

Rehabilitation Plan

Stage 2 (Bald Hill) Gold Project



April 2012

Tanami Gold NL

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ABBREVIATIONS

DEC	Department of Environment and Conservation
DMP	Department of Mines and Petroleum
DoIR	Department of Industry and Resources
DoW	Department of Water;
DRF	Declared Rare Flora
EIA	Environmental Impact Assessment
EFA	Ecosystem Function Analysis
EPBC	Environment Protection and Biodiversity Conservation
LFA	Land Function Analysis
NOI	Notice of Intent
OEPA	Office of Environmental Protection Authority
ROM	Run-of-Mine
TDS	Total Dissolved Solids
TEC	Threatened Ecological Communities
TGNL	Tanami Gold NL
TSF	Tailings Storage Facility
UOM	Unit of Measure
WA	Western Australia

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1 Scope and purpose

The scope of this document is to cover the Rehabilitation Plan of Stage 2 (Bald Hill) of the Coyote Gold Project located on M80/563 and related infrastructure located on L80/45.

This plan has been developed in accordance with the *Mining Act 1978* which, as of 30 June 2011, is required for approval as part of Mining Proposal applications under the Department of Mines and Petroleum (DMP). This plan will be reviewed and submitted again for approval by the DMP three years after initial approval; it is anticipated that the plan will resubmitted in April 2015.

The plan will also need to be endorsed by the Department of Environment and Conservation as administrators of Part V of the *Environmental Protection Act 1986*, the *Wildlife Conservation Act 1950*, the *Conservation and Land Management Act 1984*, the *Contaminated Sites Act 2003*; and the Department of Water as administrators of the *Rights in Water and Irrigation Act 1914*, *Country Areas Water Supply Act 1947*, *Waterways Conservation Act 1976* and the *Water Agencies Powers Act 1984*.

From 1 July 2011 the Department of Environmental Protection Authority (OEPA) will generally not assess the mine rehabilitation during the Environmental Impact Assessment (EIA) unless it is considered particular issues pose a high environmental risk. The satellite open cut operation Coyote Stage 2 (Bald Hill) on M80/563 and the related Haul Road (L80/45) from Bald Hill to the Coyote Gold Project was assessed as having a potentially significant environmental impact and it is governed via Ministerial Statement 749. The Statement was amended via a Section 45C of the Environmental Protection Act 1986 in September 2011 to expand the waste dump and open pit; however this is out of the scope of this document. An individual plan has been developed for the Stage 2 operation. The ore from the Bald Hill operation is processed at the Coyote Mill located on M80/559.

This plan has been prepared to facilitate final rehabilitation of the Stage 2 Project, to achieve a standard that prevents adverse long-term environmental impacts and restores land use that is acceptable to regulators, post-mining land users and other stakeholders.

The objective of this plan is to provide a framework for rehabilitation planning for the mining facilities and to identify issues that need to be addressed as the rehabilitation planning process continues.

This plan is a “living document” and is expected to be updated or amended as the Stage 2 Project progresses. Amendments may reflect variations to the Project, new scientific discoveries, modification of accepted practices or changes to legislation.

2 Project Overview

2.1 Location

The Coyote Gold Project is owned and operated by Tanami Gold NL (TGNL) located in the Tanami Desert approximately 20 km west of the Western Australia-Northern Territory border and 280 km southeast of Halls Creek. The site is accessed via the Tanami Highway from either Halls Creek or Alice Springs (**Figure 1**). Balgo Hills community is the nearest settlement, located approximately 80 km by road along the Tanami Highway to the west of the site. Stage 2 Bald Hill Project (satellite open pit) commenced in 2008 and is located on M80/563 approximately 35 km north of the existing Coyote mine site. A haul road linking the two sites was constructed in 2009, located on L80/45.

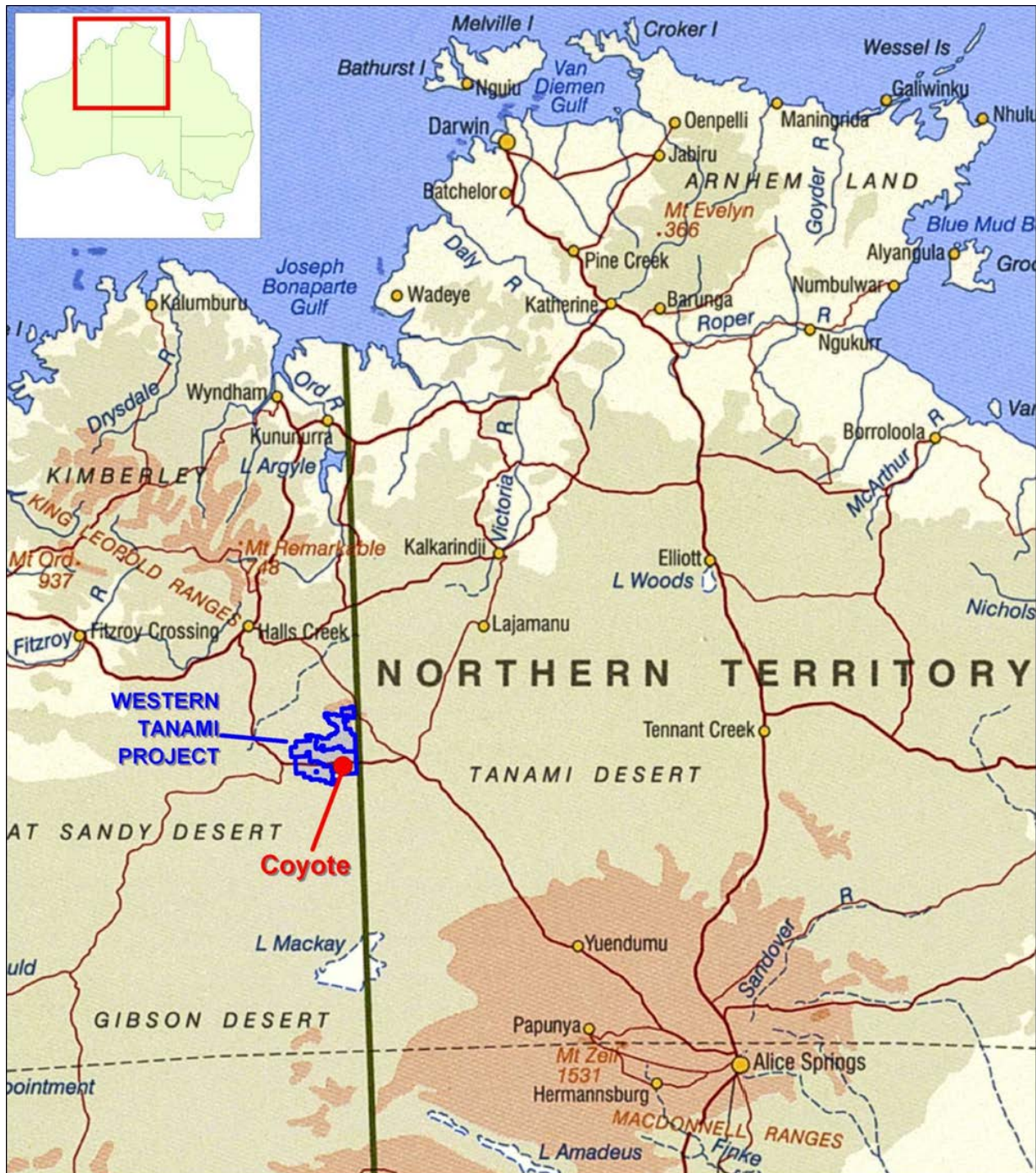


Figure 1 Location of Tanami Gold NL Coyote Gold Project

2.2 Existing Environment

The natural environment of the project area is an important factor in planning for rehabilitation. The climate and weather patterns are taken into account when planning the optimum time for rehabilitation work to be undertaken. The final design of the waste dumps and other structures must take into consideration the high rainfall events often experienced during the wet season.

Vegetation of the natural landforms in the surrounding area has been surveyed to determine the flora and fauna species present. This will provide baseline data for assessing the success of rehabilitation of mining disturbance.

2.1 Climate

The Project area is semi-arid and has an average rainfall of 336 mm (Balgo Hills), with annual evaporation in excess of 3,200 mm. Most of the rain falls from December to March but the amount varies greatly, both seasonally and annually. The area is occasionally subject to high rainfall events as a result of cyclonic activity. The Coyote area received in excess of 500mm of rainfall during the 2005-06 wet season and in January 2006 received approximately 150mm in a 24 hour period.

Mean annual maximum temperature is 34° C and mean annual minimum 20° C. Daily maxima above 40° C are usual from October to March with temperatures in excess of 50° C having been recorded at the mine site. Evaporation is high with an average daily rate of loss of 8.9 mm. The annual evaporation rate is 3,250 mm.

The climatic conditions are recognised as challenging, particularly with respect to rehabilitation.

2.2 Landform

The Stage 2 project area comprises a number of distinct landforms and vegetation associations. The mining area comprises sandplains and occasional rocky outcrops, while the haul road route traverses laterite rise, palaeo-drainage channel and sand dune landforms. Vegetation types are predominately Acacia Shrubland and Hummock Grassland. Thickets of *Grevillea wickhamii* are also located along the haul road route. **Photographs 1 to 2** show the main landforms and vegetation types. **Photograph 3** shows a typical hill in the region. **Photographs 4 to 7** show other habitats identified during preoperational surveys.

Photograph 1 Acacia Shrubland Vegetation Landform at Sandpiper



Photograph 2 Hummock Grassland surrounding a rocky outcrop at Kookaburra



Photograph 3 Sand Dune Landform with Acacia Shrubland Vegetation



Photograph 4 Laterite rise landform with Hummock Grassland vegetation



Photograph 5 The Palaeo-drainage Landform with Hummock Grassland Vegetation



Photograph 6 Grevillea Thicket along the Haul Road Route



Photograph 7 Hills in the Region are Typically Rocky with Sparse Spinifex Cover



2.3 Hydrology

The Sandpiper and Kookaburra deposits are located on a slight lateritic rise with runoff generally moving in a south-easterly direction. A fall of less than 2m is apparent from the northern to the southern extent of the Stage 2 project area.

Aquifers in the project area predominantly occur in zones of fractured or structurally deformed and largely unweathered bedrock. These features primarily control local groundwater occurrence and flow. The aquifers are typically inhomogeneous, anisotropic and irregular in their dimensions and form. The static groundwater level is approximately 20m below ground surface.

The groundwater in the project area is saline. TDS (gravimetric) ranges from 23,000 to 26,000 mg/L with EC ranging from 36,000 to 41,000 $\mu\text{S}/\text{cm}$.

2.4 Vegetation and Flora

Vegetation and flora studies were undertaken of the proposed mine sites and surrounding areas prior to commencement of mining activity and further incidental collection of flora species has been carried out since that time.

A total of 145 flora species from 41 families have been recorded during surveys of the Project area and surrounding region. The most common families are Poaceae (26 species) Mimosaceae (12 species) and Myrtaceae (11 species). The most commonly recorded genus is *Acacia* (12 species).

There has been no Declared Rare Flora (DRF) or Priority flora species recorded in the Project area. No Threatened Ecological Communities (TEC) occur in the region, however Proposed Nature Reserves exist to the north and south of the site.

A number of weed species are known to exist in the Project area. Gallon's Curse (*Cenchrus biflorus*) and Buffel Grass (*Cenchrus ciliaris*) have been found in the camp, along the Tanami Road and in isolated patches throughout the surrounding area. To date neither of these weeds has been recorded within the mine area.

2.5 Fauna

Survey work around the project area has recorded 132 vertebrate species in the Tanami Region. Observations so far include 65 species of bird, 18 native mammals, 3 introduced mammals, 43 reptiles and 4 species of frog.

Twelve fauna species with conservation significance are known to inhabit, or are potential inhabitants of the Tanami Region. Six of these have been recorded in the Project area since commencement of activity.

Although mining activity on a relatively small scale is considered unlikely to have a significant impact on the status of any of these species TGNL recognises the importance of conserving the habitats on which they depend. Rehabilitation will include habitat reconstruction where appropriate and rehabilitation of the site will include ongoing monitoring to assess the success of faunal recolonisation.

OPERATIONAL SUMMARY

2.6 Tenement Status

The scope of this document covers Stage 2 (Bald Hill) of the Coyote Gold Project operating on Mining Lease M80/563 and Miscellaneous Licence L80/45. The tenements are registered 100% to Tanami Exploration NL (TENL), a wholly owned subsidiary of Tanami Gold NL. No freehold or pastoral leases exist in the Project area. The Tanami Highway is the only reserve under the Land Administration Act occurring in the area. **Table 1** provides the current status of tenements and **Figure 2** shows the location of tenements.

Table 1 Current Status of Tenements

Tenement	Date Granted	Expiry Date
M80/563 (Bald Hill)	2 Dec 2005	1 Dec 2026
L80/45 (Stage 2 haul road)	17 Feb 2006	16 Feb 2027

2.7 Operator Details

Information pertaining to Tanami Gold NL:

Address: Level 4
50 Colin Street
WEST PERTH WA 6005

Telephone: 08 9212 5999

Facsimile: 08 9212 5900

ABN: 51 000 617 176

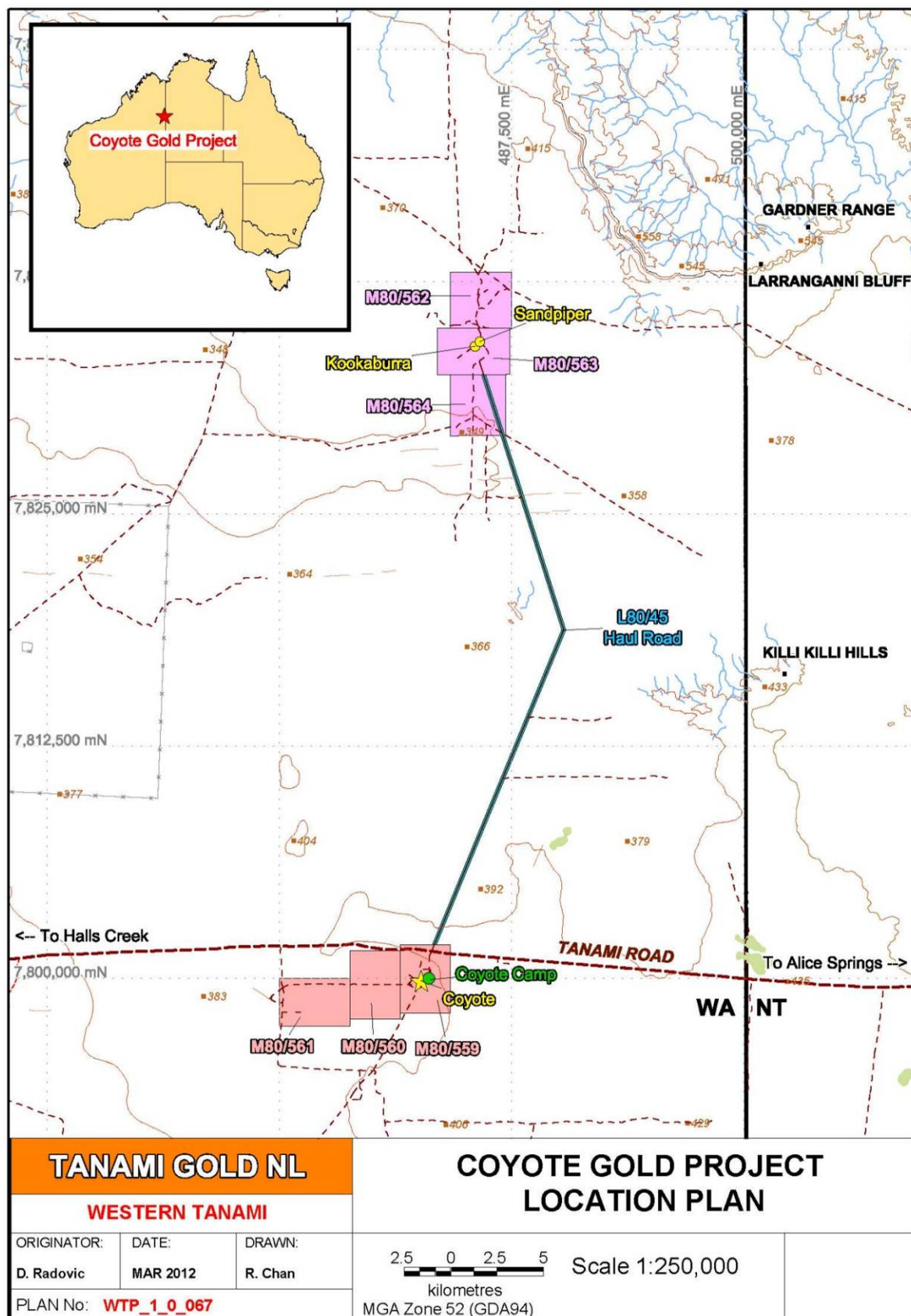


Figure 2 Coyote Gold Project Location

2.8 Background

Tanami Gold NL (TGNL) has held exploration licences, through its wholly owned subsidiary TENL, and conducted exploration in the Western Tanami Desert region of Western Australia since 1994. Exploration during 1994-2000 was conducted on tenements held 100% by TGNL and in joint venture with Glengarry Resources Limited. TGNL purchased AngloGold Australia Ltd's tenement holding in the Western Tanami Desert region of Western Australia on 16 January 2004. The Coyote gold deposit was contained within those tenements.

TGNL owns and operates the Coyote Project, located approximately 280 km southeast of Halls Creek on the Tanami Highway (See **Figure 1** and **Figure 2**). Balgo Hills community is the nearest settlement, located approximately 100 km by road to the west of the site.

The Coyote Project commenced in March 2006 with development of the Coyote mine site and an upgrade of the existing exploration camp. The Project currently consists of an open pit mining operation supported by a processing plant and associated infrastructure.

TGNL has developed Stage 2 of the Coyote Project located 35km north of the existing site. Stage 2 comprises two small open pits and basic mining support infrastructure linked to the Coyote site by a haul road. The Stage 2 mining operation is located on M80/563 and the haul road is within L80/45. These tenements are held by Tanami Exploration NL, a wholly owned subsidiary of TGNL.

2.9 Stage 2 Project Description

Stage 2 of the Coyote Project is a small-scale open pit mining operation intended to provide ore for blending with ore from underground mining at the existing operation

The Stage 2 Open Cut surface mining operations has yielded at total of 476,960 tonnes (or 200,769 Bank Cubic Metres (BCM)) of ore and 3,952,771 tonnes (or 1,677,142 BCM) of waste from the Sandpiper and Kookaburra pits. Stage 2 total groundwater abstraction for the last reporting period was 164,099 kL which amounted to 36.5% of the groundwater licence GWL167925 allocation of 0.045 GL.

Site infrastructure is minimal with ore being periodically transported to the Coyote mine site for processing. No crushing or processing is conducted on site.

The infrastructure for this operation is such that the facilities of the existing Coyote mine site are utilised for processing of the ore and accommodation of the workforce. Stage 2 site infrastructure comprises:

- two small open pits;
- a single waste dump for disposal of waste rock;
- several small ROM pads for ore stockpiling;
- a hardstand area for laydown, workshop and site office;
- an evaporation pond for storage and disposal of groundwater;
- site access roads; and
- a haul road from Stage 2 to the Coyote processing plant.

The site layout was designed to produce the minimum disturbance possible and allows direct access to the haul road. **Tables 2** and **Table 3** provide a breakdown of the areas of disturbance. **Figure 3** shows the site layout.

Table 2 Stage 2 Disturbance Areas

Bald Hill site elements	Area (ha)
L80/45	
	45.5
M80/563	
Waste dump	28.7
Evaporation dam*	8
Dewatering pipeline	0.1
Office, workshop, laydown area	1.3
ROM pad	4.4
Sandpiper open pit and surrounds	6.1
Kookaburra open pit and surrounds	7.3
Access roads**	7.1
Existing exploration disturbance	12
Topsoil storage	3.8
Total disturbance area - Stage 2	118.3

Table 3 Rehabilitation Summary

Tenement	Disturbance Type	Total Disturbance Ha	Total Rehabilitation (Ha) Stage of Rehabilitation					Rehabilitation Stage(s) Verified by DMP
			1	2	3	4	Total	
L80/45	Airstrip, apron and access	45.5					0	
Total		45.5	0	0	0	0	0	-
M80/563	Waste dump	28.7	7.8	12			19.8	No
	Evaporation dam*	8	2.1				2.1	No
	Sandpiper open pit and surrounds	6.1					0	
	Kookaburra open pit and surrounds	7.3					0	
	ROM pad	4.4					0	
	Access roads**	7.1					0	
	Office, workshop, laydown area	1.3					0	
	Topsoil storage	3.8					0	
	Dewatering pipeline	0.1					0	
	Existing exploration disturbance	6					0	
Total		72.8	9.9	12	0	0	21.9	-
Project Total		118.3	9.9	12	0	0	21.9	-

Explanatory notes for Rehabilitation Summary Table (Table 3)

Disturbance Type Refer to definitions given in Appendix A.

Total Disturbance Basal footprint of feature in hectares.

Area under Rehabilitation Basal footprint area under rehabilitation (NB, surface area of batters should not be reported, only the basal area).

Stage of Rehabilitation Refers to the stage of rehabilitation work completed. The Department's bond policy defines four stages of rehabilitation: **Stage 1 Preliminary earthworks** (landform reshaped, drainage features constructed), **Stage 2 Completed earthworks** (growth media respread, ripping, demonstrated stability under representative climatic conditions, **Stage 3 Revegetation** (native vegetation establishing but yet to demonstrate self sustainability, **Stage 4 Relinquished** (all agreed completion criteria met)

Verified by DMP Written agreement as to stage of rehabilitation met given by a Senior Environmental Officer, Minerals Environment Branch, DMP.

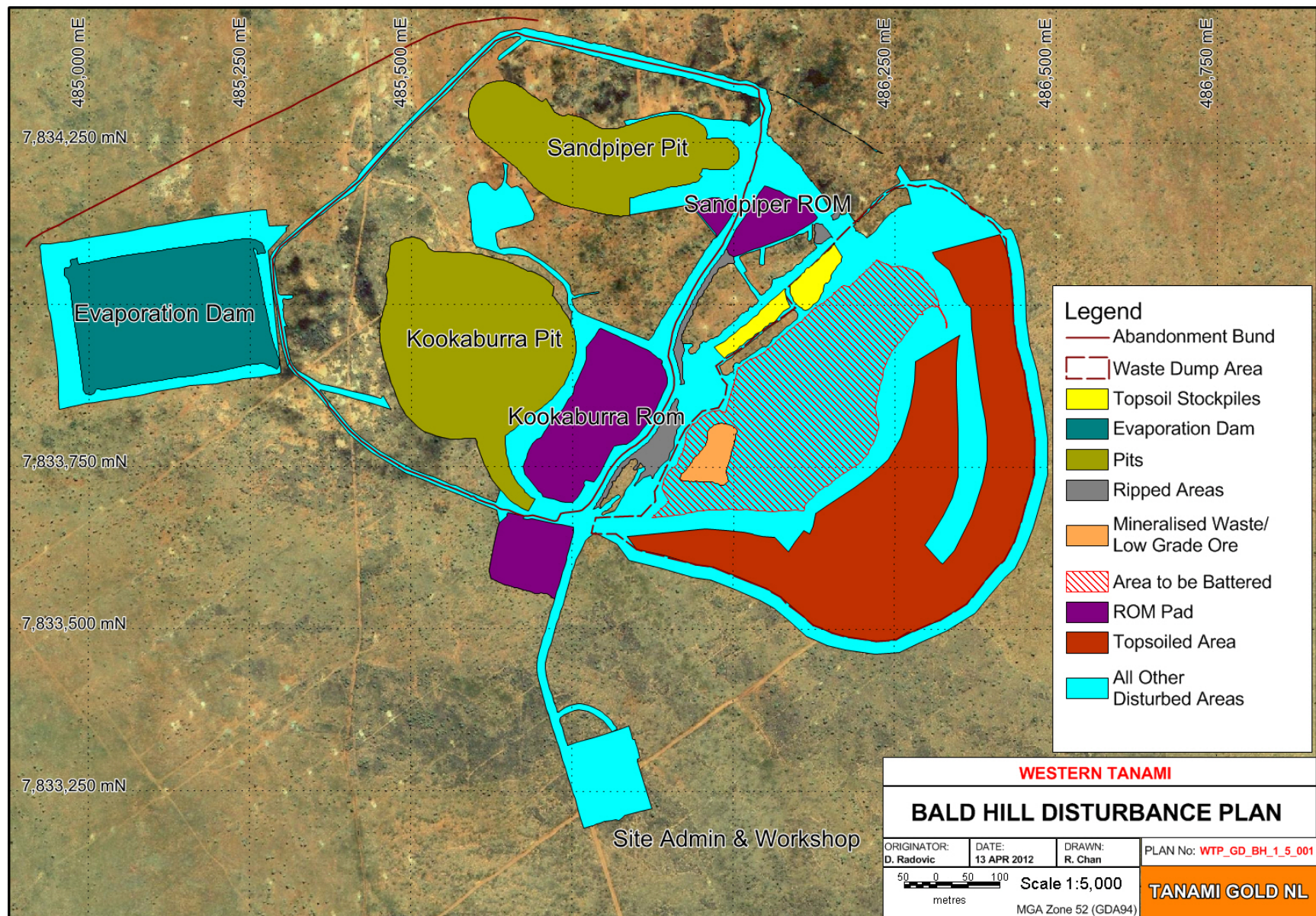


Figure 3 Stage 2 Bald Hill Site Plan

3 IDENTIFICATION OF REHABILITATION OBLIGATIONS & COMMITMENTS

TGNL is committed to ensuring accountability and adequate resources for the implementation of rehabilitation obligations and commitments for managing the technical and financial implementation have been allocated. Under the advice of the DMP, TGNL has undergone investigations into the materials present at the Stage 2 site to ensure appropriate outcomes for stakeholders.

The requirements of the rehabilitation process will be integrated into the general operation of the Project to ensure rehabilitation is carried out progressively and that final rehabilitation of the site is achieved within the expected timeframe and budget.

TGNL is committed to achieving environmentally and socially acceptable rehabilitation of its operations. Rehabilitation objectives include prevention of adverse long-term environmental impact and re-creation of self-sustaining natural ecosystems acceptable to the local community and other stakeholders.

From the initial planning to final rehabilitation phases of Stage 2 Bald Hill, TGNL will aim to:

- Consult with all stakeholders during decision making processes;
- Plan effectively so that rehabilitation occurs in a sequenced manner, within the estimated timeframes and allocated budget;
- Ensure there is accountability, responsibility and adequate resourcing to enable implementation of the rehabilitation plan;
- Avoid replication of any methods that do not work for the site;
- Establish set criteria and indicators, agreed with the responsible authority, to demonstrate the successful completion of each rehabilitation project;
- Reach a point where agreed completion criteria are met to the satisfaction of the responsible authority, local community and other stakeholders, so that the area may be relinquished.

3.1 Legislation and Industry Standards

Key environmental legislation with relevance to mine rehabilitation in Western Australia includes:

- Environmental Protection Act 1986.
- Mining Act 1978.
- Mines Safety and Inspection Act 1994.

Other legislation relevant to mine rehabilitation includes:

- Aboriginal Heritage Act 1972.
- Agriculture and Related Resources Protection Act 1976.
- Bushfires Act 1954.
- Conservation and Land Management Act 1984.
- Contaminated Sites Act 2003.
- Dangerous Goods (Transport) Act 1998.
- Explosives and Dangerous Goods Act 1961.
- Land Administration Act 1997.
- Occupational Safety and Health Act 1984.
- Rights in Water and Irrigation Act 1914.

- Soil and Land Conservation Act 1945.
- Town Planning & Development Act 1928.
- Waterways Conservation Act 1976.
- Wildlife Conservation Act 1950.

3.2 Regulatory Authorities

The Department of Mining and Petroleum (DMP) and Department of Environment and Conservation are likely to be the primary regulatory authority responsible for overseeing the rehabilitation of Stage 2 Bald Hill site.

Other authorities with an interest in the Project may include:

- Environmental Protection Authority (EPA);
- Department of Water, Kununurra (DoW); and
- Shire of Halls Creek.

3.3 Regulation

Environmentally-related licences and permits required for the Coyote Project have been summarised in **Table 4**.

Table 4 Approvals and Permits Required for the Stage 2 Bald Hill

Agency	Licence, Permit, Approval
OEPA	Acceptance of Environmental Protection Statement
DMP	Mining Proposal approval
DoW	5C Licence to Take Groundwater

Numerous Government and Industry Guidelines for mine rehabilitation exist. Those pertinent to Stage 2 of the Coyote Project are tabulated in **Table 5** below.

Table 5 Guidance Documents Applicable to Rehabilitation of Stage 2 of the Coyote Project

Guideline	Purpose
Guidelines for Preparing Mine Closure Plans, June 2011. Department of Mines and Petroleum and Environmental Protection Authority.	To provide guidance on the preparation of Mine Closure Plans to meet Western Australian regulatory requirements.
Australian Minerals Industry (AMI) Code for Environmental Management (MCA, 2000).	Framework including consultation, progressive rehabilitation and reporting.
Strategic Framework for Mine Closure (ANZMEC/MCA, 2000) (a joint government and industry guideline).	Framework including upfront planning for closure, consultation, progressive rehabilitation and reporting.
Guideline Safety Bund Walls Around Abandoned Open Pit Mines. Department of Minerals and Energy of Western Australia (1997).	Design of abandonment bunds around open pits to prevent vehicular access.
Mine Closure Guideline for Mineral Operations in Western Australia (Chamber of Minerals and Energy WA Inc. 2000).	Framework including consultation, progressive rehabilitation and reporting.
Assessment Levels for Soil, Sediment and Water (DoE, V3 Nov 2003).	Threshold levels for contaminated soils.
The Commonwealth Environmental Protection Agency series 'Best Practice Environmental Management in Mining'.	Industry examples of mining practices.
Guidance for the Assessment of Environmental Factors: Rehabilitation of Terrestrial Ecosystems. Draft No. 6 (EPA 2006)	Closure strategy and description of objectives, targets and review during mine operation.

3.4 Approvals and Rehabilitation Conditions

Table 6 and **Table 7** provide the activities approved for the project and tenement conditions applied for Rehabilitation.

Table 6 Regulatory Approvals and Commitments List - Stages 1 & 2

Document Title	Ref. Number	Date Received	Original Application Document	Regulator
Notice of Intent for the Coyote Project – Stage 1	NOI 5157 File # E0029200501	6 Feb 2006	Notice of Intent	DoIR
Clearing Permit	220/1 File # 19179	23 Dec 2005	Application for a Clearing Permit	DoE
Works Approval	4188 File # W89/05/0	20 Feb 2006	Works Approval Application	DoE
Dangerous Goods Storage License	DGS020529	30 Jun 2006	Dangerous Goods License	DoCEP
Licence to Operate	Lic.No.8111/1 File No. L89/05	12 Jul 2007	Licence to Operate Application	DEC
Statement that a Proposal May Be Implemented	Assessment No. 1688	20 Sept 2007	Environmental Protection Statement	Office of the Appeals Convenor/ Minister for the Environment
Works Approval	W4381/2007/1	18 Oct 2007	Works Proposal - Sewage treatment facility	DEC
Approval for Mining Proposal No. 5782	M80/559 File No. (MP 5782)	22 Oct 2007	Mining Proposal Additional Tailings Storage; Details of Underground Mining; Changes to Processing Plant; Camp Upgrade	DoIR
Approval for Mining Proposal No. 5463	E0029/200503 (MP 5463)	6 Nov 2007	Mining Proposal Coyote Project Stage 2	DoIR
Approval for Mining Proposal No. 5933	Ref: KV:MP 5933 (MP 5933)	13 Feb 2008	Construction of Stage 2 evaporation dam	DoIR
Approval for Mining Proposal November 2008	Registration No. 20330	15 Dec 2008	Construction of additional evaporation dam at Coyote (WITHDRAWN)	DMP
Approval for Mining Proposal September 2009	Registration No. 24013	23 Oct 2009	Coyote Tailings Storage Facility Lift	DMP
Works Approval	W4577/2009/1	26 Nov 2009	Coyote Tailings Storage Facility Lift	DEC
Approval for Mining Proposal November 2009	Registration No. 24517	20 Nov 2009	Addendum to NOI Stage 2: Ground Water Management	DMP
Approval for Mining Proposal December 2010	Registration No. 29324	7 Jan 2011	Coyote Processing Capacity Increase	DMP
Approval for Mining Proposal October 2011	Registration No. 29516	1 December 2011	Amended Mining Proposal – Coyote Project Stage 2	DMP
Licence to Take Flora for Scientific or Other Prescribed Purposes	Registration No. SL009895	13 Feb 2012	Seed collection permit to assist with rehabilitation.	DEC
Approval for Mining Proposal February 2012	Registration No. 33195	03 Feb 2012	Coyote Tailings Storage Facility Lift	DMP
Works Approval	W5089/2011/1	03 Feb 2012	Coyote Tailings storage facility Lift, Oil Water Separator Installation, HDPE Lining of Turkey's Nest and Concrete Lining Refuel Bay.	DEC

Table 7 Rehabilitation Tenement Conditions – Stage 2

Tenement	Condition #	Rehabilitation Condition
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L80/45	7	On the completion of the life of mining operations in connection with this licence the licence holder shall: <ul style="list-style-type: none"> remove all installations constructed pursuant to this licence; and on such areas cleared of natural growth by the holder or any of its agents, the holder shall plant trees and/or shrubs and/or any other plant as shall conform to the general pattern and type of growth in the area and as directed by the District Inspector of Mines and properly maintain same until the Inspector advises regrowth is self- supporting;
L80/45	10	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
L80/45	11	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
L80/45	13	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
M80/563	3	All costeans and other disturbances to the surface of the land made as a result of exploration, including drill pads, grid lines and access tracks, being backfilled and rehabilitated to the satisfaction of the Environmental Officer, Department of Industry and Resources (DoIR). Backfilling and rehabilitation being required no later than 6 months after excavation unless otherwise approved in writing by the Environmental Officer, DoIR.
M80/563	4	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.
M80/563	5	Unless the written approval of the Environmental Officer, DoIR is first obtained, the use of scrapers, graders, bulldozers, backhoes or other mechanised equipment for surface disturbance or the excavation of costeans is prohibited. Following approval, all topsoil being removed ahead of mining operations and separately stockpiled for replacement after backfilling and/or completion of operations.
M80/563	10	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.
M80/563	11	At the completion of operations, all buildings and structures being removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.
M80/563	13	At the completion of operations, or progressively where possible, all access roads and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.
M80/563	19	The evaporation dam embankments shall be removed at completion of the project and any soils affected by the water stored in the evaporation dam shall be suitably rehabilitated to the satisfaction of the Environmental Officer, DoIR.
M80/563	25	On the completion of operations or progressively where possible, all waste dumps, tailings storage facilities, stockpiles or other mining related landforms must be rehabilitated to form safe, stable, non-polluting structures which are integrated with the surrounding landscape and support self-sustaining, functional ecosystems comprising suitable, local provenance species or alternative agreed outcome to the satisfaction of the Executive Director, Environment Division, DMP.

4 Collection and Analysis of Rehabilitation Data

An important step in rehabilitation and subsequent handover of the mine site is the collection of data prior to operations, during operations and post Rehabilitation. TGNL have collected monitoring data with a view to assessing post rehabilitation outcomes and rehabilitation methods.

4.1 Topsoil Analysis

Prior to operations composite topsoil samples were analysed to confirm baseline conditions and provide information to assist future potential rehabilitation methods. The soil was tested for pH, Electrical Conductivity, and nutrients (N & P). The results indicated that the soils were low in nutrients (**Table 8 and Appendix B**).

Table 8 Baseline Topsoil Analysis Quality

Parameter	Units	Value
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pH	pH units	6.9
EC @ 25°C	uS/com	29
Nitrate-Nitrogen, NO ³ -N	mg/L	<5mg/L
Ortho-Phosphate, PO ⁴ -P	mg/L	<1mg/L

The level of nutrients indicates that the application of fertilizer for rehabilitation may not result in successful re-establishment of native vegetation. Soils sampled from rehabilitated areas will be analysed and used to highlight any potential implications to successful rehabilitation and provide justification for any mediation methods needed.

4.2 Groundwater

Prior to operations groundwater samples were analysed to confirm baseline water quality and assess future potential impacts from mining operations. The baseline results indicate that the water is highly saline. There are no groundwater users in the area and the quality of the groundwater has a low environmental value. Baseline values are presented in **Table 9** (see **Appendix C** for full URS 2004 dewatering feasibility document).

Table 9 Baseline Groundwater Quality

Parameter	Units	Value
pH	pH units	7.3
EC @ 25°C	uS/com	36000
TDS (calc. as NaCl)	mg/L	23000
TDS (gravity) @ 180°C	mg/L	23000
Total Alkalinity as CaCO ³	mg/L	250
Iron, Fe (soluble)	mg/L	<0.05
Aluminium, Al	mg/L	<0.1
Sodium, Na	mg/L	5600
Potassium, K	mg/L	140
Calcium, Ca	mg/L	940
Magnesium, Mg	mg/L	1200
Chloride, Cl	mg/L	13000

Post operations it is proposed to monitor water from the open pit void or the bore established for dewatering. Access to the pits will undergo a risk analysis to ensure the safety of the parties carrying out the sampling. Monitoring of water is to occur for at least 3 years after operations and will cover the parameters initially sampled for the baseline monitoring. If results indicate significant issues this may be extended to 5 years and will be at the discretion of stakeholders involved (i.e. DoW, DMP and DEC).

4.3 Flora and Fauna

As part of the Environmental Impact Assessment process carried out for proposed developments by TGNL in the Tanami Desert, Western Australia, MBS Environmental and Biota Environmental Services Pty Ltd were commissioned to undertake a vegetation, habitat and fauna assessment of the project area (**Appendix D**). During operations Ecotec (WA) Pty Ltd, the onsite environmental consultant, carried out faunal surveys (**Appendix E**). Both consultants found the presence of a Mulgara community on the sand dune areas of the Haul Road on L80/45; the species is listed as Vulnerable under the *EPBC Act* and *WA Wildlife Conservation Act*. These surveys will be replicated post rehabilitation to indicate the success of rehabilitation. Specific attention in post rehabilitation surveys will be focused on the areas of known occurrences of the Mulgara during pre-operational surveys as per **Figure 4**. The results will be assessed

against previous distribution and population density to indicate that the communities are still intact. The number of surveys conducted will be dependent on initial results and later negotiations with stakeholders.

Incidental wildlife sighting by site employees is encouraged and a register is maintained. During operational haulage activity dead fauna surveys are conducted on a regular basis and the data is submitted annually in a compliance report. The results of dead fauna are reported annually.

The pre-operational surveys have yielded an extensive flora list across all TGNL's western tenements that will be used for rehabilitation purposes i.e. seeding requirements (**Appendices D and E**). The results have indicated that there are no Declared Rare Flora (DRF) in operational areas. Vegetation monitoring sites were established in 2008 and have been monitored biannually since. The information from monitoring provides valuable data during operations and is used as an indicator to environmental harm. Recent bushfires in the region have highlighted the resilience of the local ecosystems.

The operational data collection and post operational surveys will enable the regulatory authorities such as the DMP, DEC and OEPA to assess the impact of the project on the surrounding environment.

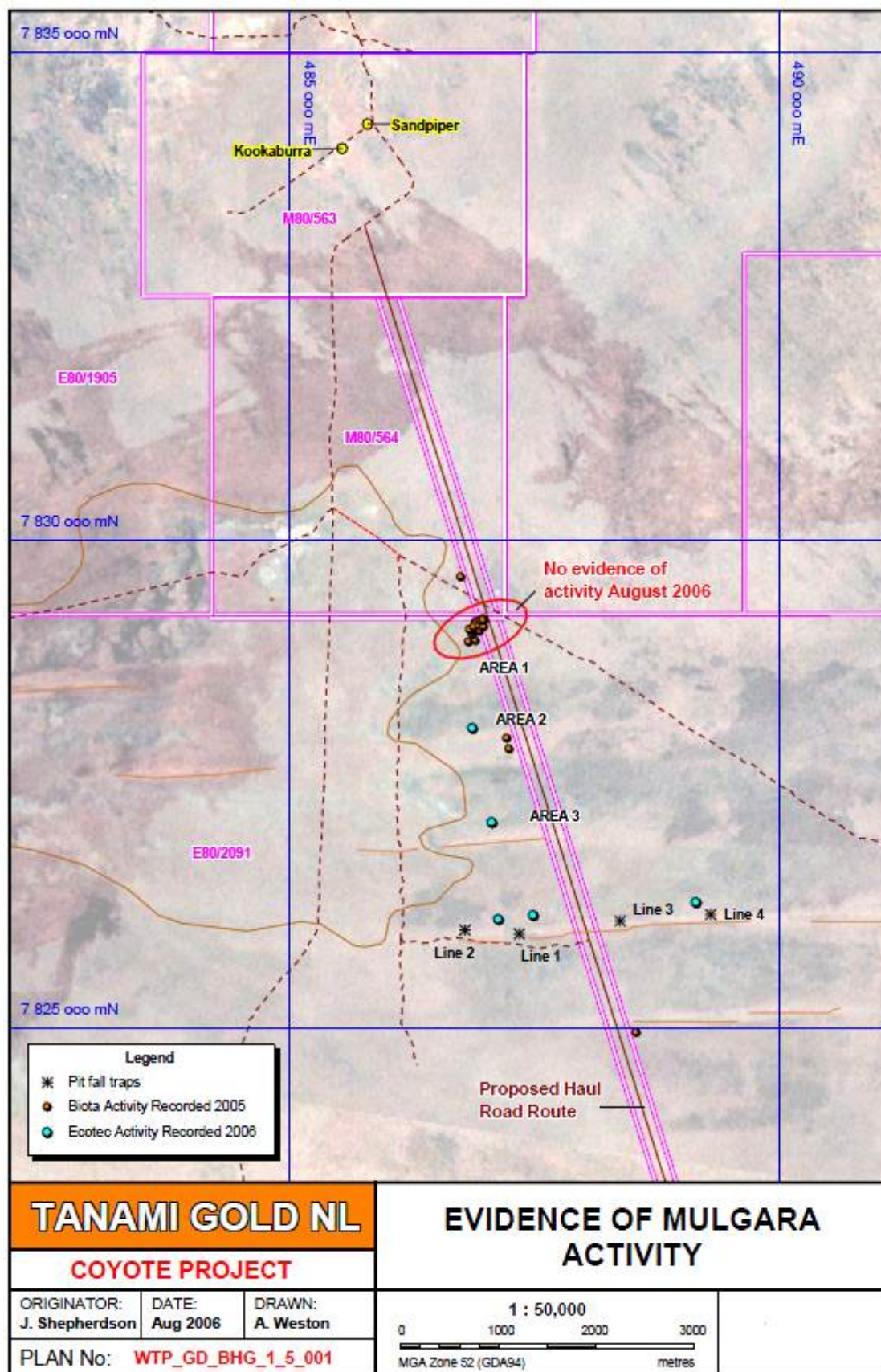


Figure 4 Baseline Evidence of Mulgara Activity

4.4 Weeds

Weeds are monitored at the Coyote camp, along the Stage 2 haul road and at Bald Hill. Regular inspections will continue and spraying will be undertaken as required, however the seed of these perennial species are transported by wind, surface water runoff, vehicles and animals, resulting in the species being wide-spread in the region. Introduction of the species to the region was not a result of the Coyote Gold Project.

TGNL is committed to monitoring and weed control and has developed a database with weed occurrence locations. Weed management involves weed mapping, vehicle hygiene procedures, chemical and mechanical controls. Weeds are progressively targeted at the most vulnerable period of their life cycle i.e. before seeding. This will allow TGNL to exhaust any seed bank at affected sites. Information on occurrence and chemical control methods and application rates will be made available to stakeholders.

4.5 Contaminated Sites

Hydrocarbon contaminated material is treated with hydrocarbon utilising bacteria to reduce levels to those meeting acceptance criteria for Class 1 landfill facilities (DEP, 2002). Soil around the refuelling area is considered most likely to be hydrocarbon-contaminated at the end of the Project and will be analysed for confirmation. If possible, this material will be removed and treated in the Coyote mine site bioremediation area; otherwise treatment will be carried out on site. Treatment will involve tilling the soil fortnightly and the application of freshwater and fertiliser to encourage micro-bacterial breakdown of hydrocarbons.

4.6 Sediment and Erosion Control

Photographic monitoring points have been established on the waste dump. These will provide a visual indication of the waste dump stability over time. Land Function Analysis (LFA) monitoring sites will also be established as transects across the waste dump and will provide information on erosion features and their movement over time i.e. depth and width. The data also incorporates vegetation cover and general soil conditions to indicate the health and functioning of the rehabilitated ecosystem. All field staff have undergone accredited training in 2012 to enable the proper application of LFA methods.

5 Stakeholder Consultation

5.1 Key Stakeholders

Stakeholders are defined as individuals, government agencies, community groups or others who have the potential to be affected by or have an interest in mine closure. TGNL recognises that stakeholder consultation is a critical component of the rehabilitation planning process as the interests held by stakeholders in an area often precede an operation and remain long after its rehabilitation. TGNL will undertake regular consultation with the various stakeholders of Stage 2 of the Coyote Project and meetings will be held periodically. TGNL has undergone closure negotiations with stakeholders to ensure that the Rehabilitation Plan and related activities meets expectations and are conducted in a financially and environmentally responsible way. **Table 10** provides a list of identified stakeholders for the project and **Table 11** provides details on stakeholder engagement

Table 10 Stakeholders of Stage 2 of the Coyote Project

Stakeholder	Interest
TNTLAC/Balgo Community	Traditional landowners and Native Title holders
Environs Kimberley Conservation Council of WA	Conservation of the natural environment
Department of Mining and Petroleum	Regulation of the mining operation
Department of Environment and Conservation	Flora and fauna of the region
Environmental Protection Authority	Protection of the natural environment
Halls Creek Shire	Authority in the local region
Kimberley Land Council	Representatives of the TNTLAC

Stakeholder comments to date have related to the potential for post mining pits to have detrimental effects on the surrounding environment. Table 11 summarises the comments and responses.

Table 11 Stakeholder Comments and Responses

Stakeholder	Date	Actions/Comments
Environs Kimberley Conservation Council of WA	1 st March 2007	Site visit.
	14 th March 2007	Comments received from CCWA. Concerns raised regarding rehabilitation and completion criteria.
	28 th March 2007	Comments received from EK. Concerns raised regarding post-mining pits and funding for mine rehabilitation.
	30 th March 2007	TGNL response to concerns raised sent via emailed letter.
DEC - EPA Service Unit	19 th February 2007	TGNL submitted the Draft Environmental Protection Statement (EPS) including Draft Decommissioning and Rehabilitation Plan (DCP).
	15 th March 2007	Concerns raised regarding post mining pits and the potential for impact on the natural ecosystem.
	4 th April 2007	TGNL submitted a revised EPS.
	1 st May 2007	Comments received - extensive changes to the format of the DCP required. Further concerns regarding post mining pit voids.
DMP	3 rd September 2011	Meeting regarding Stage 2 amendments to Mining Proposal and Rehabilitation Plan lodged in 2010
DMP	28 th September 2011	Rehabilitation plan meeting regarding format and methods
Shire of Halls Creek	12 th February 2012	Site visit and provided letter of support for rehabilitation methods
Tjurabalan Traditional Owners	11 th April 2012	Rehabilitation Plan and stakeholders requests discussed at the TNTLAC AGM by TGNL Deputy Chairman

5.2 Recent Stakeholder Engagement

Several key stakeholders were consulted for the development of this revised plan.

5.2.1 DMP

Following rejection of the initial mine rehabilitation plan, TGNL are required to resubmit this document with the 2012 AER. After an initial meeting in September 2011 between Mr Justin Robins (DMP Senior Environmental Officer) and Mr Daniel Radovic (TGNL Senior Environmental Coordinator) to discuss the impending amendment to the Stage Two operations and the inadequacy of the Rehabilitation Plan, formal correspondence was received indicating the submittal of the site's Rehabilitation Plan was required in 2012 and not 2014, as originally indicated under tenement conditions. A file of correspondence from the DMP regarding the Stage 2 site was forwarded to Mr Radovic for review. The DMP's concern was the initial submission *"provided limited detail on site specific rehabilitation strategies for each mining feature..."*. In order to meet these needs it was agreed that the subsequent plan would be developed in accordance with the *"Guidelines for Preparing Mine Rehabilitation Plans, June 2011"*. This plan is consistent with those guidelines in structure and content.

At a subsequent meeting at Mr Robins' office on 27 September 2011, rehabilitation methods were discussed and TGNL indicated that a consultant would be engaged to provide advice on rehabilitation methods. Landloch Pty Ltd (Landloch), a soil specialist consulting firm, was mutually accepted as a viable candidate. A site visit of the Coyote and the Stage 2 sites was conducted by Landloch on the 18 January 2012. The study focus at Stage 2 was the rehabilitation of the waste dump and the materials present. The materials found were analysed against previous pre-operational waste characterisation conducted by MBS Environmental Pty Ltd. Conditions for vegetation growth were assessed and recommendations on the rehabilitation methods were developed.

5.2.2 DEC

The topic of life of mine at TGNL projects has been discussed verbally with the Regional Leader of Industry Regulation in the Kimberley. At completion of rehabilitation the TGNL operations will be assessed by the DEC as to whether there may be a need to issue Closure Notice provisions under section 68A of the *Environmental Protection Act 1986*. In the event of provisional Closure Notices being issued TGNL will comply with all requirements sought by regulatory authorities.

The DEC has also been consulted with regards to obtaining a native seed collection permit for rehabilitation purposes on the tenements associated with this Rehabilitation Plan. A copy of the seed collection permit can be found in **Appendix G**. TGNL has also contacted several native seed suppliers with regard to seed procurement.

5.2.3 Tjurabalan Traditional Owners

TGNL and the Tjurabalan people signed the Coyote Gold Project Agreement in 2005 prior to grant of the Coyote mining leases. A meeting with the Tjurabalan Traditional Owners (TO) for the site and the Kimberley Land Council was conducted most recently at Billiluna on the 11th April 2012. There were approximately 200 members of the Tjurabalan in attendance at the meeting and the attendees from TGNL included the current Deputy Chairman, Registered Manager, Administration Manager, and several other site staff. The TGNL Deputy Chairman addressed the Tjurabalan AGM and requested feedback from them on the Rehabilitation Plan and what they would like to see happen with regard to infrastructure and any other matters of interest or of concern relating to rehabilitation of the area.

No major issues of concern were raised during the meeting and it was indicated that they preferred to leave the roads, airstrip and any water bores for their use post rehabilitation. The Tjurabalan people advised that they will confirm their expectations in writing via Reece O'Brian, lawyer for the KLC. TGNL will endeavour to meet the Tjurabalan people's requests.

5.2.4 Halls Creek Shire

The Senior Ranger and Ranger from the Shire of Halls Creek conducted a site visit of TGNL's tenements on the 20th February 2012 to inspect a recently established fire break and discuss proposed seed collection activities. Proposed rehabilitation methods were discussed during the visit. The Shire of Halls Creek is *"in total support of these works and commends Daniel and his team for understanding the requirements needed for rehabilitation works in such a sensitive area"*. The Letter of Support from the Shire of Halls Creek can be found in **Appendix H**.

6 Post-Mining Land Use and Rehabilitation Objectives

6.1 Land Use

The land use identified for the tenement is Traditional purposes at the discretion of the Tjurabalan Traditional Owners under Native Title. The Tjurabalan is a nomadic desert tribe from the edge of the Tanami Desert near Sturt Creek and Lake Gregory (Mulan) in Western Australia. The combined population is approximately 1500-2000 people. Spread over 26,000 square kilometres of land and waters of the Tanami Desert, the Tjurabalan region encompasses the communities of Ringer Soak (Kundat Djaru), Billiluna, Mulan and Balgo. The Traditional Owners, as local descendants have common spiritual affiliations to the land that provide them a primary spiritual responsibility for the land. The Traditional Owners by Aboriginal tradition forage over the land. The main objectives are to leave the site in a self-sustaining and stable manner that does not impact on the hunting and foraging activities of the Tjurabalan people.

The soil and groundwater is unsuitable for irrigation purposes. There are cattle stations in the region, however none are located near TGNL's Western Tanami tenements.

6.2 Rehabilitation Objectives

TGNL's rehabilitation objectives have been developed specifically for the Stage 2 Bald Hill Project area. **Table 12** outlines Rehabilitation objectives and targets.

Table 12 Rehabilitation objectives for Stage 2 of the Coyote Project

Aspect	Objective	Target
Final land use	Return the site, as near as possible, to the pre-mining condition to allow safe and unimpeded use of the surrounding area by the Traditional Owners.	TOs satisfied with work carried out.
Public safety	Leave the site in a condition where the risk of adverse effects to people, fauna and the environment in general, has been reduced to a level acceptable to all stakeholders.	Site meets accepted standards for public safety.
Final landform	Develop final landforms that are compatible with the natural surroundings.	Final landforms have a natural appearance.
Stability	Achieve soil stability in all post-mining landforms and disturbed areas.	Disturbed areas remain stable with minimal erosion.
Vegetation	Revegetate disturbed areas and post-mining landforms to achieve self-sustaining populations of endemic vegetation that resembles that already present.	Vegetation present in rehabilitated areas displays diversity similar to the surrounding area.
Fauna	Rehabilitate post-mining landforms and disturbed areas to re-establish the former habitats (where possible) and promote recolonisation by native fauna.	Fauna recolonise the mine site area over time.
Groundwater and Soil Contamination	Ensure any contaminants remaining in the soil or groundwater is below agreed criteria. Minimise the potential for movement of contaminants away from the Project area.	No soil or groundwater contamination caused by the mining operation remains after site rehabilitation.
Socioeconomic	Enable all stakeholders to have their interests considered during the mine closure process.	Stakeholder requirements are considered and achieved where cost effective and practical.
Cost and timing	Ensure that the rehabilitation process occurs in an orderly, cost-effective and timely manner.	Provision of funding is adequate. Rehabilitation completed within an agreed time frame.

7 Identification and Management of Rehabilitation Issues

7.1 Topsoil

Topsoil management is one of the key factors in successful rehabilitation. At Stage 2 Ball Hill, topsoil has been stripped and stockpiled. Throughout the operational period the topsoil is not watered for dust suppression purposes as the groundwater used is saline. Topsoil stock piles quickly establish a vegetation cover and negate the need for dust suppression.

TGNL are currently in consultation with native seed supplier (Topend Seeds) to ascertain the most appropriate mix of native seed species based on existing flora data, soil characteristics and an assessment to be undertaken during a site visit.

7.2 Landform stability, dispersive soils and erosion

The initial assessment of the site has previously indicated that there are some potentially dispersive materials found during the waste characterisation studies. This combined with the development of an elevated waste dump, poses potential issues to the surrounding environment; the stability of the waste dump; and visual amenity of the site. Landloch Pty Ltd specialist rehabilitation consultants been commissioned to assist with the mitigation of these issues (see **Appendix I**).

To ensure that erosion is minimised and stability is maximised TGNL will reduce the accumulation of runoff from rain events. The method involves reducing the amount and velocity of water moving over any given surface of the waste dump. **Figure 5** provides a conceptual plan for the Bald Hill waste dump.

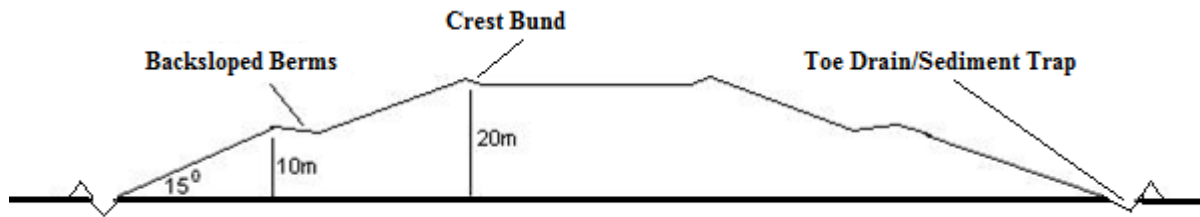


Figure 5 Waste Dump Design Concept

Water on the top of the Bald Hill waste dump must be retained. To accommodate this, the waste dump top must be level, and be able to store incident rainfall. Crest bunds are required to control surface water on the dump top to ensure water does not discharge from the top to the batters. A 72 hour storm event with a return interval of 100 years would deliver ~350 mm of rain. Therefore, the crest bund should be at least 650 mm high (to allow for 300 mm freeboard). The crest bund must be shaped to discourage the pond of water near the crest bund as a means of limiting the risks associated with tunnel erosion. A schematic of the crest bund concept can be found in **Figure 6**.

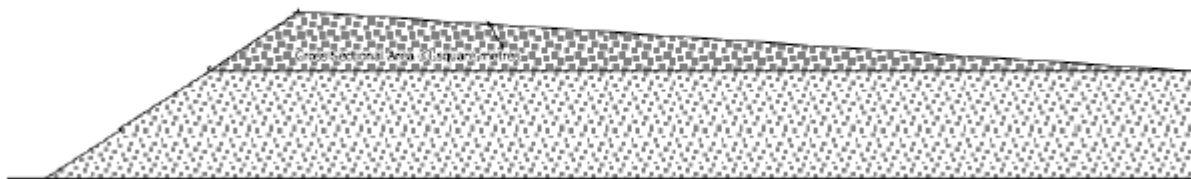


Figure 6 Schematic of a Crest Bund

The top of the waste dump has low erosion potential and, as such, deep ripping and the formation of large rip lines has been encouraged. Large rip lines on dump tops will assist in trapping water, and the deep ripping will maximise the potential for water to infiltrate, reducing the volume and period of ponding. Increasing water infiltration will also reduce the potential for vegetation to be water logged, and in most cases will significantly benefit vegetation growth. Cross-bunding can be installed to limit this migration by compartmentalising the dump top.

A berm cross-sectional capacity of 6.75 m² is predicted to be required to store both rainfall and eroded sediment for a period of 100 years. As berm width decreases, the required back slope gradient increases a modified back slope gradient will be established where existing berm cross-sectional capacity is less than 6.75 m².

The disturbance approved area around the toe of the waste dump will be constructed into a toe drain that acts as a final sediment trap. A cross-sectional capacity of 5.3 m² is predicted to store rainfall and eroded sediment and it incorporates infiltration estimates of a sandy, clay loam. The toe drain/sediment trap design can be found in **Figure 7**.

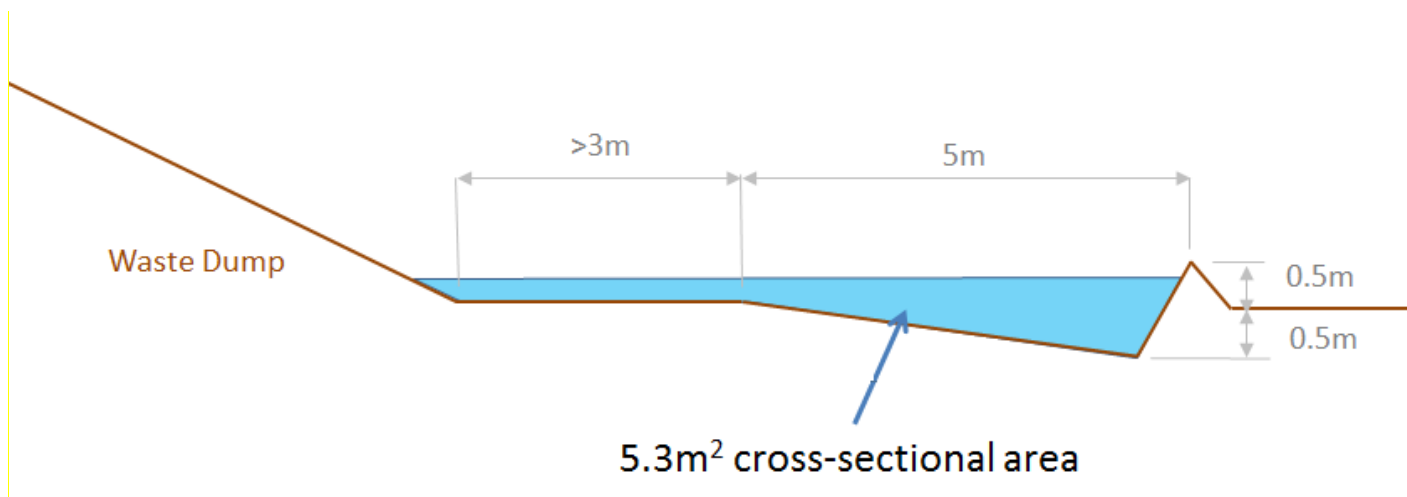


Figure 7 Toe Drain/Sediment Trap Design

The thin spreading of 100 mm topsoil over the waste and deep ripping the rocky underlying waste to the surface to increase the surface rock content has been suggested to reduce possible erosion.

For heavily eroded areas that contain thick topsoil layers erosion features should be removed by:

- Repair crest bund or batter berm to prevent any further inflow
- Removing soil from waste rock batter
- Bull dozing the rockier waste across the slope to remove the erosion feature
- Ripping soil and rock together
- Application of seed in accordance with soil characteristics

7.3 Weeds

Buffel grass (*Cenchrus ciliaris*) and Gallon's curse (*Cenchrus biflorus*) have been detected at old Coyote accommodation camp and the Coyote mine site and an herbicide spraying program has been undertaken since discovery to control the weed. These weeds have not been found on the haul road and related Stage 2 mine site covered under the scope of this plan. However, there is potential for weeds to become established in disturbed areas, particularly along road verges where water accumulates. Seeds are spread by vehicles as well as by many of the native animals. Regular inspections of disturbed areas will be undertaken and weed control implemented as appropriate.

7.4 Contamination of soil or groundwater

A number of substances being used at the Stage 2 mining area have potential to cause contamination if not managed correctly. TGNL will ensure that appropriate containment measures are installed and that handling techniques are such that the potential for soil or water contamination is minimised. Prior to leaving the site any identified soil contamination will be removed for onsite treatment, or shipped off site for appropriate treatment elsewhere. Groundwater monitoring will be conducted on a regular basis for the duration of the project to enable identification of contamination. Should contamination be identified, appropriate measures will be implemented to treat the groundwater to achieve accepted levels.

7.4.1 Hydrocarbons

Potential Locations:	Fuel farm, workshop, generators.
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Relatively small hydrocarbon spills are expected as a result of refuelling and servicing of vehicles and machinery. Over the life of the mining operation this could result in localised areas of soil contamination at the locations listed above.

Contaminated soil is to be periodically removed for treatment in a purpose-built bioremediation area at the Coyote mine site. The facility is a clay-lined area surrounded by a bund to prevent runoff of contaminants. Treatment of hydrocarbon contaminated soil will involve addition of an organic absorbent (Global Peat) and a hydrocarbon utilising bacterial solution.

Treatment will continue until hydrocarbon levels meeting acceptance criteria for Class 1 landfill facilities are achieved (DEP, 2002). Average levels to be achieved are:

- C₆-C₁₅ petroleum hydrocarbons – 2800mg/kg;
- C₁₆-C₃₅ petroleum hydrocarbons (aromatics) - 450mg/kg; and
- C₁₆->C₃₅ petroleum hydrocarbons (aliphatics) – 28,000mg/kg.

7.4.2 Naturally Occurring Contaminants and Acid Mine Drainage

Potential Locations:	Ore body, ROM, waste dump.
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Arsenic (As) was identified as being present in the Kookaburra and Sandpiper ore bodies at trace levels during the waste characterisation assessment prior to the production. These trace levels should not pose a threat towards any related soil contamination problems during the rehabilitation and mine rehabilitation process and will be monitored to ensure compliance.

Sulphides are present in trace amounts as pyrite and arsenopyrite. The levels are too low for acid rock drainage to be considered an issue. Should quantities of high concentration sulphide material be produced from either of the pits as waste it will be encapsulated within inert material in the waste dump. Small volumes of sulphide ore will be treated at the Coyote processing plant. The volume of tailings generated from the treatment of this material is not expected to be significant and will be combined with the much larger volume of tailings generated from the treatment of oxide material which has slightly alkaline pH, thereby neutralising acidic material.

Recent sampling of soils around from the waste dump and deposition areas around the waste dump has confirmed the assumptions that contaminates and acid forming substances are not impacting on the surrounding environment (see **Appendix C**). The retention dump design shown in **Figures 5 to 7** will help to reduce the potential for any contaminated surface water to enter the receiving environment.

7.4.3 Salt

Potential Locations:	Evaporation dam, haul road.
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Saline water will be discharged to the evaporation dam where it is likely to result in deposition of saline sediment. This material will be removed prior to rehabilitation of the dam and deposited in the pit.

Saline water will be used for dust suppression, however is not anticipated to result in contamination of the soils due to the short term nature of the operation and the diluting effect of rains during the wet season. Site procedures ensure that groundwater is managed to minimise the potential for adverse impacts on vegetation. The groundwater in the area is naturally saline therefore saline infiltration to groundwater should not pose contamination concerns.

8 Development of Completion Criteria

The proposed completion criteria described below are based on regulatory requirements; site investigations; TGNL's corporate objective for rehabilitation; industry standards; and stakeholder requirements. The completion criteria will be periodically reviewed and modified to reflect improved scientific knowledge or technological advances; future commercial opportunities; and changes to regulatory requirements or legislation. **Table 13** provides rehabilitation criteria and quantifiable indicators.

Table 13 Rehabilitation criteria for Stage 2 of the Coyote Project

Rehabilitation aspect	Completion criteria	Quantifiable Indicator
Planning	Landform Visual Amenity	Waste dump not to exceed 25m +or- 5%
Planning	Stakeholder Consultation	Proposal presented to stakeholders receiving majority support
Landform Construction	Waste dump outer batter slopes	No greater that 15°, post operational check and sign off
Landform Construction	Crest bunds and batter berm	Bunding on crest and batter berm to design specification. At least 1 in 100 72 hr ARI capacity of 350mm
Rehabilitation Performance	Surface contact cover (rock, vegetation surface cover) and canopy cover	60% surface contact cover and 5% canopy cover (equals longer term average of 6.5t/ha/y from 10m high slope)*.
Rehabilitation Performance	Minimal rilling and/or evidence of rills stabilising	Absence of large gullies >1m width 0.5m depth and of others that have not stabilised (survey of transects with rill count and sizes)
Rehabilitation Performance	Crest bunds and batter berm	No slumping, breakouts or tunnelling, maintain 350mm capacity from 1 in 100 72hr ARI
Decommissioning	Infrastructure	All mining related infrastructure removed from site. Bores capped.
Decommissioning	Contaminated soils i.e. hydrocarbons	Conform to limits in Section 7.4.1
Sustainability	Erosion stability, absence of gullies or existing gullies and rills stabilising	Ecosystem Function Analysis (EFA) rill assessment system and geomorphic indicators
Sustainability	Characterisation Waste and Soil i.e. acid drainage and contaminates such as heavy metals	Sampling post rehabilitation of heavy metals and sulphides that indicates properties that are unlikely to adversely impact plant growth or are lower than baseline levels
Sustainability	Self-sustaining and resilient. Diversity retained.	Vegetation survey to include species abundance and diversity.

	Weeds controlled.	
Sustainability	Fauna diversity similar to pre-mining condition.	Faunal survey and comparison to preoperational studies (MBS 2004).

* Dependant on pending revegetation specialist recommendation

9 Financial Provision for Rehabilitation

An estimate of the financial provision required to complete the rehabilitation, decommissioning and post rehabilitation works are provided in **Table 14**.

Table 14 Financial Provision Calculations (Confidential – costings removed)

Management Area	Technique	Unit of Measure (UOM)	Cost per UOM (\$)	Estimated Quantity	Sub Total (\$)	Technique Notes
Main Workshop, Laydown and Administration area	Disconnect and terminate services	@				Includes disconnecting all services such as power, water and sewer. This is a 'one off' cost for the area. Only temporary 40kva gen set, no power lines and septic system, less than 6 hours work 1 man
	Dmolish and remove small buildings	m ²				Total area of small buildings including demountables, containers, and tanks.
	Remediation on site of hydrocarbon contamination	m ³				Maximum possible volume of material requiring onsite remediation is 1 road train (40 tonnes) i.e. small area at refuelling bay
All infrastructure areas, roads, rom pad, everything excuding Waste Dump and evaporation dam.	Deep rip	ha				Enter all areas disturbed by infrastructure from above, including laydown areas Highly disturbed and compacted areas assume D6-D8 Dozer 3 tyne rippers
	Spread topsoil in adjacent windows to disturbed areas	ha				Minimum of 10cm depth, using grader prior to subsequent deep ripping with dozer, may require tip truck for one day
Evaporation Dam	Dirty water dams - drain and remove sediment	m ³				Removing 200mm of potentially contaminated sediments to be buried in the pit or other disposal (area of inner dam surface area only 4.0ha). Short haul to pit 0.3 kms.. Must consider the distance from dam to disposal area.
	Shaping or levelling	ha				Push embankments down over area where saline contaminated material was removed for capping, with dozer
	Source cart and spread topsoil if appropriate	m ³				Dozer and grader pushing existing topsoil stockpiles over dam area, min of 10cm of topsoil to assist revegetation program.
	Final trim, deep rip	ha				To enhance vegetation program over infilled dam as required. (All area outside actual dam structure is covered in all infrastructure areas)
	Revegetation by direct seeding	ha				Topend seeds quote for spinifex and acacia species at recommended mixing rates
Access Roads	Reshape and deep rip	ha				Windrows are pulled back and edges battered, area is deep ripped. Half of the road will remain in line with traditional owner requests however the width will be decreased.

Oxide waste rock dumps	Recontouring/battering for stabilisation	m ²				Includes the area requiring reshaping for stabilisation and preparation for revegetation. Western side of the waste dump approx. 4 Ha.
	Unshaped requiring minor earthworks, trim and deep rip	ha				Area requiring minor reshaping to 12-15° slopes and deep ripping to enhance revegetation, Area of waste dump currently battered 12.4 may require some ripping
	Unshaped requiring major earthworks, trim and deep rip	m ³				Volume of material requiring major reshaping to achieve appropriate grades and deep ripping, on western side of the waste dump.
	Structural works for drainage	ha				Earthworks for banks and drains to manage surface water on top of WRD. I.e. dump crest, toe drain and batter berm
	Source cart and spread topsoil or growth medium	m ³				Most of the topsoil has already been spread on the dump or is at least <0.2km to application areas
	Revegetation by direct seeding	ha				Topend seeds quote for spinifex and acacia species at recommended mixing rates
Post Rehabilitation Management	Mobilisation/Demobilisation	\$				Mobilisation of an environmental team from Darwin or Alice Springs
	Weed Management	ha				One weed spraying program per year to prevent colonisation, as no weed infestation on site application of \$50 per Ha for management applied.
	Water Samples	@				Pit and existing bores, includes sampling and analysis 3 sites for 5 years
	Revegetation maintenance, monitoring and assessment	ha				Includes vegetation monitoring sites, erosion monitoring sites and general observations
	Project Management	ha				Include project management and summary report of data collected during visit.
Total						\$

10 Rehabilitation Implementation

10.1 Rehabilitation Plan

The open cut mining operation has ceased at the Bald Hill site. Haulage operations will continue as there remains 400,000t of low grade ore stockpiled on the eastern side of the Waste Dump. There is still a substantial amount of remaining under the pits that has underground potential. TGNL aims to mine the ore, however this may require modifications to the mill at Coyote or to the yet to be refurbished mill at Central Tanami Project.

All hardstand and other disturbed areas will have topsoil applied and be deep ripped. Topsoil has been strategically stockpiled around the site prior to demobilisation to reduce the need for earthmoving equipment for rehabilitation. The excessive lateritic diversion bund has been hauled onto the waste dump and spread as a capping material for the underlying mine waste rock on the top and the eastern side of the waste dump. TGNL plans an extensive rehabilitation program in 2012 at the site.

All contaminated soils and infrastructure are to be removed while the site is in care and maintenance. All roads are to have windrows removed; topsoil applied and is deep ripped. The aim is to rehabilitate as much of the disturbed area as possible without duplicating effort and wasting topsoil in the long term when TGNL move back to an operation stage. The existing haul road will be left intact for ongoing haulage operations and future mining requirements. An abandonment bund has been installed

The aim is to rehabilitate the entire eastern side of the waste dump to a stable and sustainable state. The western portion of the waste dump is earmarked for future mining operations and has the capacity to hold more mine waste rock. It is currently used as a stockpile area for mineralised waste and low grade ore. The evaporation dam embankments will remain, however the inside and outside edges will be battered to a 1:3 gradient and all saline soil to a depth of 300mm removed and deposited into the open pit. When the underground operations are to commence the dam will be required and the semi rehabilitated state does not promote erosion of walls or the loss of its structural integrity. Should the underground mine not eventuate, TGNL will completely remove the evaporation pond embankments and topsoil the evaporation dam area and fully rehabilitate the western side of the waste dump.

10.2 Rehabilitation Methods

Photograph 8 Typical Undisturbed Hill Landform



Photograph 8 shows an example of an undisturbed hill landform; note the high percentage of ground cover and absence of topsoil on the surface. The above would have far greater erosion resistance properties and is the result that TGNL is aiming to achieve with future rehabilitation. This site will require the ripping of rocks to the surface at the Stage 2 waste dump. This follows the recommendations by Landloch Pty Ltd to improve the erosion resistance of any potentially dispersive wastes

10.2.1 Vegetation and Topsoil Stockpiling

Cleared vegetation and topsoil have been stockpiled at strategic locations around the mine site. Topsoil has been stripped to a depth of approximately 200mm. Long-term stockpiles are approximately 2m in height and will be deep ripped to enable vegetation growth and continued biological activity (**Photograph 9**). Short-term topsoil stockpiles will be trucked and dumped adjacent to the areas in which they will be used.

The positioning of stockpiles enables access for machinery and short haul distances during rehabilitation work. Long term stockpiles are located away from active areas to avoid disturbance.

Photograph 9 Example: Long Term Topsoil Stockpile



10.2.2 Rehabilitation of flat areas

Rehabilitation of site disturbance will be progressive where possible. Rehabilitation of flat areas will involve replacement of topsoil using a grader or bulldozer and deep scarification of the area. There has been no seeding undertaken in any of the areas rehabilitated at Coyote so far and observations have shown good plant diversity. **Photograph 10** and **Photograph 11** show the airstrip gravel pit in May 2006 and April 2007 respectively. The techniques employed for rehabilitation of flat areas appear successful and will therefore continue.

Photograph 10 Example: Airstrip Gravel Pit Rehabilitation**Photograph 11** Airstrip Gravel Pit Rehabilitation

10.2.3 Rehabilitation of slopes

At the Coyote mine site the southern and eastern face of the waste dump have been battered to 12-15° and topsoil has been applied.

Rehabilitation techniques for sloped areas will include:

- Battering of material to a maximum angle of 15°;
- Transfer and spreading of topsoil to achieve even coverage of approximately 100-150mm;
- Seeding on waste dumps to encourage the fast establishment of ground cover;
- Establishment of crest berms, batter berms and a toe drain; and
- Installation of water management features including bund around top surface and back-sloped berms.

10.2.4 Pits

It is not planned to backfill the pits. On completion of mining each pit will be bunded in accordance with DMP criteria for abandonment bunds. The bunds will also be utilised to prevent excessive surface water inflow. It is anticipated that water levels in the pits will return to the natural groundwater level within three years of completion of mining. The addition of rainfall and surface runoff is likely to result in an increase in the water level. However, the relatively low rainfall and extremely high evaporation rate (+3m annually) will maintain the final water level at between 10 and 20 metres below surface level. Water quality will be variable but is expected to consist of a fresh to brackish surface layer over saline subsurface water. The pit ramps will be left in place to enable fauna access and egress.

10.2.5 Contamination

Should monitoring or inspection programmes discover contamination of soil or groundwater, appropriate treatment methods will be developed and implemented to remediate the area to an agreed standard.

Hydrocarbon contaminated soil will be removed from site and transferred to Coyote mine site where a purpose-built bioremediation area is in operation. Biological treatment of the material will be undertaken to achieve hydrocarbon levels equal to or less than those acceptable for Class 1 landfill.

10.2.6 Monitoring

Vegetation monitoring sites are established and provide baseline information that is used in determining the success of ongoing mining activities leading to mine rehabilitation. Monitoring sites will also be established in rehabilitated areas to enable comparison with baseline sites.

Monitoring of groundwater will be undertaken to test for the presence of contaminants resulting from mining.

Areas of known or suspected soil contamination will also be monitored to determine the success of remedial action.

10.3 Site Decommissioning

Decommissioning of Stage 2 of the Coyote Project will commence when mining and haulage is complete. Final site decommissioning is expected to take approximately 3 months and will include:

- rehabilitation of abandonment bunds;
- removal of infrastructure and any underground services;
- rehabilitation of hardstand areas;
- rehabilitation of the evaporation pond; and
- rehabilitation of roads, tracks and other disturbance.

10.4 Specific Rehabilitation Requirements

The following section details the requirements for rehabilitation of each of the major components of the Stage 2 mining operation.

Much of the work required for rehabilitation is undertaken progressively as part of the mining operation.

10.5 Responsibility for implementation

TGNL will ensure responsibilities for achieving decommissioning and rehabilitation objectives are assigned and clearly communicated. An indication of the likely responsibilities for the various aspects of mine rehabilitation is found in **Table 15**.

Table 15 Responsibilities for Implementation of Key Components of Decommissioning and Rehabilitation

Factor	Strategies to be implemented	Responsibility
Vegetation monitoring.	Establish photographic monitoring sites and collect data periodically.	Environmental Department
Weeds.	Regular inspections of the rehabilitated areas of the haul road and mining area. Weed spraying conducted if required.	Environmental Department
Decommissioning.	Mining area to be made safe. Infrastructure to be removed from site.	Mine Manager
Rehabilitation.	To be undertaken progressively where practical. To be completed in a timely fashion on completion of mining activity	Mine Manager
	To be conducted in a manner that meets or exceeds accepted standards.	Mine Manager Environmental Department
Contamination.	Contaminated soil will be removed from site for appropriate treatment. Monitoring of groundwater and areas of suspected contamination will be undertaken as specified.	Mine Manager Environmental Department

11 Rehabilitation Monitoring and Maintenance

11.1 Unexpected and Temporary Rehabilitation Contingency

If a temporary rehabilitation is imminent a detailed Care and Maintenance Plan will be developed based on this Mine Rehabilitation Plan and will be submitted to the DMP within three months of the notification to the DMP. The strategy will be to leave the site in a safe and stable condition with the monitoring requirements to continue until verified as acceptable by the DMP.

The financial provision allows sufficient resource to complete the rehabilitation of the site and is reviewed every six months.

The plan will involve the following steps:

- Liaise with regulatory agencies and stakeholders regarding requirements;
- Remove chemical/contaminated waste from site or treat in appropriate and responsible manner;
- Installation of abandonment bund and signage around site;
- Geotechnical review of the TSF and any Dams to ensure integrity;
- Place the mill and crushing circuit under care and maintenance;

- Stabilise slopes;
- Remove infrastructure and equipment not identified as necessary for future operations;
- Undertake post operational audit;
- Maintain monitoring program of rehabilitated TSF's and Dams to ensure stability until operations resume.

11.2 Monitoring and Maintenance

A range of monitoring activities will be undertaken to assist in achieving site rehabilitation objectives. **Table 16** summarises the planned monitoring programme for the Stage 2 operation and that planned for implementation as rehabilitation work progresses. Results of monitoring will be reported in the Coyote Project Annual Environmental Report.

Table 16 Summary of Monitoring to be Undertaken

Type of Monitoring	Objective	Monitoring Parameters / Frequency	Planned Commencement
Undisturbed vegetation	<ul style="list-style-type: none"> Photographic monitoring sites have been established in undisturbed areas around the mine site to determine whether there is detriment to native vegetation as a result of the mining operation. 	Abundance and diversity of flora. Health of vegetation. <i>6 monthly</i>	Prior to disturbance.
Rehabilitation	<ul style="list-style-type: none"> Photographic monitoring sites will be established in rehabilitated areas to monitor the success and diversity of revegetation. 	Abundance and diversity of flora. Vegetative cover. Soil stability. <i>Annually</i>	On completion of rehab.
Weeds	<ul style="list-style-type: none"> Road verges, drains and other selected areas will be periodically monitored for the presence of weeds. 	Presence of weeds. Success of weed eradication programmes. <i>3 monthly</i>	Operational and Post Operational
Erosion	<ul style="list-style-type: none"> Rehabilitated areas will be monitored for signs of erosion as a result of rainfall runoff or wind. 	Soil stability. <i>Annually</i>	On completion of rehab. And Post Operational
Fauna	<ul style="list-style-type: none"> Rehabilitated areas will be monitored for the presence of fauna and indications of recolonisation. Site personnel will be requested to report sightings of threatened fauna. The Project area will be monitored for the presence of feral species with all personnel asked to report sightings of cats, camels or other introduced species. 	Presence and diversity of fauna species. <i>Annually</i> <i>Daily</i> <i>Daily</i> Post Operational Survey	On completion of rehab. Following start up. Following start up. Post Operational
Groundwater	<ul style="list-style-type: none"> Groundwater will be monitored for the presence of contaminants resulting from mining activity. Remedial action will be taken if required. 	pH, EC, TDS, TPH, As. <i>3 monthly</i>	On completion of bores.

Soil	<ul style="list-style-type: none"> Areas of potential or suspected soil contamination will be monitored to determine effectiveness of treatment methods. 	Monthly and Investigation during Decommissioning	Following start-up & during Decommissioning
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12 Review and Revision

This document is intended as a living document and will undergo review with any large scale change to the mining or the Rehabilitation Plan. As such the Decommissioning and Rehabilitation Plan will be reviewed subject to changes in mining forecasts, new technologies in mine rehabilitation techniques and other criteria to ensure relevance is maintained and that the objectives and targets set are being achieved.

The review will be undertaken by TGNL management with the purpose of determining if targets have been met, and therefore whether or not the management strategies implemented have been effective.

Any changes to the document or the management strategies will be communicated to all concerned.

13 Management of Information and Data

Progress of decommissioning and post operational activities, including progressive rehabilitation and monitoring, will be reported annually in the Coyote Project Annual Environmental Report, prepared in April each year for the period 2nd March to the 1st of March. On completion of site rehabilitation a Rehabilitation Report will be prepared and submitted to the various stakeholders of the project. Information on documentation and reporting can be found in **Table 17**.

Post operational activities will be detailed in an annual report that will be distributed to key stakeholders. This report will entail activities of the reporting period as well planned activities in the successive reporting period. The process will cover the assessment of rehabilitation methods over time. If any required monitoring or maintenance needs are identified TGNL, will endeavour to meet its environmental and handover commitments.

Table 17 Details on Data Availability for Stage 2 of the Coyote Project

Decommissioning and Rehabilitation management action	Documentation to be provided	Reporting method	Status
Maintain photographic monitoring sites and collect baseline data for ongoing rehabilitation and re-vegetation.	Monitoring site data sheets.	Included in AER.	Commenced.
Establish photographic monitoring sites in rehabilitated areas to monitor the success and diversity of revegetation.	Monitoring site data sheets.	To be included in subsequent AER's.	Commenced.
Regular inspection of disturbed areas for weeds.	Eradication plan to be developed if weeds found.	Details included in AER.	Commenced.
Monitor rehabilitated areas for signs of erosion.	Monitoring site data sheets.	Included in AER.	Commenced.
Fauna diversity and indications of recolonisation to be monitored periodically.	Monitoring reports.	Details included in AER.	To commence post operations
Groundwater will be monitored for the presence of contaminants resulting from mining activity.	Analysis reports.	Included in AER.	Not commenced.
Remediation of contaminated areas to be undertaken if required.	Completion report.	Details in AER. Reports available on request.	Not commenced.

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