider community other than Scope 2 emissions. As indicated in the Northern Territory's guidance *for Greenhouse Gas Emissions Management for New and Expanding Large Emitters* (DEPWS 2021b), Scope 3 emissions occur as a consequence of the activities of a facility/project but arise from sources not owned or controlled by that facility's business, or not performed within the project boundaries. For purposes of this GHGAP, the relevance of the 15 categories of Scope 3 emissions described in the Greenhouse Gas Protocol *Technical Guidance for Calculating Scope 3 Emissions (version 1.0)* were evaluated. The following categories were determined to be relevant: fuel and energy related activities, upstream transportation and distribution, employee commuting, business travel, and downstream distribution. The following categories were determined to be not relevant as either the project will not include these categorises of services, life cycle data is unavailable and estimation would be highly ambiguous or insignificant to the Scope 3 calculation: purchased goods and services, capital goods, waste

generated in operations, upstream leased assets, processing of sold products, use of sold products, end of life treatment of sold products, downstream leased assets, franchises, and investments. The results of the Scope 3 calculations are shown below in Table 3-2.

Table 3-2 Scope 3 Annual Emissions for Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

Scope 3 Category	Construction Phase (2022-2023) (t CO_2e)	Operational Phase (2023-3032) (t CO_2e)
Fuel and Energy Related Activities	99.7	22,200
Upstream Transportation and Distribution	Not Relevant	337
Employee Commuting	Not Relevant	1,009
Business Travel	Not Relevant	22.8
Downstream Transportation and Distribution	Not Relevant	150

The largest source of Scope 3 emissions during the operation phase is the emissions associated with fuel and energy related activities as identified in Table 3-2 and described below (e.g. diesel consumption for staff transportation and material delivery and natural gas and purchased electricity consumption). These emissions were calculated using the Scope 3 emission factors for the appropriate fuels (i.e., natural gas, diesel, and purchased electricity) provided in the National Greenhouse Accounts Factors (DotEE 2017). Employee commuting was the second largest source of Scope 3 emissions. These calculations assume a total workforce of 210 and that 20% of workers fly-in to Darwin while 80% of workers commute to the site via bus or light duty vehicles. The calculations were based on the following assumptions:

- Fuel and Energy Related Activities:
  - Construction:
    - A total of 717.5 KL of diesel consumed.
  - Operation:
    - 4,034.2 KL per year of diesel consumed;
    - 1,642,000 GJ of natural gas consumed; and
    - 2,800,000 kWh of purchased electricity consumed.
- Upstream transportation and distribution:
  - 365 trips per year (40 tonne trucks) for consumables and food trucks (approx. 100 km one way);
  - 350 trips per year for ANFO truck (approx. 50 km one way); and
  - 730 bus trips per year between accommodation camp and Rustlers Roost (approx. 15 km one way);
  - 4,380 light vehicle trips per year between accommodation camp and Rustlers Roost (approx. 15 km one way);
  - 2,190 fuel trucks delivery (100 tonne semi) per year (approx. 100 km one way).
- Employee Commuting:
  - 52 flights per year for FIFO workers (20% of workforce) from Perth to Darwin (approx. 5,400 km round trip);

  - 52 round trips per year for roster buses from Darwin to camp (approx. 100 km one way);
  - 365 round trips per year for shift change bus for locals near the mine (approx. 50 km one way); and
  - 3,650 round trips for light vehicle for local miscellaneous drive (approx. 50 km one way).

- Business travel:
  - Assumed one return flight per week (52 weeks) annually from Perth to Darwin (approx. 5,400 km round trip).
- Downstream Transportation and Distribution:
  - 52 round trips per year for final product distribution (approx. 2,000 km round trip).

Emission factors from the National Greenhouse Accounts Factors (DotEE 2017) were used to the extent possible. Emission factors for aviation were provided from the U.S. Environmental Protection Agency (EPA) Emission Factors for Greenhouse Gas Inventories (2022). Upstream transportation and distribution emissions were calculated by estimating the number of truck deliveries to the site annually. Similarly, downstream transportation and distribution emissions were calculated by estimating the number of truck deliveries from the site annually. A distance of 1,000 kilometres one way was conservatively assumed for the downstream transportation and distribution emissions (transport of gold dorè product). For both upstream and downstream transportation emission factors from the National Greenhouse Accounts Factors (DotEE 2017) were used.

Section 4 Emissions Target

Both interim and long-term emissions targets have been proposed for the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project in accordance with the Northern Territory's *Greenhouse Gas Emissions Management for New and Expanding Large Emitters* (DEPWS 2021b). The proposed targets were based on the baseline Year 1 and are shown below in Table 4-1.

Table 4-1 Scope 1 and 2 Emissions Reductions Targets for Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment

	Year 1	Year 5	Year 8	Year 10
Emissions Target Percentage Reduction	0%	5%	8%	10%
Projected Scope 1 Emissions (t CO2e)	215,000	204,250	197,800	193,500
Projected Scope 2 Emissions (t CO2e)	1,790	0	0	0
Scope 1 and 2 Emissions Intensity (t CO2e/t ore)	0.043	0.041	0.040	0.039

Note: GHG emission intensity calculation is based on the operational phase only and assumes a production rate of 5 Mtpa of ore to be processed.

The average emissions intensity for gold production on a per ton throughput basis in Australia is 0.0332 t CO2e/t ore according to a recent study by S&P Global Market Intelligence (2021). It is likely that the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project has a higher emissions intensity than the national average as a result of the conservative assumptions surrounding the landfill discussed in Section 3.1.

4.1 Justification of Proposed Targets

Targets were developed to be in alignment with the Northern Territory Government's target for net zero GHG emissions by 2050. The operations at the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment site will be complete 18 years prior to Northern Territory Government's net-zero 2050 goal. At this time, the Northern Territory Government has not released the emissions reduction strategy (ERS) for the Northern Territory. This ERS is anticipated to have interim targets between now and 2050. According to the Northern Territory Government's website, the target to complete the ERS is mid-2022; however, no ERS for the Northern Territory was available at the time of preparation of this report. As a result, this GHGAP sets interim and long-term targets that align with the Northern Territory Government's overall strategy to minimise GHG emissions and reach net zero by 2050. These targets were developed to be realistic and achievable, while also providing significant reductions in overall GHG emissions. All targets are based on percentage reduction for Scope 1 and 2 GHG emissions intensity. The GHG emissions intensity is calculated by dividing the total Scope 1 and 2 emissions for operation each year by the annual expected mass of ore to be processed (5 Mtpa).

4.2 Overarching Long Term Emissions Target

Because the Rustlers Roost and Quest 29 Open-Cut Mine Redevelopment project will only be operational for 10 years, the long-term emissions target was set to be achieved in Year 10 (2032). The long-term target for this project is to reduce the Scope 1 and 2 GHG emissions intensity by 10% compared to a Year 1 (2023) baseline. This target will result in a GHG emissions intensity of 0.039 t CO_2e/t ore.

4.3 Interim Targets

The long-term emissions target was set to be achieved in Year 10 (2032) and interim targets were set for Year 5 (2027) and Year 8 (2030).

The first interim target is to reduce Scope 1 and 2 GHG emissions intensity by 5% by Year 5 (2027) compared to a Year 1 (2023) baseline. This target will result in a GHG emissions intensity of 0.041 t CO_2e/t ore. This target will focus on minimising Scope 1 emissions from the two largest sources (i.e., the power plant and the onsite landfill), as well as, reducing Scope 2 emissions to net zero.

The second interim target is to reduce Scope 1 and 2 GHG emissions intensity by 8% by Year 8 (2030) compared to a Year 1 (2023) baseline. This target will result in a GHG emissions intensity of 0.040 t CO_2e/t ore. This target will focus on further reductions of Scope 1 emissions from the two largest sources (i.e. the power plant and the onsite landfill) and continuing to maintain net zero Scope 2 emissions.

Section 5 Management and Mitigation Measures

5.1 Project Design Considerations

The Project has been designed to avoid and mitigate GHG emission to the extent possible while still maintaining the project's objective of processing up to 5 Mtpa over an approximately 10 year LOM. The project is an expansion of existing pits, waste rock landforms, water storage dams, and internal roads minimizing. As a result, a large portion of the project is within historically disturbed areas, minimising the need for land use change and reducing the potential release of GHG emissions. The maximum vegetation clearing extent for the project is less than half of the development envelope. With this understanding, the GHG emissions associated with land use change remain 95% of construction phase Scope 1 emissions, suggesting that if the project were to be constructed on a greenfield, the construction phase related emissions would increase significantly. In addition, the accommodation camp has been located strategically to minimise emissions. The proposed location for the accommodation camp is within close proximity to the main power line adjacent to Arnhem Highway allowing it to be serviced by the grid rather than relying on diesel generators, thus limiting direct GHG emissions.

In addition, the Project uses open-cut mining which releases less GHG emissions than underground mines according to a recent study performed by S&P Global Market Intelligence (2021). The study concluded that underground mines emit almost 11 tons more of CO_2e per ton of ore processed than open pit mines. Further, during the feasibility design for this project, several power supply options for the processing plant were investigated including the use of solar, diesel generators, and high voltage extension lines from the Arnhem Highway to the Rustlers Roost portion of the Project area. Natural gas was selected as the preferred fuel source because of the large spatial extent required for a suitable solar plant, the intermittency concerns surrounding solar power, and capacity constraints on the existing mains network. In addition, using natural gas would allow the construction of a gas pipeline connecting the power plant to the existing Amadeus Gas Pipeline, minimising the need for trucking and hauling of fuels, further reducing the potential release of GHG emissions. In addition, the gas fired power plant is expected to be a new system rather than a refurbished, existing power plant. This indicates that the efficiency of the power plant will be maximised by design, minimising the release of GHG emissions. An additional example of project design considerations for minimising GHG emissions is the construction of an on-site landfill, minimising the need for hauling large quantities of waste from the remote area where this project is sited. Finally, the presence of the accommodation camp minimises the GHG emissions associated with employee commuting to the extent practicable.

5.2 Proposed Strategies for Scope 1 and Scope 2 Emissions

Because of the reasonably short LOM, the strategies for Scope 1 emissions reduction are focused on existing, commercialised technologies rather than future technologies such as blue or green hydrogen, electrification, or carbon capture utilisation and storage (CCUS). The strategies for reduction of Scope 1 emissions will focus on the two sources that comprise 95% of Scope 1 emissions: the onsite power plant and the landfill. The efficiencies of the bespoke power plant proposed for the Project will likely be maximised by design, but it is possible there will still be process efficiency gains that can further reduce GHG emissions associated with the combustion of natural gas. An area of potential exploration will be the potential recovery and use of waste heat.

In addition, as previously mentioned, the release of methane from the onsite landfill is likely overestimated. As part of this project and as construction of the landfill commences, more accurate calculations surrounding the release of methane to the atmosphere from the landfill will be performed. In addition, proper management and disposal of waste can limit the methane release while the landfill is active. These management and disposal practices will be utilised to the extent practicable. Finally, after completion of the 10 years of operation, the landfill will be closed appropriately.

Scope 2 emissions resulting from the purchased electricity for the accommodation camp will be brought to net zero within the first five years of operation of the mine. The accommodation camp is expected to use Jacana Energy as an electrical utility. The camp is expected to be connected to the Darwin-Katherine Electricity System which has a goal of

achieving 50% renewable energy by 2030. As a result, it is assumed that this project will rely on the 50% renewable energy by 2030 that is already planned but will also increase its share of purchased renewable energy through negotiations with the Power and Water Corporation to achieve 100% renewable electricity by 2027.

In the event that is unreasonable or impracticable for the project to meet the proposed interim and long-term targets, carbon offsets may be used in accordance with the guidance provided in the Northern Territory's *Greenhouse Gas Emissions Offsets Policy and Technical Guidelines* (DEPWS 2021a), following consultation with the appropriate agencies. Because the project ends 18 years prior to the Northern Territory's 2050 net zero goal, additional offsets for the "hard-to-abate" emissions are not necessary for this project. The landfill is likely to emit methane from material decomposition after the end of the Project, however, the emission factor used in the landfill emission calculation already accounts for the lifetime emissions post-closure and this has been used to set the long-term targets.

Section 6 Program Review and Improvement

6.1 Program Review

PGO is committed to revise this GHGAP on a 2-year basis as a minimum, or where additional infrastructure with potential to significantly alter GHG emissions is incorporated into the Project activities, to ensure the management actions outlined within this Plan continue to support delivery of the interim emission reduction targets. Where the 2-year review cycle or the additional infrastructure review cycle is triggered, the updated GHGAP will be submitted to the NT EPA for approval.

As part of the review process, PGO will prepare a summary plan and progress statement which will be made publicly available. This document will provide an overview of PGO's interim targets achievements and also the Project's successful contributions to meet NTG zero emission targets. The summary will include at least:

- A graphical comparison of emission reduction commitments in the GHGAP with 'actual' emissions for compliance periods;
- Project performance against benchmarking for comparable facilities emissions intensity;
- A summary of emission reduction measures undertaken by the proponent; and
- A clear statement as to whether interim targets have been achieved.

6.2 Scheduled Stakeholder Consultation

Once approved, this GHGAP will be made publicly available on PGO's website. PGO is committed to undertake stakeholder consultation throughout the Project life (since approvals to decommissioning) (refer to Section 3 of the Draft EIS) and has promoted and encouraged stakeholder inputs and feedback. All consultation activities undertaken to date for the Project have been recorded within a register for the Project (Appendix A within the Draft EIS).

Table 6-1 identifies the list of key stakeholder groups considered as part of the Stakeholder Engagement Plan (SEP). This is an initial list and as the Project develops further, additional stakeholders may be introduced. The SEP is therefore considered a live document that will be reviewed and updated by PGO. Future stakeholder consultation associated with the Project is provided in Table 6-2.

Any changes in relation to consultation processes (associated with GHG emissions) will be captured in subsequent revisions of this GHGAP.

Table 6-1 Key Project Stakeholders

Group	Stakeholders
Pastoral Stations/Lease Owners	▪ Old Mount Bundey Station ▪ McKinlay River Station
Indigenous Stakeholders, Traditional Owners or representative organisations	▪ Northern Land Council ▪ Limilngan and Uqynmil Traditional Owners (Local Management Committees of the Mary River and Djukbinj National Parks)
Local and Regional Community	▪ Community members who reside or work in the Marrakai-Douglas Daly and greater Darwin area or surrounding region
Local and Regional Supplier and Business Organisations	▪ Marrakai-Douglas Daly-based suppliers ▪ Darwin-based suppliers ▪ Northern Territory Chamber of Commerce ▪ Any companies who have registered their details in the ICN gateway

Group	Stakeholders
Local Government	▪ Unincorporated Marrakai-Douglas Daly (no dedicated city, shire or council). ▪ Local Government Association of the NT
NT Government Agencies	▪ Aboriginal Areas Protection Authority (AAPA) ▪ Department of Environment, Parks and Water Security ▪ Department of Health ▪ Department of Industry, Tourism and Trade ▪ Department of Territory Families, Housing and Communities ▪ Department of Chief Minister and Cabinet ▪ NT Police, Fire and Emergency Services
Territory and Federal Politicians	**State** ▪ The Hon. Michael Patrick Francis Gunner MLA, Chief Minister ▪ The Hon. Nicole Susan Manison MLA, Deputy Chief Minister ▪ The Hon. Natasha Kate Fyles MLA, multiple ministerial titles ▪ The Hon. Eva Dina Lawler MLA, multiple ministerial titles ▪ The Hon. Lauran Jane Moss MLA, multiple ministerial titles ▪ The Hon. Selena Jane Malijarri Uibo MLA, multiple ministerial titles ▪ The Hon. Paul Andrew Kirby MLA, multiple ministerial titles ▪ The Hon. Kate Jane Worden MLA, multiple ministerial titles ▪ The Hon. Chanston James Paech MLA, multiple ministerial titles **Federal** ▪ The Hon. Warren Snowdon MP, Federal Member for Lingiari ▪ The Hon. Sussan Ley MP, Federal Minister for the Environment
Commonwealth Government	▪ Department of the Environment and Energy ▪ Department of Defence (Mount Bundey Training Area)
Regional Agencies / Coordinating Bodies	▪ Regional Development Australia Northern Territory
Neighbouring Commercial Businesses and Local Operators	▪ Allan King & Sons Construction Pty Ltd ▪ Boral Resources Limited ▪ Halkitis Bros Pty Limited ▪ Mousellis & Sons Pty Ltd ▪ Ostojic Group Pty Ltd ▪ Tomazos Group Pty Ltd ▪ Corroboree Park Inn ▪ Mary River Wilderness Retreat ▪ Bark Hut Inn ▪ Wildman Wilderness Lodge ▪ Point Stuart Wilderness Lodge
Interest Groups	▪ Amateur Fishermen's Association of NT (AFANT)
Public	▪ General public

Table 6-2 Consultation Phases

Stage	Description	Who	Activities	Progress
Pre-EIS Site Investigation and Survey Stage	▪ Initial regulatory engagement to outline the Project and confirm necessary inclusions in the assessment; and ▪ Early engagement with pastoral leaseholders regarding proposal.	▪ Pastoral Stations/Lease Owners ▪ NT Government Agencies	▪ Communication via email, phone etc. ▪ One-on-one meetings	Complete
Draft EIS Development Stage	▪ Activities to improve general stakeholder awareness of the Project and avenues for providing input; ▪ Targeted engagement and communications specific to stakeholder groups; ▪ Targeted engagement and communication activities designed to gain specific feedback to inform the Draft EIS; and ▪ Additional engagement specific to the Significant Variation Process (during Draft EIS Development Stage).	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community ▪ Territory and Federal Politicians ▪ Federal Government ▪ Neighbouring Commercial Businesses and Local Operators ▪ Interest group(s) (AFANT)	▪ Communication via email, phone etc. ▪ One-on-one meetings ▪ Technical meetings and briefings ▪ Website (General) ▪ Media releases (General)	Complete
Post-Draft EIS Stage (Supplement Stage)	▪ Update the Stakeholder Engagement Plan as necessary; and ▪ Undertake additional targeted consultation as necessary to address specific issues raised in comments on the Draft EIS.	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community ▪ Territory and Federal Politicians ▪ Federal Government ▪ Neighbouring Commercial Businesses and Local Operators	▪ Communication via email, phone etc. ▪ One-on-one meetings ▪ Technical meetings and briefings ▪ Website (General)	Underway

Stage	Description	Who	Activities	Progress
Notification of Approval and Conditions	▪ Update the Stakeholder Engagement Plan as necessary; ▪ Undertake activities to inform stakeholders of the approval and conditions; and ▪ Provide information to stakeholders on the next steps and Project schedule.	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community ▪ Territory and Federal Politicians ▪ Federal Government ▪ Neighbouring Commercial Businesses and Local Operators ▪ Interest group(s) (AFANT) ▪ Local and Regional Supplier and Business Organisations ▪ Public	▪ Communication via email, phone etc. ▪ Website (General)	Planned
Construction Stage	▪ Update the Stakeholder Engagement Plan as necessary; ▪ Early notification to key potentially affected stakeholders (e.g. local community) of Project construction commencement and actions being implemented to manage risks; ▪ Undertake stakeholder and community engagement as required to satisfy approval conditions and achieve compliance with statutory obligations for construction; and ▪ Provide general awareness of the avenues for stakeholder complaints.	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community	▪ Communication via email, phone etc. ▪ One-on-one meetings ▪ Website (General)	Planned

Stage	Description	Who	Activities	Progress
Operational Stage	▪ Update the Stakeholder Engagement Plan as necessary; ▪ Undertake stakeholder and community engagement as required to satisfy approval conditions and achieve compliance with statutory obligations for the operation; and ▪ Undertake activities to maintain community and stakeholder awareness regarding avenues for Project information and complaints.	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community	▪ Communication via email, phone etc. ▪ One-on-one meetings ▪ Website (General)	Planned
Decommissioning and Closure	▪ Update the Stakeholder Engagement Plan as necessary; ▪ Notification of closure of the facility to relevant stakeholders; and ▪ Inform local and regional community of ongoing site management following closure.	▪ Pastoral Stations/Lease Owners ▪ Indigenous Stakeholder and Traditional Owners ▪ NT Government Agencies ▪ Local and Regional Community	▪ Communication via email, phone etc. ▪ One-on-one meetings ▪ Website (General)	Planned

6.3 Proposed Timetable Review

Table 6-3 provides the schedule of the main Project phases/activities since approvals to decommissioning and closure. It also provides the proposed GHGAP review based on the 2-year review cycle, including the long term and interim targets set out in Section 4. As identified in Section 6.1, the scheduled GHGAP review may change where additional infrastructure with potential to emit GHG is introduced to the Project.

Table 6-3 Project Schedule Summary

Mining Schedule	Approvals	Construction	Operations									Closure	Post Closure
Years	**1.5 Year**		**10 Years**									**10 Years**	
	2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032/2041**	
Approvals	Q1 21'-Q3 22'												
Construction		Q3 22'-Q1-23'											
Commissioning			Q1										
Operations			Q1 23' to Q3 31'										
Progressive Rehabilitation			23'-33'										
Final haul of ore											Q4		
Final mill feed												Q2 32'	
Decommissioning												32'/33'	
Closure												32'/33'	
Post Closure													34'/41'
Stakeholder Engagement	21'-41'												
Scheduled 2-year GHGAP review cycle*		**First Version (Approval Phase)**					**Interim Target of 5%**			**Interim Target of 8%**		**Long Term Target of 10% (2032)**	

* Schedule proposed based on the 2-year review cycle. Schedule may change where the additional infrastructure review cycle is triggered.

Section 7 Limitations

As identified in Section 3.1, landfill emissions represent 56% of the total Scope 1 emissions over the lifetime of the Project. However, the proposed final disturbance area of the landfill is 4 ha which will only be reached at the end of LOM (10 years) and this area has been accounted for in the Scope 1 emission calculation since Year 1. The calculation adopted a conservative approach as it assumed that 100,000 tons of commercial and industrial waste is deposited into the landfill annually since Year 1, however, this is likely to be an overestimate given the landfill will be newly constructed (much smaller scale in the first years), have a lower organic content in waste materials deposited, and waste degrades and releases methane over time, which is also accounted in the emission factor used to calculate the total emission from the landfill. Therefore, PGO acknowledge that the total GHG emission calculation in this Plan has considered a conservative approach and that the total GHG emission from the Project is likely to be less, which contributes to the NT EPA net zero emissions by 2050 (although the Project is expected to cease prior to that).

Section 8 References

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