EXPLORATION OPERATIONS
MINING MANAGEMENT PLAN AND PUBLIC REPORT

NORTHERN STAR (TANAMI) PTY LTD

CENTRAL TANAMI PROJECT

28 FEBRUARY 2017

Document Distribution List: **NT Department of Primary Industry and Resources**
Central Land Council
Tanami Gold NL (TGNL)
Northern Star Resources Limited (NST)

I, MICHAEL MULRONEY – CHIEF GEOLOGICAL OFFICER declare that to the best of my knowledge the information contained in this mining management plan is true and correct and commit to undertake the works detailed in this plan in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.

SIGNATURE: .....

DATE: 28 FEBRUARY 2017

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1. Amendments

A Mining Management Plan (MMP) for this project was submitted by Northern Star (Tanami) Pty Ltd (NST) on 06 July 2016. The Department of Primary Industry and Resources (DPIR) responded to that submission on 09 September 2016 with a request for additional information and a revised MMP was submitted on 20 December 2016. A further request was received from DPIR on 27 January 2017.

The tables below describe the amendments made to the MMP in response to the additional information requests by DPIR.

Section/Reference	Request	Amendments Reference
4.2 Hydrogeology	Please provide a detailed map of the bore field.	Figure 12
4.3 Flora	The information from the search tools should be summarised in this section and may be supplemented with information from local people in the area regarding weeds. Please check your assessment of weeds in the region and on-site, as the declaration status of the weeds you have listed may have changed recently. Please visit https://nt.gov.au/environment/weeds/declared-weeds Please also be aware that as of 15 July 2016, several new declarations including Opuntioid Cacti (Austrocylindropuntia spp. & Cylindropuntia spp.) and Prickly Pears (Opuntia spp.) were gazetted. These species are now Class A & C declared weeds. Please update your MMP to reflect these changes and provide a commitment to control weeds on the Central Tanami Project site as per the Weeds Management Act. It is also highly recommended that Northern Star (Tanami) Pty Ltd also control introduced plants on site, such as Ruby Dock (Rumex vesicaria), where there is a direct link to mining-related activity, or it is an isolated incursion. Please include a Weed Management Plan which clearly describes your measures to prevent and manage weeds on the site.	Section 5.6 Flora Section 5.6.4 Weeds Appendix 7 Weed Management Plan
4.3 Flora & 4.4 Fauna	It is recommended that Northern Star (Tanami) Pty Ltd engage a suitably qualified person(s) to interpret available flora and fauna data. Review of the NT Flora and Fauna Atlas indicates that several threatened species (mainly fauna) occur within a 10km radius of the proposed activities at both Hurricane/Repulse and Groundrush. Please note that the Hurricane/Repulse drilling is located within the south-west Tanami Desert Site of Conservation Significance (SOCS) and the Tanami Range Site of Botanical Significance (SOBS). Please provide information on how you will minimise the potential for significant impact to biodiversity, and provide for the adequate protection of threatened flora and fauna, from the proposed activities.	Section 5.6 Flora Section 6.4.2 Biodiversity Management
4.6 Aboriginal and Heritage Sites	It is recommended that a search of the NT Heritage Register and the NT Archaeological Resources Database is conducted to ensure there are no significant sites within the project area. If applicable, please describe how any heritage or archaeological places, or objects, on the site will be managed by Northern Star (Tanami) Pty Ltd. Obtaining a clearance certificate from the CLC does not indemnify the operator from prosecution under the Northern Territory Aboriginal Sacred Sites Act. It is recommended a search of the AAPA register is undertaken or an Authority certificate is obtained to reduce this risk. If applicable, please describe how sacred sites will be managed by Northern Star (Tanami) Pty Ltd.	Section 4.6 Aboriginal and Heritage Sites

5.3 Induction and Training	Your induction is required to contain information on weed management, including (but not limited to) weed identification, legislative requirements and weed hygiene procedures. Please amend.	Section 6.3 Induction and Training **Error! Reference source not found.** Appendix 10 Weed ID Induction Material
5.4.2 Hurricane Pit Risk Assessment	Based on this assessment, please provide a definitive list of actions that Northern Star (Tanami) Pty Ltd will undertake, including a schedule for monitoring activities, and timeframes for completion and reporting.	Section 6.4.3 Hurricane Pit Risk Assessment and Appendix 19 Hurricane Pit Risk Assessment
5.4.3 Carbine Pit Risk Assessment	Based on this assessment, please provide a definitive list of actions that Northern Star (Tanami) Pty Ltd will undertake, including a schedule for monitoring activities, and timeframes for completion and reporting.	Section 6.4.4 Carbine Pit Risk Assessment Appendix 21 Carbine Pit Risk Assessment
5.4.6 Hydrocarbon Management	Please provide an inventory of hydrocarbon storages, including: 1. Details of fuels/oils stored 2. Storage Capacity 3. Current condition & compliance with AS1940-2004 4. Specify control and mitigation measures planned or already implemented (e.g. inspections, integrity testing, labelling, training, spill kits, firefighting equipment, etc.). Please make a specific commitment, including a date, at which all hydrocarbon storages on-site will comply with AS1940-2004.	Section 6.4.8 Hydrocarbon Management and Table 19
5.4.7 Landfill and Waste Management	During the Central Tanami Project site inspection by Departmental Officers in October 2015, a large rubbish pit was observed next the current burn pit. It appears this has been open for many years, with no evidence of periodic in-filling. How does Northern Star Tanami Pty Ltd plan to manage this pit? Will periodic in-filling of the pit occur? Please provide details.	Section 4.4.9 Landfill and Waste Management
5.5.2 Workplace Inspections & Audits	Please include infrastructure areas, such as the processing plant, site offices, accommodation camp, airstrip, haul road and bore field in your Inspection Schedule.	Section 6.5.2 Workplace Inspections & Audits
6.0 Exploration Rehabilitation	Please provide rehabilitation methods for infrastructure sites (i.e. processing plant, site offices, accommodation camp, airstrip, haul road, bore field, etc.). Drill Pads – Please provide rehabilitation methods for the all-weather pads (i.e. dump rock from the Groundrush Pit abandonment bund).	Section 7, Table 23
6.2 Costing of Closure Activities	Please note that the security calculation should include any existing infrastructure or facilities on the site (e.g. bore field and water pipeline, rubbish dump, core storage areas, etc.). Please amend your security calculation accordingly.	Section 7.3 Costing of Closure Activities Appendix 23 [Confidential] - Mine Closure Security Calculations Appendix 24 [Confidential] - Infrastructure Demolition Assessment
	Please be advised that calculation of the security required by this project cannot be completed until this [third party infrastructure demolition assessment] information is submitted and assessed. Please advise the Department when the third-party assessment is expected to be to be finalised.	Assessment completed (Appendix 24 [Confidential] - Infrastructure Demolition

		Assessment and costs included in Appendix 23 [Confidential] - Mine Closure Security Calculations
	Securities for remediation of waste rock dumps, open pits and tailings dams were returned to the Operators of the Tanami Mine Joint Venture (Newmont Tanami Pty Ltd and Otter Gold Pty Ltd). The outstanding liabilities on the titles were transferred to Tanami Gold NL under Authorisation 0266-04 in May 2010. Tanami Gold NL still has obligations to take care of the environment, under Part 3 of the Mining Management Act, which may include responsibilities for remediation of disturbances and the maintenance and monitoring of works by them since May 2010. As such Northern Star (Tanami) Pty Ltd is required to include the costs associated with any outstanding remediation, and associated maintenance and monitoring, in the security calculation submitted to the Department.	Section 7.3 Costing of Closure Activities, Appendix 23 [Confidential] - Mine Closure Security Calculations
	Table 18 – Several sections of your security calculation are missing (i.e. disturbance area inventory, infrastructure, roads, etc.). Please include your full security calculation (excel spreadsheet) as an appendix to the MMP, so that the Department can check your calculations.	Appendix 23 [Confidential] - Mine Closure Security Calculations
Appendix 3 Authorisation History	Authorisation 0266-04 The Department uses different Units of Measure (UOM) for different types of drilling activities (e.g. DD, RC, AC, RAB, etc.). Can you please amend the tables in Appendix 3 to differentiate between the types of drilling undertaken? Please also check your calculations in the table, as some of the numbers do not add up. In 2011 the number of DD/RC holes drilled was 101, however the total number of holes drilled is listed as 153. Please clarify why this is the case. Please specify what disturbances are included in the "Total Area Disturbed/Rehabilitated" on the right hand side of the table. The Department uses different Units of Measure (UOM) for different types of disturbances (e.g. drill pads, laydown areas, infrastructure areas, tracks, etc.). Can you please amend the tables in Appendix 3 to differentiate between the types of disturbances? Ideally DPIR are looking for areas of specific disturbances that require remediation (e.g. total area of drill pads (ha), tracks (length x width), laydown/infrastructure area (ha), etc.).	The structure of information presented has been amended. Appendix 3 Authorisation History provides details on activities and disturbances approved. Appendix 4 Rehabilitation Register provides details of activities, disturbances and rehabilitation conducted.
	Authorisation 0266-05 Please note comments above in relation to all tables in Appendix 3. Please check your calculations in the table, as some of the numbers do not add up. In 2015 the number of DD/RC holes drilled was 125, however the total number of holes drilled is listed as 118. Please clarify why this is the case.	Appendix 3 Authorisation History Appendix 4 Rehabilitation Register
Appendix 8 Pit Lake Water Monitoring Results	Stock drinking water guidelines should be compared to total metal data (i.e. not filtered). Further evidence would be required to support the claim that water sampled is below ANZECC stock water guidelines. During future sampling both filtered and total samples would be required. Please provide a commitment to undertake this method of testing in the future.	Section 6.5.1
Appendix 12 Security Calculation Tool Worksheets	See comments in Section 6.2 regarding submission of the full security calculation as an excel spreadsheet. Please note that typical Units of Measure (UOM) in the spreadsheet are calculated to reflect the cost of the NT Government contracting the work to a third party for	Appendix 23 [Confidential] - Mine Closure Security Calculations

	undertaking remedial works. The values used in the calculation tool may not reflect what it would cost Northern Star (Tanami) Pty Ltd to undertake the work. Please amend the calculation to reflect this requirement. If changes to the UOM are warranted, please provide justification and evidence for consideration.	

Section/ Reference	Request	Amendments Reference
General	Please check your MMP to ensure all relevant references are changed from the WA Department of Mines and Petroleum to the Department of Primary Industry and Resources (DPIR).	Sections 5.7, 5.4.3, 5.4.4, 5.4.5, 5.7
3.0 Project Details	**Figures 1-4** Please only show granted tenements on maps relating to this Authorisation and ensure that all labels are legible. Please amend the maps in your MMP.	Figures 1 removed Figure 1-3 updated and renamed
5.1 Environmental Policy and Responsibilities	You have referred to several documents that support your environmental management system. Please provide these to the Department for assessment.	Appendix 28 [Confidential] - GIS Rehabilitation Database. Appendix 29 [Confidential] - Environmental Management System and Associated Standards. Appendix 30 CTP Site Disturbance Permit.
5.4.8 Hydrocarbon Management	**Table 19: Inventory of Hydrocarbon Storage Facilities** It has been highlighted that the Processing Powerhouse Bulk Oil, and the Processing Powerhouse Waste Oil storage tanks are contaminated sites requiring remedial action. Please provide more detail about this contamination (e.g. affected area and depth, type of contaminant, photographs, etc.). Please also provide details on what will be undertaken, as part of the clean-up, and a specific timeframe for remediation of this site.	Section Processing / Powerhouse Bulk Oil / Waste Oil.
5.7 Emergency Procedures and Incident Reporting	This section does not outline your environmental emergency response procedures. An Emergency Response Plan is referenced in the MMP but is not provided for assessment. Please provide this plan.	Appendix 33 Emergency Response Plan Appendix 33A Hydrocarbon and Chemical Spill Clean Up Procedures
6.2 Existing Infrastructure and Services	*"Traditional owners have requested, via the Central Land Council, that haul roads associated with the Project are retained for access to country. NST have therefore identified the main access roads to the north (Groundrush) and south (Southern Tenements) as not requiring rehabilitation".* Supporting documentation from the Central Land Council will be required to be lodged as evidence of their intention to retain infrastructure. Regarding the unsealed haul road, would any additional works, such as removal of windrows and installation of erosion protection measures, be required to ensure long-term stability prior to handover? Please provide details.	*Appendix 27 [Confidential] - CLC Letter re. Roads.* *7.2* Existing Infrastructure and Services
Appendix 12	Appendix 12 has been omitted from the MMP submission. Please provide Appendix 12.	Appendix 12 Biodiversity Management Plan
Appendix 23	**7.1.14 Sewage / Grey Water** *"A new septic treatment system is proposed for implementation in 2017".* Please provide more detail on this new system, including: Size and location A revised security estimate (if not included in Appendix 25) Plans for old system (e.g. back-up, rehabilitation, etc.).	Appendix 23 CTP Waste Management Plan
Appendix 23	**7.4.2 Landfill Bury Pit Operation** *"The bury pit is checked regularly (weekly), formally inspected monthly, and is included on the site inspection schedule. The bury pit is periodically covered with soil to minimise the distribution of waste material by wind, or feral animals or native fauna".* Please indicate the frequency of when the "bury pit" will be covered.	Section 4.4.10 Landfill and Waste Management

2. Operator Details

Operator name: Northern Star (Tanami) Pty Ltd
(ABN: 88 603 860 831)

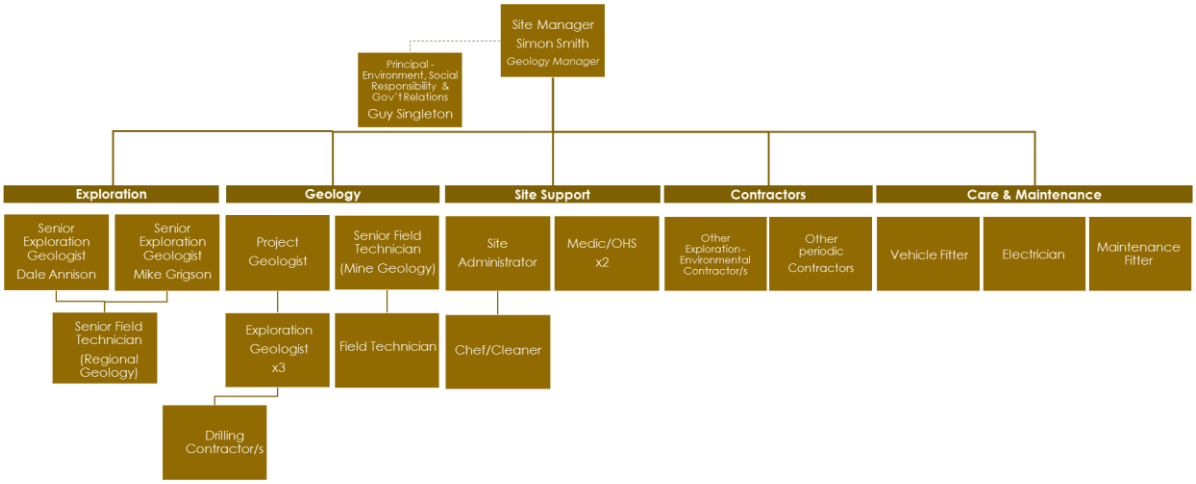
Address: Level 1, 388 Hay St
Subiaco WA 6008
PO Box 2008
Subiaco WA 6904

Contact details: Tel +6 8 6188 2100
Fax +6 8 6188 2111
Email info@NSTltd.com
www.NSTltd.com

2.1 Organisational Structure

The chart below shows NST's organisational structure for the proposed exploration activities associated with this phase of the Central Tanami Project (CTP), as per Section 40(2)(d) of the Mining Management Act. Where possible, the chart includes the names of the person filling the assigned roles.

The Geology Manager is responsible for environmental management of the exploration program on site and will be supported by Northern Star Resources Limited's (NST) Principal – Environment, Social Responsibility & Government Relations.



2.2 Workforce

NST's geology and exploration team for the CTP comprises a senior exploration geologist, two exploration teams consisting of two exploration geologists and one field assistant each all reporting to the operations Site Manager. Absolute numbers of exploration geologists and field crew may vary (up or down) from time to time depending on work intensity on site.

Site support at the CTP is provided by the site administrator, two contract medics, and care and maintenance personnel. Environmental and Community Relations functions are coordinated by the NST's Principal – Environment, Social Responsibility & Government Relations. Specialist environmental consultants are also engaged by NST to assist with the management of various environmental issues. In addition, NST has entered an agreement with the Central Land Council's (CLC) Land Management Section that involves members of the Northern Tanami Rangers undertaking environmental monitoring work, such as groundwater sampling and monitoring at the CTP.

All employees, other than the Principal – Environment, Social Responsibility & Government Relations, work a rotational fly-in fly-out nominal 16 days on 12 days off arrangement from Perth, working 12 hour shifts whilst on site. Fly-in fly-out services operate via Broome and/or Alice Springs. Accommodation is provided in the existing mine camp facilities located on MLS153.

All exploration programs will be supervised by competent experienced geologists. All site and contract personnel are required to complete a site induction covering environmental, health and safety and cultural/heritage practices before commencing work at CTP.

Currently, NST's CTP has a minimum permanent presence of approximately six people on site.

3. Identified Stakeholders and Consultation

In line with DPIR's guidelines for identifying and consulting with stakeholders, and since acquiring a formal interest in the CTP in July 2015, NST has undertaken a fit for purpose stakeholder identification/mapping and engagement process. This process ensures all key CTP stakeholders are both aware of NST as a company and its intentions for the near and future term activities.

NST has conducted a high-level stakeholder mapping process to identify those individuals and organisations that have an interest/intersect in the initial phase of the project. These stakeholders are presented in Table 1 below.

Table 1 CTP Stakeholder Register

Stakeholder Name	Key Contact(s)	Title	Key Interest Areas
Department of Primary Industry and Resources			
DPIR - Alice Springs	Kirsten Johnston	Mining Team Manager	Legal compliance
	Dave Waterson	Senior Mining Officer	Legal compliance
DPIR - Darwin	Phil Hausler	Executive Director	Legal compliance
	Peter Waggitt	Director Compliance	Legal compliance
Central Land Council	Gary Scott	Mining Officer	Agreement Implementation
	Sarah Wilkie	Lawyer	Agreement Implementation
	Julie-Ann Stoll *Traditional Owners*	Mining Manager	Agreement Implementation
Central Desert Regional Council	Cathryn Hutton	Chief Executive Officer	Legal compliance
	Adrian Dixon	PRESIDENT - Anmatjere Ward	Legal compliance
Supplejack Station	Rob Cook	Station Owner	Natural resource impacts
Northern Territory Government	Michael Gunner	Chief Minister, Minister Aboriginal Affairs	Project Developments
	Nicole Manison	Treasurer, Deputy Chief	Royalties
	Kenneth Vowles	Minister Primary Industry and Resources	
	Lauren Moss	Minister for Environment and Natural Resources	Environmental Impacts
Department of Treasury and Finance	Eddie The	A/Director Royalty and Advisory Services	Royalties
NT Environmental Protection Authority	Bill Freeland	Chair	Environmental Impacts
NT Geological Survey	Dorothy Close	Director – Regional Geoscience	Information Sharing
Newmont Mining	Ken Ramsey	Group Executive: Sustainability and External Relations	Project Developments
ABM Resources	Jutta Zimmermann	Chief Financial Officer	Local interactions and information sharing

Table 2 shows a record of face to face engagements with key stakeholders, both leading up to and post-acquisition, as identified in the initial mapping process. This table does not capture the considerable volume of phone and email dialogue that has occurred around these face to face meetings.

Table 2 CTP Stakeholder Consultation Register

Date	Name	Organisation	Location	NST Attendees	Topic(s)
28/05/15	Kristen Johnston, David Waterson	DPIR Alice Springs	Arid Zone Research Centre, Alice Springs	Guy Singleton, Liza Carpene, Stuart Tonkin, Darren Stralow	Company introduction and project overview prior to entering JV agreement with Tanami Gold.
29/05/15	Julie-Ann Stoll, Sarah Wilkie, Gary Scott	Central Land Council	CLC Office, Alice Springs	Guy Singleton, Liza Carpene, Stuart Tonkin, Darren Stralow	Company introduction and project overview prior to entering JV agreement with Tanami Gold.
2/06/15	NT Chief Minister, Treasurer, Minister for Environment	NT Government	NT Parliament House, Darwin	Bill Beament, Stuart Tonkin, Guy Singleton	Company introduction and project overview prior to entering JV agreement with Tanami Gold.
6/04/15	Dr Bill Freeland	NT EPA	EPA Office, Darwin	Bill Beament, Stuart Tonkin, Guy Singleton, Brad Valiukas	Company introduction and project overview prior to entering JV agreement with Tanami Gold.
22/06/15	*Numerous individuals*	CLC and Traditional Owners	Central Tanami Mine, NT	Bill Beament, Liza Carpene, Guy Singleton, Darren Stralow	Provide a company overview to Traditional Owners and explain intentions of the project, prior to the CLC consent meeting the following week.
9/07/15	Julie-Ann Stoll, Danielle Campbell, Gary Scott	Central Land Council	CLC Office, Alice Springs	Guy Singleton	Discuss cultural awareness training requirements, access permit protocol, and Tanami biodiversity survey
15/09/15	Kristen Johnston, David Waterson	DPIR Alice Springs	Central Tanami Mine, NT	Guy Singleton, Matt Holmes	Hosted a DPIR site inspection at Central Tanami Mine
28/10/15	Cathryn Hutton, Adrian Dixon	Central Desert Regional Council	ABM Coyote Mine, WA	Guy Singleton, Stuart Tonkin	Provide a high-level summary of project activities to date, and update on intentions moving forward
13/11/15	Kristen Johnston, David Waterson	DPIR Alice Springs	Arid Zone Research Centre, Alice Springs	Guy Singleton, Abe van Niekerk	Discuss letter from DPIR-Peter Waggitt with post inspection tasks
13/11/15	Gary Scott	Central Land Council	CLC Office, Alice Springs	Guy Singleton, Abe van Niekerk	Discuss Aboriginal employment opportunities, and possible expansion of mining project
31/05/16	NT Treasurer, Minister for Environment, Tony Musumeci, Alf Leonoardi	NT Government	NT Parliament House, Darwin	Bill Beament, Guy Singleton	Provide a high-level summary of project activities to date, and update on intentions moving forward
5/01/16	Phil Hausler	DPIR Darwin	DPIR Darwin Office	Bill Beament, Guy Singleton	Provide a high-level summary of project activities to date, and update on intentions moving forward
5/01/16	Eddie The	Department of Treasury and Finance	Treasury Office, Darwin	Bill Beament, Guy Singleton	Provide a high-level summary of project activities to date, and update on intentions moving forward, project royalty clarification
24/08/16	*Numerous individuals*	CLC and Traditional Owners	Central Tanami Mine, NT	Bill Beament, Liza Carpene, John Fitzgerald, Michael Mulroney, Guy Singleton, Simon Smith, Jamie Rogers, Dale Annison	Provide a company overview and operations update to Traditional Owners and explain intentions of the project.
25/08/16	Phil Hausler, Peter Waggitt	Department of Primary Industry and Resources	DPIR Office, Darwin	Michael Mulroney, Jamie Rogers	Provide high level Company update and Project activities
25/08/16	Dorothy Close	NT Geological Survey	DPIR Office, Darwin	Michael Mulroney, Jamie Rogers	Company introduction and project overview, joint research initiatives

Date	Name	Organisation	Location	NST Attendees	Topic(s)
19/09/16	*Minister Ken Vowels and Chief of Staff,*	NT Government - Minister for Primary Industry and Resources	NT Parliament House	Guy Singleton, Brad Valiukas, Michael Mulroney	Company introduction and project overview to new Government representatives
20/09/16	Phil Hausler, Dave Waterson	Department of Primary Industry and Resources	DPIR Office, Darwin	Guy Singleton, Brad Valiukas, Michael Mulroney	Run through the department's letter requesting amendments to the MMP submission, in order to clarify NST's responses.
20/09/16	Bill Low	Low Ecological Services	Alice Springs	Brad Valiukas, Michael Mulroney	Scoping discussions for flora and fauna survey.
21/09/16	Dave Waterson	Department of Primary Industry and Resources	DPIR Office – Alice Springs	Brad Valiukas, Michael Mulroney	Run through the Department's letter requesting amendments to the MMP submission, in order to clarify NST's responses.

Key stakeholder groups such as Traditional Owners and the Central Land Council have been informed of the Company's Complaints and Grievance Standard (Appendix 1 NST Complaint & Grievance Management Standard), and that a mechanism is in place to capture and resolve stakeholder concerns. This important communiqué was made at the 2015 CLC Liaison Committee Meeting.

4. Project Details

Authorisation No: New Authorisation requested.

Current Authorisation is 0266-05 (Variation 2)

Project Name: Central Tanami Project (CTP)

Location: The Project is located approximately 650km northwest of Alice Springs and 850km southwest of Darwin.

Site Access: The Project is accessible from the public Tanami Road that passes through MLS153 within 2km of the camp and treatment plant. Access to other parts of the project area, is via well formed, and in part sealed, private mine haul roads, pastoral station roads and exploration tracks. Access to the Groundrush pit is via a sealed haul road from the CTP mine site. All site supplies and plant are transported to site via the Tanami Road.

NST Mining Interests:

Central Tanami
ML22934
MLS119-133 inclusive
MLS153
MLS167
MLS168
MLS180
EL8797
EL26925
EL26926
EL28474

Title Holders: All Titles are held by Tanami (NT) Pty Ltd 75% (ACN 141 658 933), a wholly owned subsidiary of Tanami Gold NL ("TGNL") and Northern Star (Tanami) Pty Ltd 25% (ACN 603 860 831) ("NST"), a wholly owned subsidiary of Northern Star Resources Ltd ("NST").

Further tenement details are included in Appendix 2 Tenement Details.

Nomination of Operator Form: A nomination of operator form has previously been submitted which nominates Northern Star (Tanami) Pty Ltd as the operator.

Application for Authorisation Form: A revised Authorisation accompanies this MMP

Location Maps and Site Plans: **CTP Location** (Figure 1 & 2), **CTP Tenure** (Figure 3).

Figure 1 CTP Location Plan

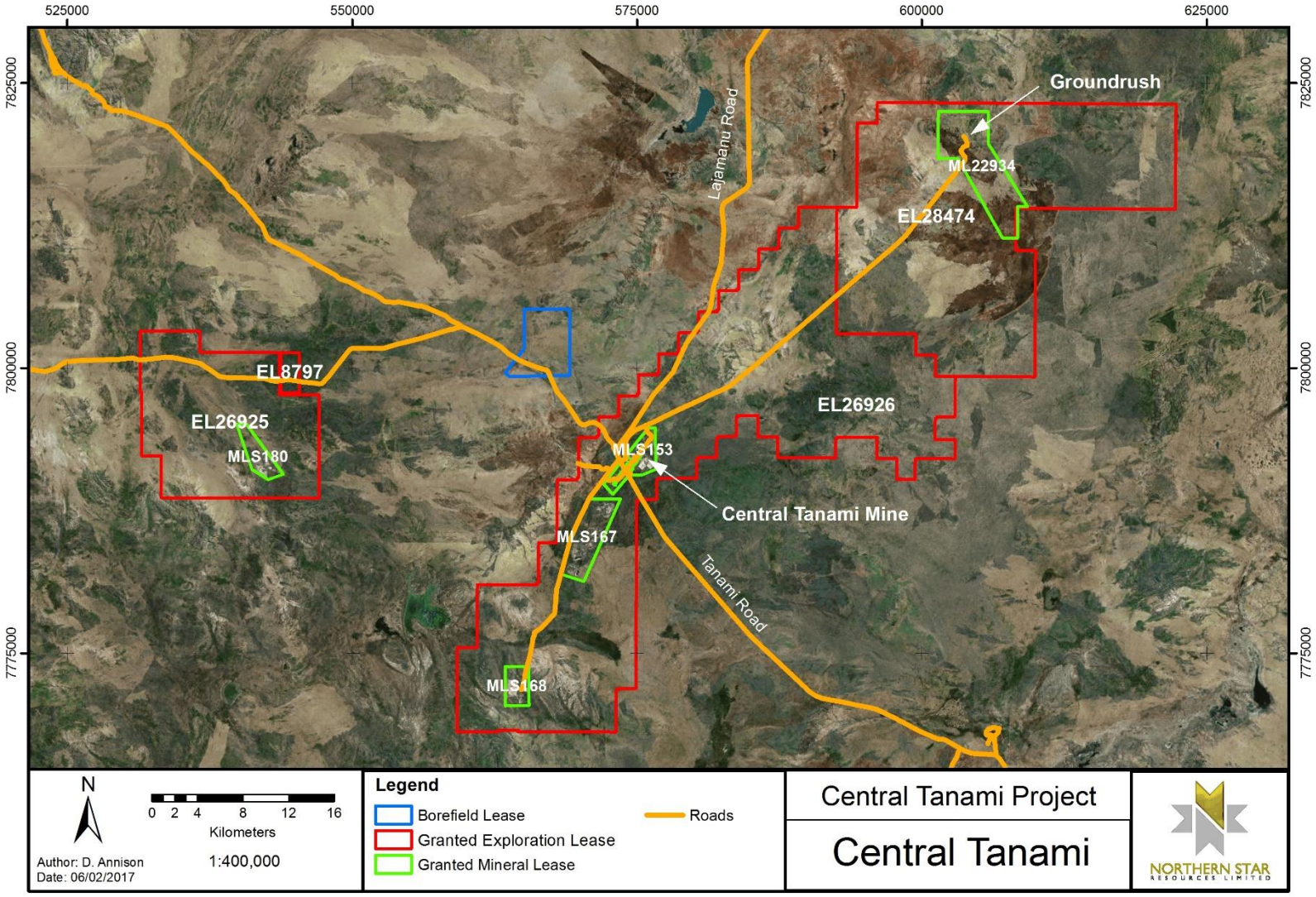


Figure 2 CTP Location Plan

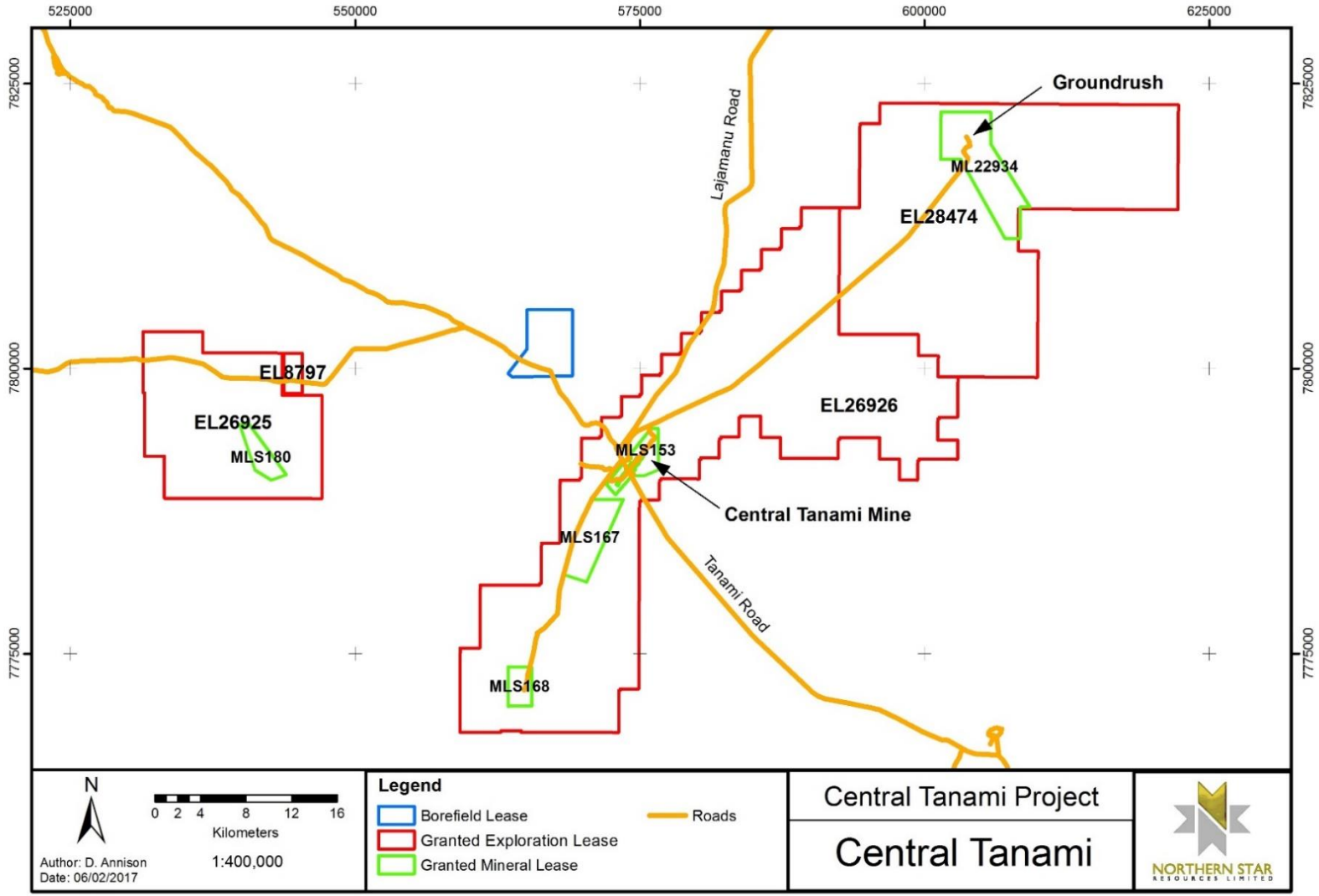
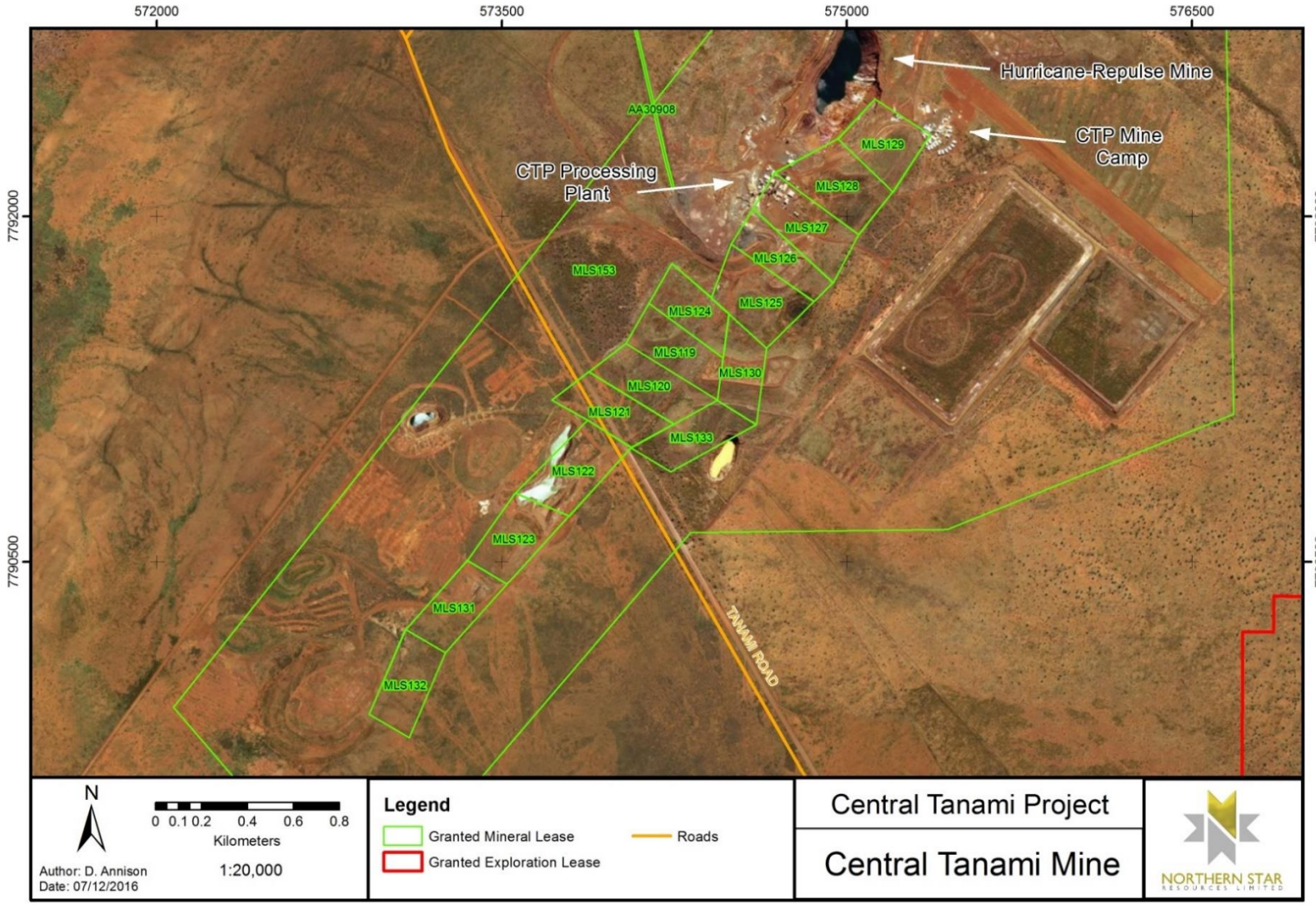


Figure 3 CTP Tenure Plan



4.1 Previous Activities and Current Status

Historical Mining/Exploration

There is a long mining history at the Central Tanami site. Small scale mining commenced in the early 1900s and operations were sporadic until the late 1980s.

The Tanami Joint Venture commenced operations in late 1987 and Zapopan NL purchased a 50% interest in 1988 (ownership was then 50% Zapopan, 30% Kintaro Resources and 20% Kumagi-Gumi). Mining operations were discontinued in April 1994.

In 1989 Otter commenced exploration and in 1990 the Central Desert Joint Venture was formed between Otter and Shell.

In 1995, the Central Desert Joint Venture (Otter and Shell Australia) purchased the Tanami plant from Zapopan and the Tanami Mine Joint Venture (TMJV) was formed.

The TMJV commenced operations in November 1995 and established a multi-pit operation processing 7.5 million tonnes producing 694,658 ounces of gold. Mining ceased in July 2001 and processing operations ceased in October 2001.

Normandy NFM Pty Ltd (now Newmont Tanami Pty Ltd) discovered the Groundrush deposit in 1999 and mining was undertaken from 2001 to September 2005 with the ore being processed at the Central Tanami Processing Plant. Rehabilitation was completed at Groundrush and the site was placed into a post closure monitoring phase.

The Central Tanami Processing Plant was placed on care and maintenance in late 2005 while rehabilitation was undertaken on the mine site. Newmont Australia Ltd (Newmont) determined that the Central Tanami Project was a non-core asset to be divested on completion of the rehabilitation program. Following a tendering process, TGNL acquired the Central Tanami Project in March 2010 with site handover occurring at the end of April 2010 – with the understanding that all rehabilitation in respect of Newmont's exploration and mining program was completed prior to the sale of the tenements.

TGNL conducted significant resource drilling between May 2010 and December 2012 to support the feasibility into recommissioning of the Central Tanami Processing Plant and re-establishment of the Central Tanami Mining Operation. The feasibility did not provide an economic outcome and the TGNL MMP in respect to the mining operations was withdrawn in 2013.

In 2014, TGNL commenced regional exploration with RAB\AC drilling over several of its CTP tenements. this work was placed on hold in 2015 due to the imminent JV with Northern Star Resources Limited.

In August 2015, an MMP was submitted by TGNL that proposed a continuation of exploration drilling activities in conjunction with NST during 2015/16. This drilling program has now been completed and rehabilitation works are being conducted.

Details of exploration activities proposed and approved under previous Authorisations (0266-04 and 0266-05) are provided in

Appendix 3 Authorisation History.

An audit was conducted in October 2016 to assess the rehabilitation status of exploration disturbance conducted under these Authorisations. Details on the rehabilitation status are recorded in the Rehabilitation Register, provided in Appendix 4 Rehabilitation Register. A summary of the exploration activities approved and undertaken in the last twelve months and the rehabilitation of the associated disturbance is provided in Table 3.

Table 3 Activities Carried Out in Last 12 Months.

Authorisation 0266-05 (Revised MMP Dec 2015)				
	Proposed	**Actual**	**Partially Rehabilitated***	**Fully Rehabilitated**
Drill holes (DD/RC/RCD)	125	118	118 (bags removed)	0
Max. depth of holes		756.15 m	NA	NA
Drill pads cleared (number)		29 pads (1.16 ha)	0	0
Sumps cleared (number)		89	89 (sumps backfilled)	0
Collars to be Cut-plugged-buried.		118	84 (cut, plugged and buried)	0
Tracks cleared (km)	24.1 km	0.3 km	0	0
Total area cleared (ha)	10.8 ha	1.31 ha	0	0

**** As at 10/12/16***

For all holes drilled within the past 12 months, plastic sample bags have been removed and drill spoil placed in sumps. Sumps on 89 of 89 drill pads have been backfilled and levelled (with slight mounding to allow for future settling). Drill collars on 84 holes have been cut, permanent plugs installed below surface and backfilled. Collars that remain to be cut are plugged or capped.

Rehabilitation has also been completed on drill sites from previous exploration activity at Groundrush consisting of clearing of bags, clearing drill spoil and backfilling sumps. Further final rehabilitation of legacy exploration drill sites (mainly exposed collar pipes) will continue in concert with rehabilitation of the 2015-16 drill sites.

A summary of the drilling and rehabilitation status of all drilling conducted by TGNL and NST (as recorded in the Rehabilitation Register, and confirmed through the October 2016 audit) is provided in Table 4. GIS layers with all TAM and NST drilling to date are also provided with this MMP

Table 4 Summary of Historic Exploration Disturbance

Tenement \leases	ML22934			MLS122		MLS123		MLS128		MLS129	MLS153			MLS167		MLS168
	DD	RC	AC\RAB	DD	RC	DD	RC	DD	RC	DD	**DD**	**RC**	**AC\RAB**	**DD**	**C**	**AC**
Number of holes drilled	180	279	79	10	19	6	3	3	1	4	25	80	44	39	141	11
Maximum depth of holes	756.15m	357m	90m	241m	202m	310m	200m	337m	154m	592m	434m	180m	65m	674m	328m	7m
Number of drill pads cleared – see note (Length: m x Width: m)	164	206	N/A	10	19	6	3	3	1	4	25	80	N/A	39	141	N/A
Number of sumps cleared (Length: 5m x Width: 4 m)	198	232	N/A	10	19	6	3	3	1	4	25	80	N/A	39	141	N/A
Length of line / track cleared- estimated **(km)** Kilometres x Width: (3m for standard track)	8.2	7.1	3.9	1	1	0.5	0.5	0.4	0.1	Nil	0.9	1.4	1.8	4	9.4	1
Number of costeans excavated Length x Width x Depth **(m)**	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Total bulk sample pits excavated (Length: x Width: x Depth: m)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Camp area/s cleared	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Pads area disturbed (hectares)	4.92	4.635	N/A	0.30	0.43	0.18	0.07	0.09	0.02	0.12	0.75	1.80	N/A	1.17	3.17	N/A
Total Track area disturbed (hectares)	2.5	2.3	1	0.1	0.1	Nil	Nil	Nil	Nil	Nil	0.2	0.5	0.5	1.3	3.4	0.2
Drill holes capped / plugged at surface	54	45	N/A	N/A	1	1	N/A	N/A	N/A	N/A	N/A	1	N/A	39	141	N/A
Drill holes capped / plugged below surface	126	234	79	10	18	5	3	3	1	4	25	79	44	Nil	Nil	11
Drill hole plastic bags removed	180	266	N/A	10	19	Nil	Nil	Nil	Nil	Nil	14	78	Nil	Nil	Nil	Nil
Total Pad area rehabilitated (hectares)	Nil	2.7	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.07	0.53	Nil	Nil	Nil	0.2
Total Tracks area rehabilitated (hectares)	Nil	0.6	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.1	0.4	Nil	Nil	Nil	1

Table 4 - Continued

Tenement \leases	MLS180	EL8797	EL26926	EL26925	**Total**
	RC	**AC**	**AC\RAB**	**RC**	
Number of holes drilled	66	7	183	10	**1190**
Maximum depth of holes	330m	123m	120m	156m	
Number of drill pads cleared – see note (Length: m x Width: m)	66	N/A	N/A	10	**777**
Number of sumps cleared (Length: 5m x Width: 4 m)	55	N/A	N/A	10	**826**
Length of line / track cleared- estimated **(km)** Kilometres x Width: (3m for standard track)	3.6	0.6	31.5	2.8	**79.7**
Number of costeans excavated Length x Width x Depth **(m)**	Nil	Nil	2 10 x 5 x 2	Nil	**2**
Total bulk sample pits excavated **(Length: x Width: x Depth: m)**	Nil	Nil	Nil	Nil	**0**
Camp area/s cleared	N/A	N/A	N/A	N/A	
Total Pads area disturbed (hectares)	1.49	N/A	N/A	0.23	**19.4**
Total Track area disturbed (hectares)	1.1	0.2	6.2	0.8	**20.4**
Drill holes capped / plugged at surface	66	N\A	N\A	N\A	**348**
Drill holes capped / plugged below surface	Nil	7	183	10	**842**
Drill holes plastic bags removed	Nil	Nil	Nil	Nil	**567**
Total Pad area rehabilitated (hectares)	1.2	Nil	Nil	0.1	**4.8**
Total Tracks area rehabilitated (hectares)	1	Nil	Nil	0.8	**3.9**

4.2 Proposed Activities

NST are the proposed nominated operator of all activities being conducted at the CTP, taking over from TGNL. A nomination of operator application form has previously been submitted and is held by the DPIR.

A total of 320 drill holes for approximately 50,000m are proposed. Proposed activities will be concentrated in two centres, Groundrush (ML22934) and Hurricane Repulse (MLS153). Mapping and low level reconnaissance soil and geochemical sampling across the regional Exploration Leases is also envisaged but these programs are not sufficiently developed to form part of this submission and will be submitted as a separate MMP. Details of the proposed work by activity centre are described below.

The key objectives of the 2017 proposed drilling programs are to:

- Extend and further delineate the known mineralisation down plunge and along strike of the Groundrush deposit, predominantly in a South Easterly direction.
- Infill the existing drilling at the Ripcord deposit (~4km South East of Groundrush) from 50m x 50m (and greater) to a nominal 25m x 25m spacing and extend mineralisation north along strike towards Groundrush.
- Test the mineralisation potential of targets such as Western Dolerite and Tandem.
- Identify extensions and any parallel offset mineralisation to the Hurricane-Repulse deposit around the existing Central Tanami Processing Plant.

The initial stages of the proposed drilling program are expected to commence in the first quarter of 2017 dependent on a review of all NST tenure in the Tanami Region. Reviews of all historical deposits at the Central Tanami Project (CTP) are currently underway with a collective analysis determining the overall exploration and resource development strategy.

Table 5 summarises the proposed drill program with further details provided in the Program Description section. Note that RCD refers RC pre-collar diamond tail drilling.

Table 5 Proposed 2016 Drilling Program

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	58	58	40	156
RC Holes	87	24	10	121
Diamond Holes	15	14	14	43
Total Holes	160	96	64	320
RC Metres	10,725	6,900	3,600	21,225
Diamond Metres	14,275	8,100	6,400	28,775
Total Metres	25,000	15,000	10,000	50,000
Estimated Cost	$2,766,724	$1,630,995	$1,149,780	$5,547,499

Each of the target areas are outlined in Figure 4 and Figure 5. These areas have been proposed as polygons in lieu of specific collar point locations and total disturbance area/volume will be adhered to within the polygons.

Polygon areas have been proposed to assist NST in achieving the best possible collar locations as further geological knowledge becomes available. Being able to correctly locate drill lines and adjust collar locations along those lines as the program is carried out will significantly enhance the prospect of success at each drill target. Spatial datasets of the proposed areas of disturbance have been provided in electronic format to the DPIR by NST as requested in the DPIR Structure Guide for Exploration MMP's (August 2016).

All proposed drilling involves both RC and diamond drilling methods. Site preparation and rehabilitation will be carried out in accordance with NST procedures (Appendix 5

NST Drilling Rehabilitation SOP*)* whilst also minimising disturbance by utilising historical access tracks and/or drill pads.

At Hurricane-Repulse, a section of the safety bund (used during operations) has collapsed into the pit. An abandonment bund exists beyond the zone of instability, but the area between the bund and the pit can still be physically accessed with signage in place. Works will be conducted in-line with geotechnical assessment included in Appendix 19 Hurricane Pit Risk Assessment to ensure that adequate bunding restricts access to the pit prior to recommencement of proximal exploration activity.

Both drilling locations, as indicated in Figure 4 and Figure 5 are areas of significant previous works and disturbance including exploration, clearing of track lines, drilling, mining, processing and current site activity.

The areas have been assessed with Low Ecological Services conducting three on-ground surveys during 2012 and 2016. The assessment report by Low Ecological Services is provided in Appendix 6 Flora and Fauna Assessment. Recommendations from the report regarding the management of significant flora and fauna species have been incorporated into site procedures such as the site induction, the NST Weed Management Plan and workplace inspections. These aspects of biodiversity management are described in Section 6.4.2 Biodiversity Management.

Figure 4 Hurricane-Repulse Proposed Drill Area

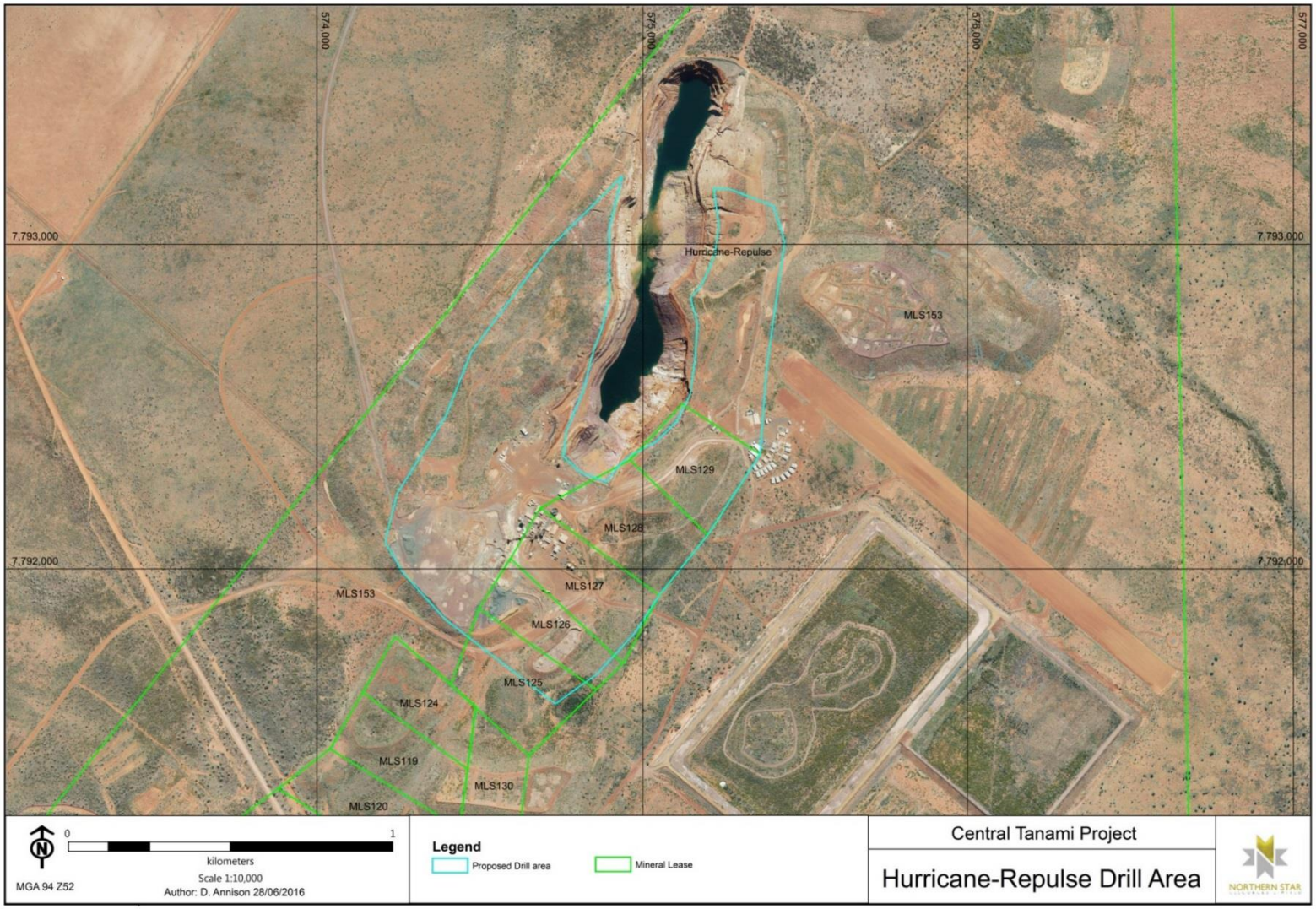
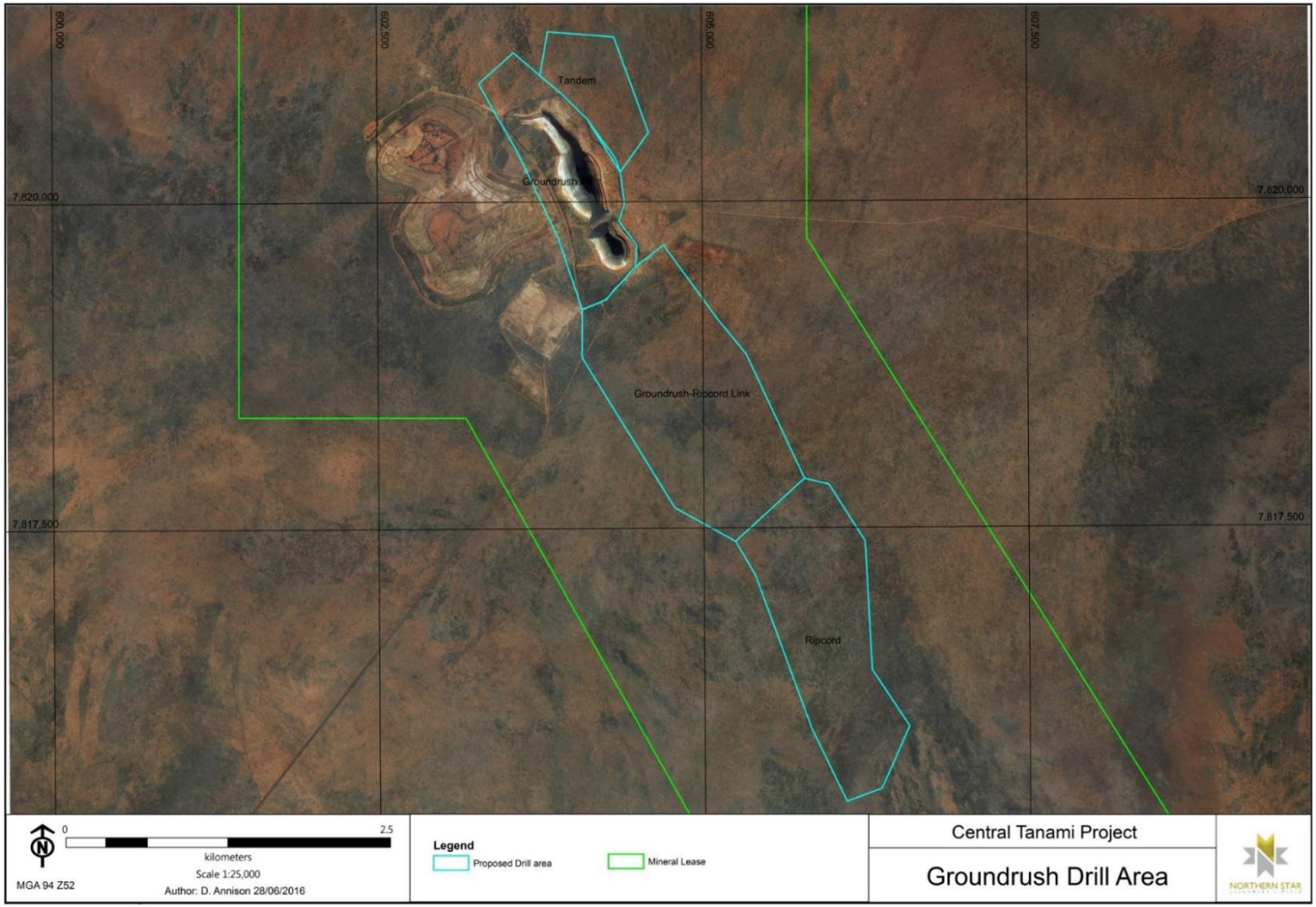


Figure 5 Groundrush Proposed Drill Area



4.2.1 Groundrush Mining Centre (ML22934)

The Joint Venture completed a ~38,000m drilling program at Groundrush (ML22934) in April 2016. This program was focused on infilling the existing resource to increase confidence in the mineralisation style and deposit characteristics. No work was carried out to physically extend resource boundaries.

Exploration drilling proposed for the Groundrush mining centre is focused on resource extension of the main Groundrush deposit and further delineation of adjacent subparallel mineralisation that was identified during the 2015-16 drilling campaign. Drilling is also proposed between Groundrush and Rip Cord along strike to the south east.

Drilling has been designed in three stages with results from each stage to inform the specific targeting of the subsequent drill stages. Drilling to improve resource confidence within the main Groundrush and Rip Cord deposits is also included within this proposal.

Groundrush

The proposed staged drilling program at Groundrush is provided in Table 6. Note that RCD refers RC pre-collar diamond tail drilling.

Table 6 Proposed 2017 Drilling Program – Groundrush

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	30	18	10	58
RC Holes	5	4	4	13
Diamond Holes	5	2	2	9
Total Holes	40	24	16	80
RC Metres	1,875	1,200	750	3,825
Diamond Metres	4,375	3,600	1,750	9,725
Total Metres	6,250	4,800	2,500	13,550

Extensional drilling is proposed to test the down plunge and strike extent of the main mineralisation that was the focus of the 2015-2016 drilling campaign. Resource infill (25m x 25m spacing) and extensional drilling (50m x 50m spacing) is planned on the main Groundrush deposit.

Several holes are designed to test exploration targets in the immediate hanging wall to the main Groundrush deposit identified from the 2015-16 drilling campaign. The western dolerite, located 80-100m into the hanging wall, is sub-parallel to the main Groundrush system. Drilling is planned to follow up several low grade mineralised trends apparent in the RC pre-collars from the 2015-16 drilling campaign. Holes are designed to test for extensions to sediment hosted mineralisation located in the immediate hanging wall to the Groundrush dolerite lodes.

Drilling at Groundrush is designed to utilise existing tracks and drill pads, multiple holes will be drilled from the same collar location thereby minimising ground disturbance so far as is practical.

Tandem

The proposed staged drilling program at the Tandem prospect is provided in Table 7.

Table 7 Proposed 2017 Drilling Program – Tandem

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	8	8	4	20
RC Holes	8	2	0	10
Diamond Holes	0	0	2	2
Total Holes	16	10	6	32

RC Metres	1,600	800	200	2,600
Diamond Metres	1,150	700	800	2,650
Total Metres	2,750	1,500	1,000	5,250

Mineralisation at Tandem is located immediately adjacent to Groundrush and is interpreted to be a structural offset from the northern area of the Groundrush deposit. A dense 25m x 25m, up to 50m x 50m spaced RC and diamond drilling program is proposed to adequately test the continuity and quality of these intercepts.

Groundrush – Ripcord Link

The proposed staged drilling program at the Groundrush-Ripcord Link prospect is provided in Table 8.

Table 8 Proposed 2017 Drilling Program – Groundrush Ripcord Link

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	10	16	12	38
RC Holes	30	6	2	38
Diamond Holes	0	2	2	4
Total Holes	40	24	16	80
RC Metres	1,875	1,700	1,000	4,575
Diamond Metres	4,375	2,000	1,500	7,875
Total Metres	6,250	3,700	2,500	12,450

The structural corridor between the Groundrush and Ripcord is a highly prospective zone delineated by geophysical imagery with negligible exploration drilling over these structural features. NST proposes RC and diamond drilling down to a spacing of 50m x 50m with a preliminary spacing more than 200m x 50m within the Groundrush-Ripcord Link drill polygon.

Ripcord

The proposed staged drilling program at the Ripcord prospect is provided in Table 9.

Table 9 Proposed 2017 Drilling Program – Ripcord

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	10	10	8	28
RC Holes	20	10	2	32
Diamond Holes	10	4	6	20
Total Holes	40	24	16	80
RC Metres	1,875	2,000	750	4,625
Diamond Metres	4,375	750	1,750	6,875
Total Metres	6,250	2,750	2,500	11,500

The Ripcord deposit sits approximately 4km to the south east of Groundrush. NST propose a mix of infill and extensional drilling around the current resource on existing 50m - 100m spaced drill lines. Drilling aims to expand the resource along strike to the north north-west and south south-east and increase geological confidence in the resource.

A small number of exploration holes are proposed immediately (< 80m) to the west of the Ripcord resource to test for mineralisation in an adjacent parallel dolerite unit.

4.2.2 Hurricane-Repulse Mining Centre (MLS153)

The proposed staged drilling program at the Hurricane-Repulse Mining Centre is provided in Table 10 . Note that RCD refers RC pre-collar diamond tail drilling.

Table 10 Proposed 2017 Drilling Program – Hurricane-Repulse

Type	Phase 1	Phase 2	Phase 3	Total
RCD Holes	0	6	6	12
RC Holes	24	2	2	28
Diamond Holes	0	6	2	8
Total Holes	24	14	10	48
RC Metres	3,500	1,200	900	5,600
Diamond Metres	0	1,050	600	1,650
Total Metres	3,500	2,250	1,500	7,250

Drilling completed by TGNL in late 2011-12 confirmed the presence of mineralisation beneath the Central Tanami Processing Plant. The proposed drilling of the Hurricane-Repulse deposit is designed to test the continuity of this mineralisation beneath and around the processing plant/site infrastructure footprint. Results will help NST assess the area's potential for future infrastructure use. Drill spacing will vary as holes will be infill drilling covering gaps from earlier programs, minimum spacing is anticipated to be 25m x 25m up to 100m x 50m.

Combined Disturbance Summary

# RCD Holes	156
# RC Holes	121
# DD Holes	43
Total Proposed Drill Holes	**320**
Total Proposed Sumps	**180**
Total Proposed Track Length (km)	**13**
Average Hole Depth (m)	160
Maximum Hole Depth (m)	1,000
Approximate Total Metres	**50,000**
Approximate RCD Pad dimensions (Lm x Wm)	15 x 15
Approximate RC Pad dimensions (Lm x Wm)	15 x 10
Approximate DD Pad dimensions (Lm x Wm)	15 x 15
Approximate Track Dimensions (Wm)	3
Approximate Sump Dimensions (Lm x Wm)	5 x 4
Total Drill pad disturbance (ha)	6.29
Total Track disturbance (ha)	3.90
Total Sump disturbance (ha)	0.36
Total Proposed Disturbance (ha)	**10.6**

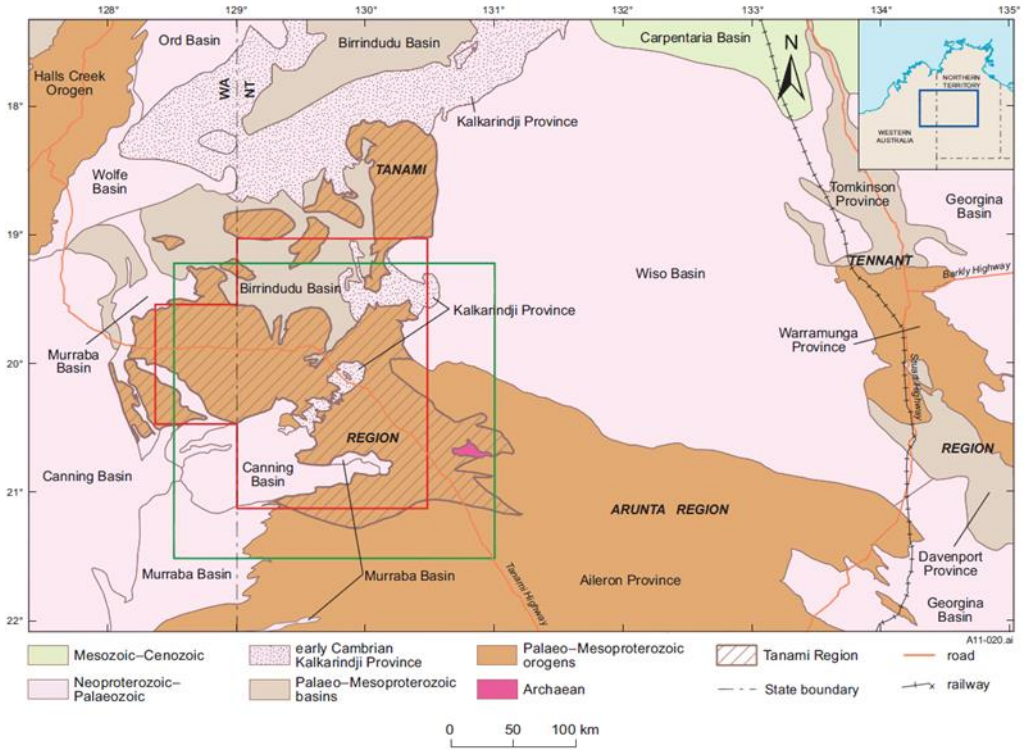
5. Current Project Site Conditions

5.1 Regional Geology

The Groundrush deposit is in the Tanami Region within the Palaeo-Proterozoic stratigraphy of the Tanami Group, deposited 1838 Ma +/- 6 Ma (Huston, 2006). The region shows lower greenschist to amphibolite-facies metamorphism of sedimentary and volcanic rocks that overly Archaean basement (Billabong Complex) which are intruded by 1825-1791 Ma granites (2011. Ahmad, Vandenberg and Wygralak).

Figure 6 shows the Tanami and adjacent regions, notably the Birrindudu, Wiso and Canning Basins which unconformably overly the Tanami Region to the north, east and west respectively. To the south of the Tanami Region lies the Arunta Region, the margin between the two can be approximately defined by a series of east trending faults that separate greenschist-facies in the north from upper amphibolite-facies to the south.

Figure 6 Regional Geological Setting for the Tanami Region



(Source: 2011. Ahmad, Vandenberg and Wygralak)

Table 11 summarises the stratigraphy of the Tanami Region, major gold deposits including Callie, Dead Bullock Soak and The Granites are found in the Dead Bullock Formation while Hurricane-Repulse and Groundrush are found in the Mt Charles and Killi Killi Formations respectively.

Granitoid intrusions within the Tanami Region form distinct gravity lows over plutons that form large domical structures with significant subsurface extent. Airborne magnetic data shows the granite intrusions to be zoned with varying magnetic intensity leading to the conclusion that the intrusions themselves contain multiple phases. The granite intrusion at The Granites cross-cuts and therefore post-dates mineralisation however many intrusions show strong foliation and lineation development indicating they may predate, or be coincident with,deformation (2011, Ahmad, Vandenberg and Wygralak).

Table 11 Proterozoic stratigraphic succession of the Tanami Region

Unit/thickness	Lithology	Depositional environment
UNASSIGNED TO GROUP		
Mount Charles Formation <3000 m	Fine-grained turbiditic sedimentary rocks with basal quartzic sandstone; interbedded basalt	Subaqueous, narrow continental rift setting
WARE GROUP		
Wilson Formation ca 1000 m	Greywacke, quartz wacke and siltstone	Deeper marine
Century Formation ca 1200 m	Conglomeratic sandstone, siltstone and fine-grained sandstone	Rapidly submerging shoreface, or fluvial and lacustrine
Nanny Goat Volcanics	Volcanigenic sandstone interbedded mainly with felsic volcanic rocks	Predominantly subaerial
Mount Winnecke Formation	Coarse-grained quartz sandstone and granular conglomerate	Subaerial to subaqueous caldera-type structures
Granite intrusions		
TANAMI GROUP		
Dolerite sills <200 m	Fine- to coarse-grained metadolerite and amphibolite	Intrusive
Killi Killi Formation <4000 m	Turbiditic sandstone and siltstone	Turbiditic, deep-marine proximal to mid-fan setting
Dead Bullock Formation <1000 m	Siltstone and sandstone (Ferdies Member) fining into graphitic siltstone and banded ironstone (Callie Member).	Quiet marine conditions below storm-wave base, with increasingly deep-water deposition towards top.
Stubbins Formation 2–3000 m	Sandstone, siltstone, shale in lower part overlain by iron-rich siltstone, carbonaceous shale, chert, pillow basalt, dolerite sills, rare rhyolite	Turbiditic to quiet marine conditions
UNASSIGNED TO GROUP		
Browns Range Metamorphics <3000 m	Quartzofeldspathic gneiss, muscovite schist, fine-grained granite, aplite, pegmatite, and metamorphosed arkosic sandstone	
ARCHAEAN		
Billabong Complex	Granite and gneiss	

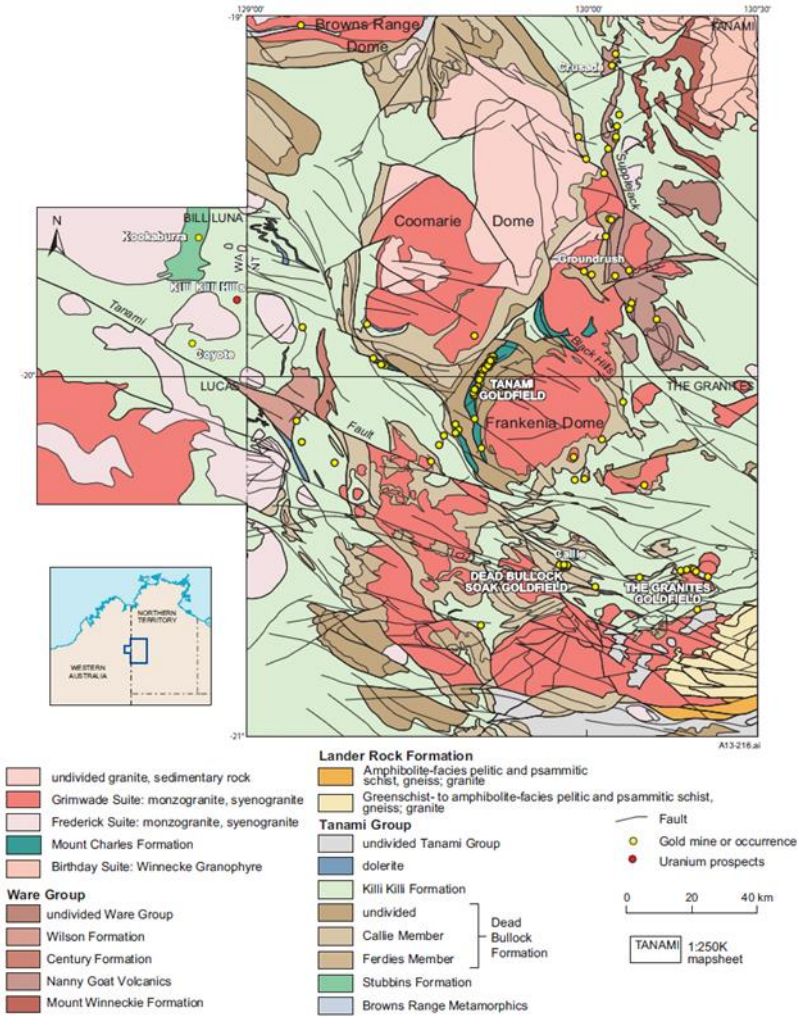
(Source: 2011. Ahmad, Vandenberg and Wygralak)

5.2 Local Geology

The Groundrush deposit sits in an almost arcuate belt of sediments belonging to the Killi Killi Formation between two major granitoid intrusions: the Coomarie Dome to the north west and the Frankenia Dome to the south east. The sediments dip steeply to the south west and host three major dolerite intrusions of which, the Groundrush Dolerite, contains the bulk of gold mineralisation. Other intrusives at Groundrush include dolerite, tonalite porphyry, andesite and quartz monzodiorite. Overall the deposit is a reverse fault orogenic system with mineralisation typically hosted in stacked vein sets, with a variety of orientations, as well as sub-vertical quartz-filled shear zones. Along with the various vein orientations, there are also various veins types including shear, extensional and also shear-extensional hybrid.

Through structural analysis, airborne magnetics and seismic data, it has been shown that Groundrush sits on the western limb of a regional anticlinal thrust stack that plunges shallowly (20^0-300^0) to the south east. Closure of the anticline is interpreted to lie within hundreds of metres to the north east of the open pit.

Figure 7 Interpreted regional geology and gold deposits of the Tanami Region



(Source: 2011. Ahmad, Vandenberg and Wygralak)

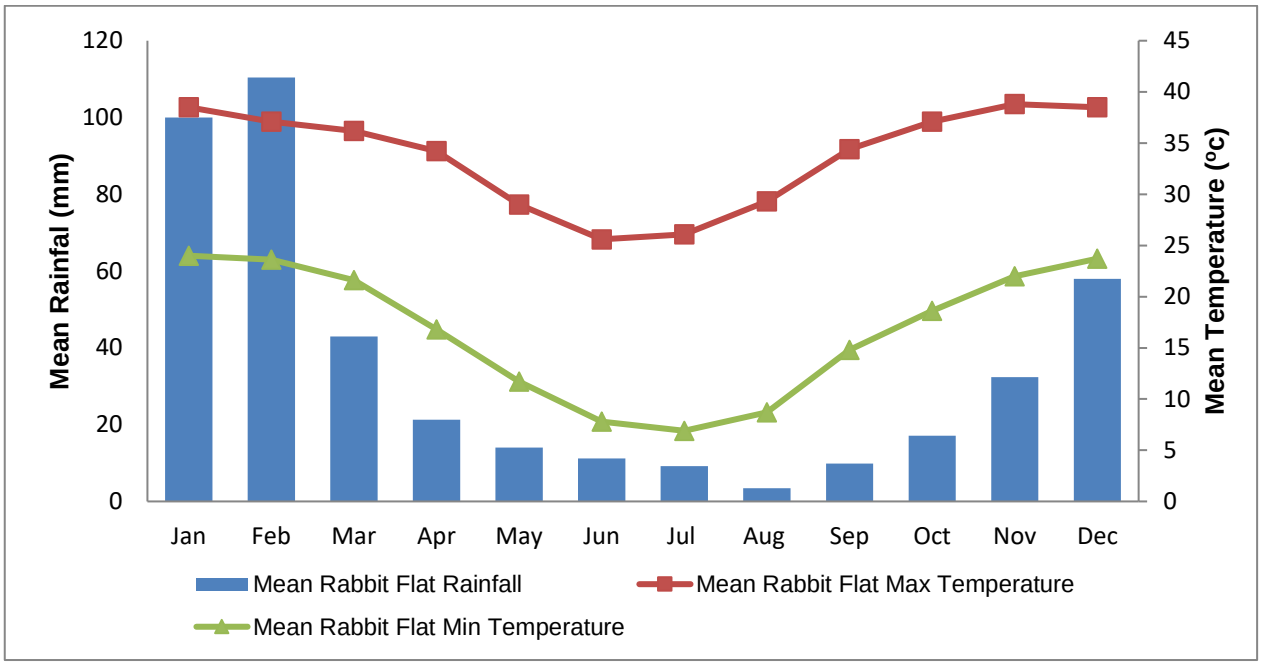
The Hurricane-Repulse deposit is within the Mt Charles Formation which is interpreted to be slightly younger than the Groundrush hosting Killi Killi Formation. As shown in Figure 7, the Mt Charles Formation is confined to an elongate band between the Frankenia and Coomarie Domes. Mineralisation is structurally and rheologically controlled with dominant north-east trending faults and associated transfer faults commonly mineralised along with basalt-sediment contacts.

5.3 Climate

The Tanami Desert is a semi-arid, tropical climatic region with approximately 90% of the 370 mm of annual average rainfall being received between November and April. Summers are hot with average maximum daily temperatures of about 38.8°C, while winters are generally mild with the coolest month being June where daily temperatures average about 25.6°C. The annual evaporation is approximately 3,000 mm.

CTP has an average annual rainfall of 496.5mm determined from 15 years of weather data. The annual records at Rabbit Flat from 1996 to 2011 are presented in Figure 8 Mean Annual Rainfall and Temperature Rabbit Flat 1996-2011

Figure 8 Mean Annual Rainfall and Temperature Rabbit Flat 1996-2011



Source: Bureau of Meteorology www.bom.gov.au

5.4 Surface Hydrology

The project area consists generally of extensive low relief sandy soil plains with areas of red earth soils found within the catchment. Due to the very uniform topography of the region, aeolian sands forming the majority of the land systems are usually well-sorted and redistributed.

The flat topography is comprised of low rises and broad floodways'. As there are no substantial watercourses located within the vicinity of project sites, surface drainage is generally via overland flow through poorly defined and intermittent depressions in the landscape.

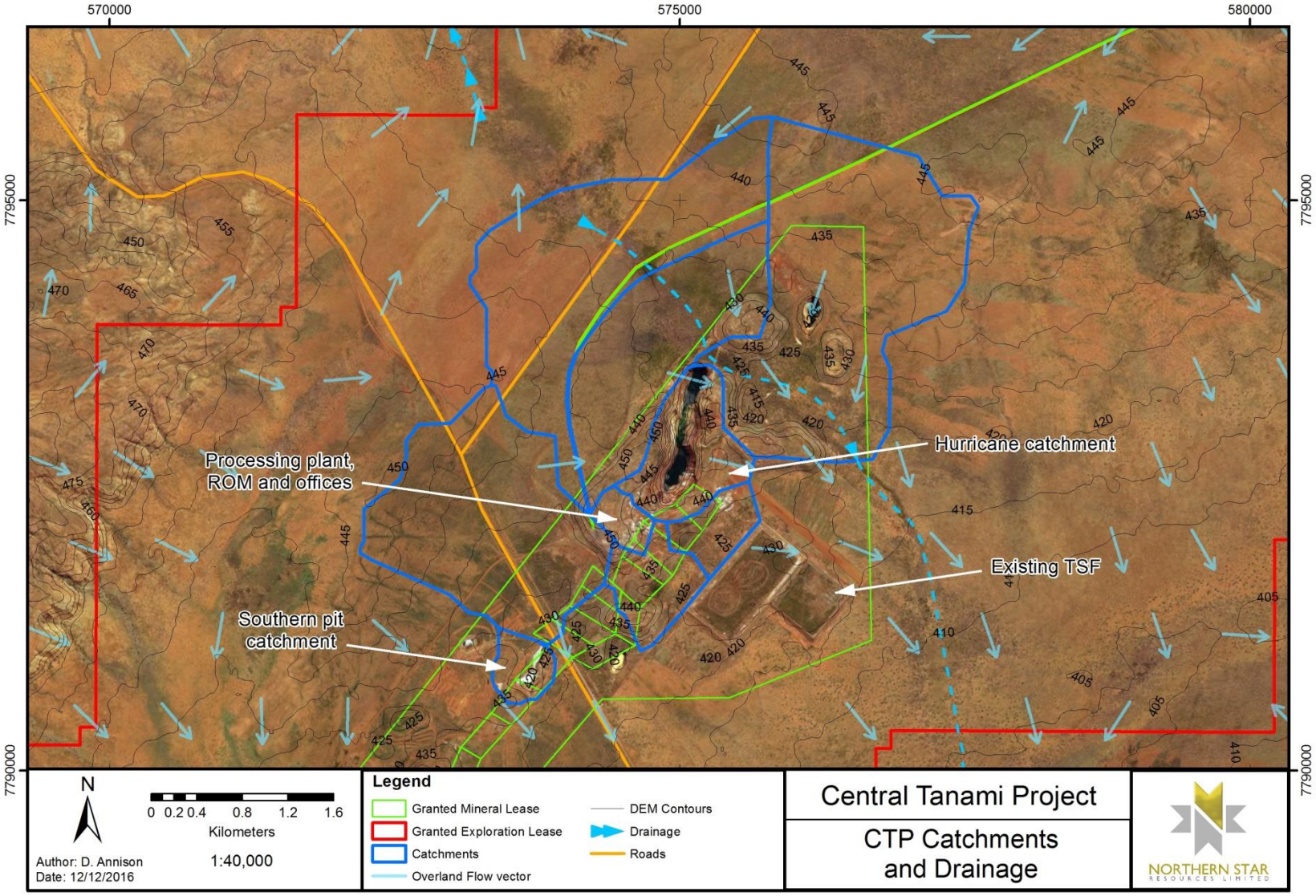
Flow paths are poorly defined within the landscape and are likely to consist of intermittent surface ponding and evaporative features.

5.4.1 Central Tanami Drainage

The catchments and drainage features of the Central Tanami area are shown in Figure 9.

The Central Tanami area is located approximately 2 km south of a local catchment divide. Overland flow north of the mill site is directed through broad depressions in the landscape to a relatively narrow drainage chute between the previous mine workings of Hurricane/Repulse pit and Repulse North waste rock dump. This depression directs runoff to the south before crossing the Tanami Track approximately 6 km south of the mill.

Figure 9 CTP Catchments and Drainage



The processing plant, ROM and office area are located north of the existing TSF. This area is elevated and does not receive overland flow from external catchments. The area drains towards the existing TSF and is collected in toe drains around the TSF, discharging beyond the TSF as overland flow. There is no evidence of scour or erosion where the concentrated flows were redistributed to overland flow due to the very flat gradients typical of the region.

The existing TSF has been rehabilitated and is an internally draining structure. Bunds exist around the perimeter and prevent discharge from the area and an emergency spillway exists for extreme events that exceed the design capacity of the perimeter bund.

Groundrush-Ripcord Drainage

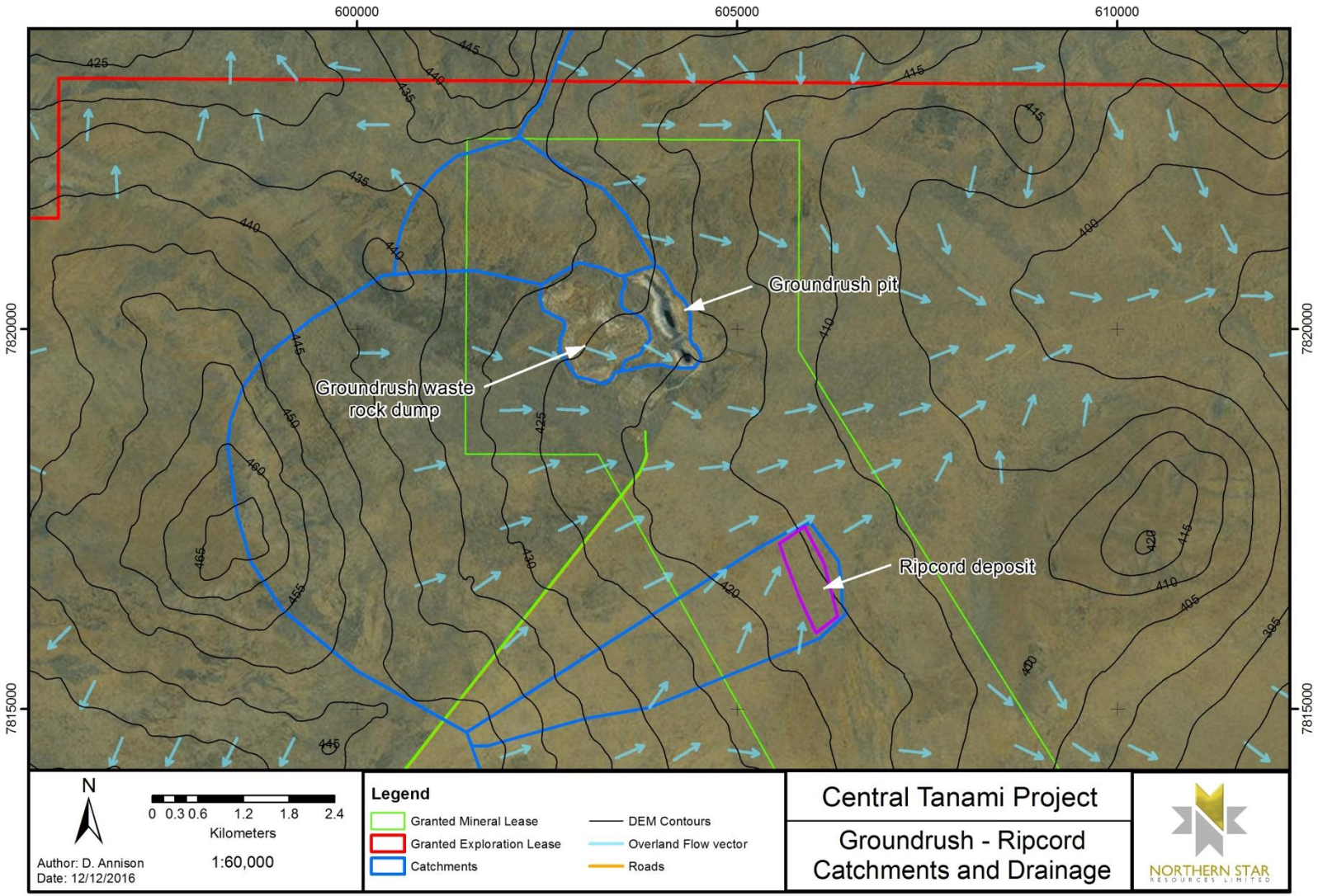
Figure 13 shows the catchment and drainage features of the Groundrush and Ripcord areas. The natural topography is very flat with gradients in the order of 0.3%. There are no defined channels or watercourses near the mining area and drainage occurs via overland flow. There may be isolated pockets of ponding in localised depressions, however they are difficult to predict with the available survey.

The catchment divide is located approximately 2 km northwest of Groundrush and approximately 4.5 km southwest of Ripcord.

The existing WRD is rehabilitated and internally draining. A bund is provided around the perimeter of the WRD that prevents water discharge (refer Figure 10).

Figure 10 Groundrush Waste Dump Sediment Bund

Figure 11 ***Groundrush and Ripcord Drainage***



5.5 Hydrogeology

Most groundwater is found in superficial alluvial sediments, calcrete formations and to a lesser extent, fractured bedrock. The superficial aquifers contain potable to slightly brackish groundwater. The bedrock aquifers in the area tend to be low-yielding and are not used to source processing or potable water. The alluvial and calcrete aquifers are maintained by rainfall recharge and associated flooding. The reliance on rainfall as the primary source of groundwater recharge results in water levels that naturally fluctuate, not only due to abstraction, but also due to varying rainfall recharge. The natural pre-mining groundwater level in the project area has been estimated at 49m below ground level shown by an early water level taken at a registered bore (RN470) located near the Tanami Mine site in 1948. The natural groundwater flow on the lease is towards the south east (Robertson GeoConsultants, 2004).

There are, at present, no other beneficial users of groundwater in the area other than Central Tanami Project.

NST has entered a partnership with the Northern Tanami Rangers to undertake water monitoring at the CTP project. To date, two rounds of water monitoring have been conducted by the Northern Territory Ranger group based out of Lajamanu. Water monitoring is anticipated to continue on a quarterly/bi-annual basis.

The Tanami bore field (Figure 12), located approximately 15km north west of the mine, was originally developed in 1995 to supply water for ore processing and for human consumption when the mine was operational. The bore field comprises twelve (12) production bores (of which some have been decommissioned) and three (3) monitoring bores.

The bore field is accessed under a deed with the Central Land Council. Access is granted under Section 19(4A) of the Aboriginal Land Rights (Northern Territory) Act 1976. The deed allows for the construction, maintenance and operation of the pipeline between the bore field and the mineral leases.

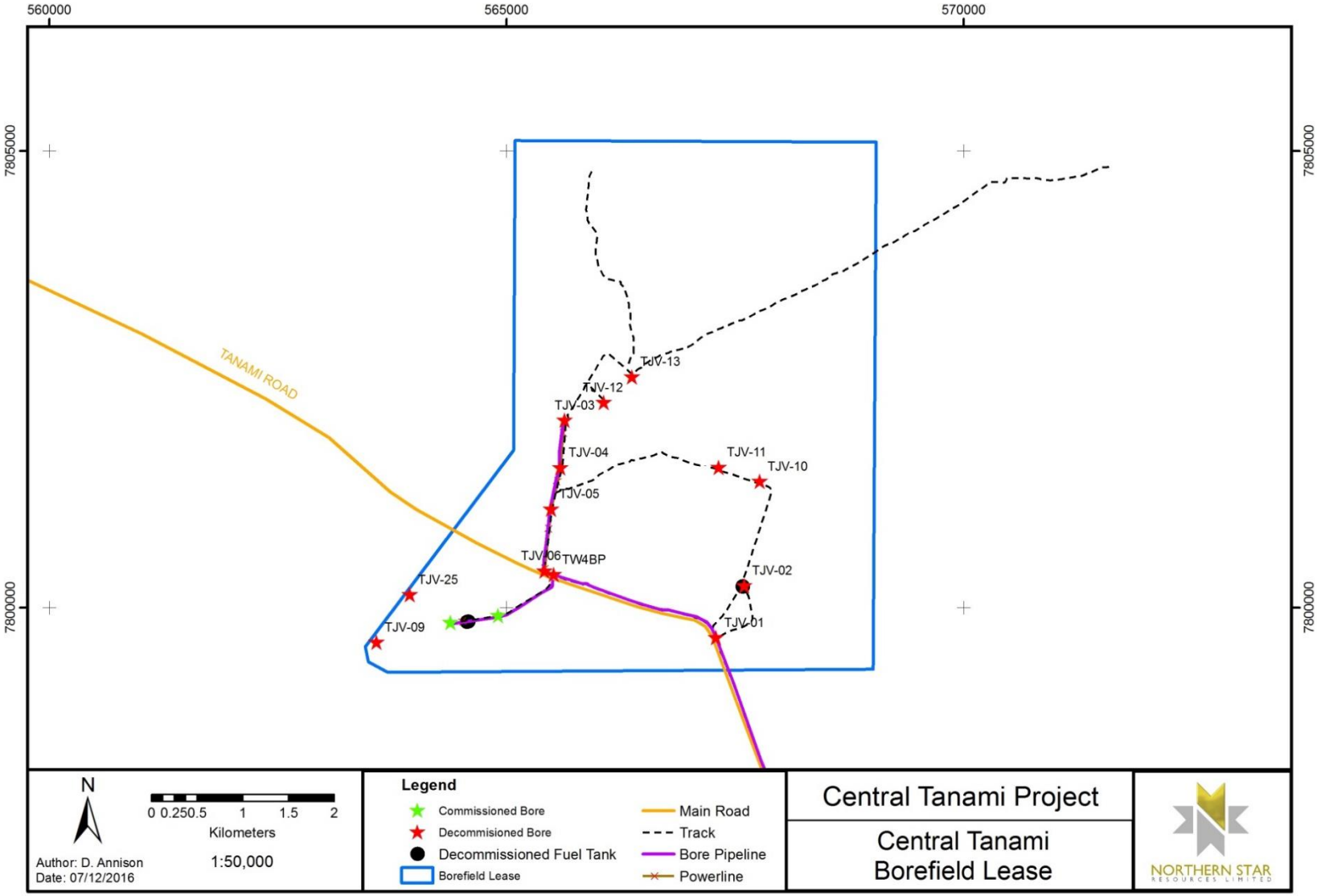
The bore field is situated in a paleo drainage system. Two production bores are screened within sand aquifers that occur at depth within the paleo drainage system. Most bores target a highly permeable calcrete zone that outcrops along the paleo drainage system. Three bores, used only for monitoring, are screened wholly or partly within the underlying low-yielding bedrock aquifer (URS, 2004).

Water extracted from the bore field is used primarily for the camp. With limited personnel on site and no processing activities, water use is well below historic levels. The water bores are monitored as detailed in section 6.5.1 of this MMP, but current bore production is not measured. NST will instigate monitoring of water extraction by 30 April 2017 with the installation of water meters as required.

Indicative water consumption, based on camp and admin use, is 400 litres per day per person, (4,000 litres or 4m^3) with 10 people on site. Water for camp and admin use passes through a reverse osmosis plant that operates with a 50% waste / 50% potable water ratio. Indicative average bore field extraction for camp and admin use is around 8m^3 per day. Waste water from the reverse osmosis plant, in the order of 4m^3 per day, is directed to the Hurricane Repulse open pit.

RC drilling requires 100 to 200 litres per day for operational dust suppression. Diamond drilling typically utilises 5,000 litres (5m^3) per day subject to drilling / ground conditions. Drilling water will be sourced from either reverse osmosis waste, the Groundrush pit or the Hurricane Repulse pit depending on drilling location for each program. Details of pit water monitoring results are included in Appendix 12 Pit Lake Water Monitoring Results.

Figure 12 Borefield Lease Map



5.6 Flora

A flora and fauna assessment of the CTP area was conducted by Low Ecological Services (LES) in November 2016. The assessment comprised a desktop survey of the area, followed by a three-day field survey, including fauna trapping. The assessment also draws upon previous assessments of the area conducted by LES. The assessment report is provided in Appendix 6 Flora and Fauna Assessment.

The Tanami Bioregion is situated in both the Northern Territory (NT) and Western Australia (WA). The NT portion of the bioregion is characterised primarily by sandplains with small areas of alluvial plains, low ridges and stony rises with ancient paleo-channels variously transecting the plain. Sand plains support mixed shrublands over hummock grasslands. Chrysopogon and Iseilema grasslands with Gum over storey are present on alluvial plains (Baker et al. 2005).

5.6.1 Vegetation Types

The Project area is located on vegetation type 348 with vegetation type 1032 within the broader area, as shown in Figure 13 Vegetation Units in the Central Tanami Project Area Previous finer scale vegetation surveying by LES has noted vegetation type 1032 potentially within proposed drilling areas.

Vegetation unit 348 is characterised as Eucalyptus brevifolia (Snappy Gum) low open-woodland with Triodia pungens (soft spinifex) hummock grassland understory and generally a sparse-shrub mid layer dominated by Acacia species. This community generally occurs on well drained rises, dissected plateaux and rocky low hills. Soils are chiefly gravelly loams and sandy red earths.

Vegetation unit 1032 is characterised as Triodia pungens and Plectrachne schinzii (Curly Spinifex) hummock grassland with Acacia tall sparse shrubland over storey. Hakea species including A.coreacea and Hakes macrocarpa and occasional low tree/mallee eucalypts are also common in the shrub layer. This community is extensive occurring on gently undulating plains with chiefly red earthy sand soils.

Habitat in the Groundrush tenement consists primarily of Hummock grassland with low Eucalypt Mallee woodland and Acacia shrubland with some scattered mature Bloodwood and Hakea trees in the survey sites along the Groundrush – Ripcord access track. In the Hurricane Repulse tenement, vegetation in the 2016 survey sites consists of rehabilitated hummock grassland and dense Buffel tussock grassland with low Acacia shrubs and low scattered Eucalypt mallee species. The 2012 survey site in the Hurricane Repulse tenement was situated on the edge of a drainage ditch and consisted of low open Eucalyptus brevifolia woodland over Acacia shrubland and spinifex hummock grassland.

5.6.2 Sites of Botanical Significance

Tanami Range is a site of botanical significance covering 292km^2. The mining lease MLS153 and part of the Groundrush haul road fall within this site (see Figure 14). The site satisfies criteria B1 due to the importance of the site "for rare, endangered or uncommon flora, fauna, communities, ecosystems, natural landscapes or phenomena" (White et al. 2000). The area supports several important flora species of bioregional, Northern Territory and Australian significance. The area is of importance for the conservation of Acacia abbreviata where it grows on laterite rises beneath sandstone range.

Figure 13 Vegetation Units in the Central Tanami Project Area

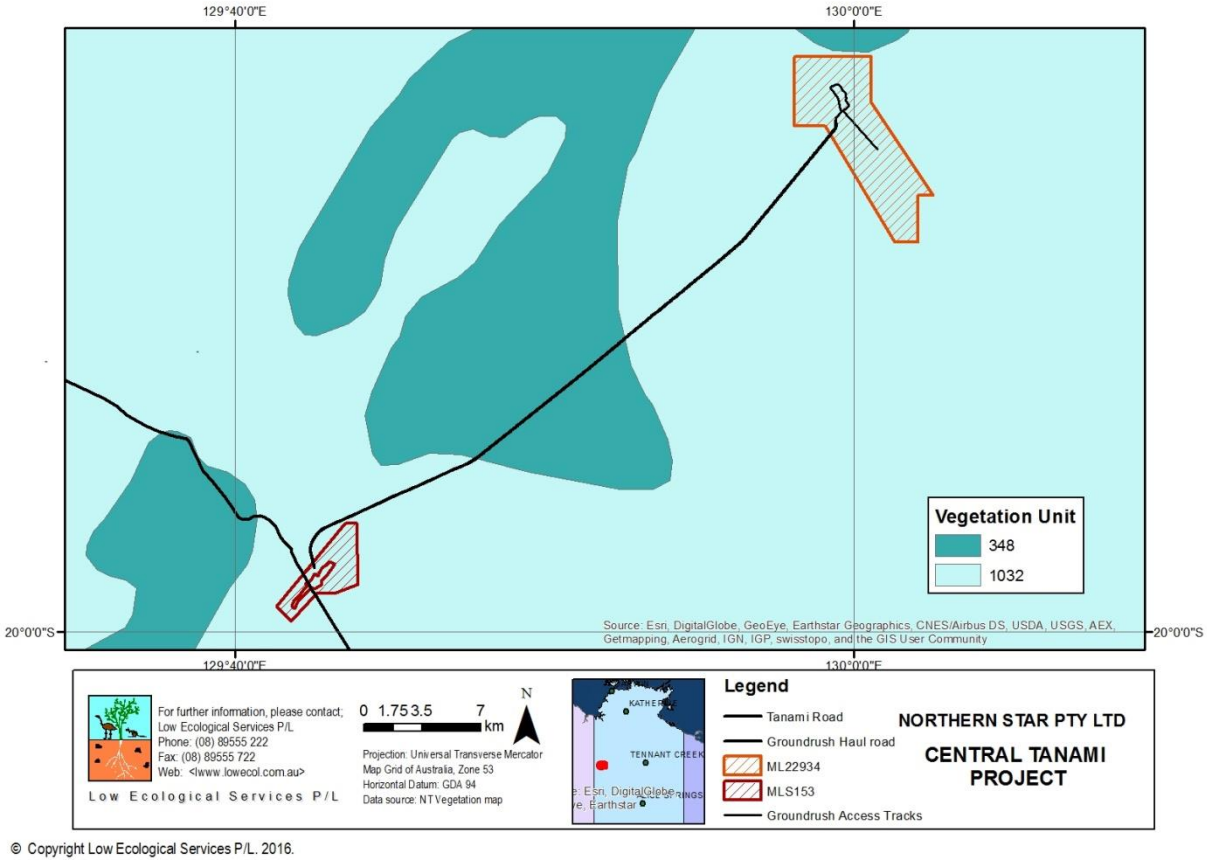
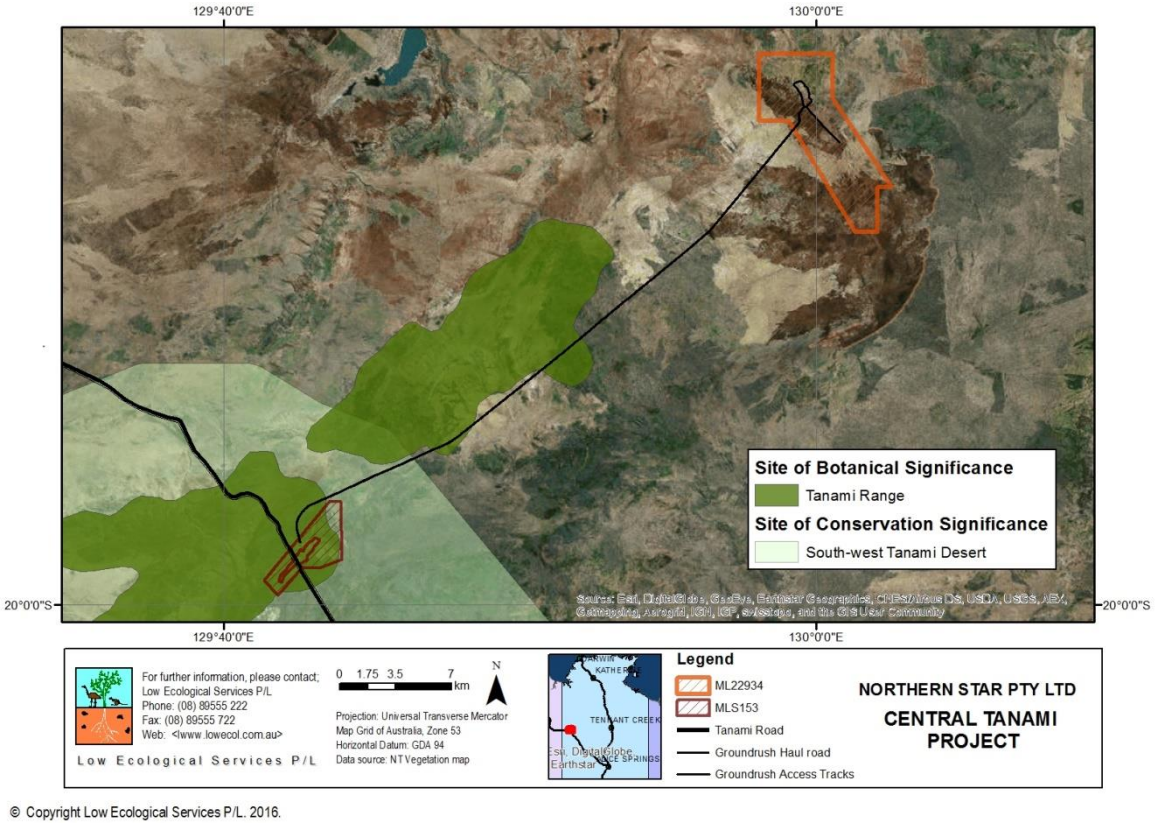


Figure 14 Vegetation Units in the Central Tanami Project Area



5.6.3 Threatened Flora

No threatened flora species were identified by the Commonwealth Government's Protected Matters Search Tool (EPBC PMST) as occurring, or potentially occurring, within 20km of the Project area. A search of the NT Flora Atlas found one near threatened and two data deficient flora species within 20km of Project area. In addition, previous LES surveys of the Project area and surrounding mining tenements have indicated the presence two other flora species recorded as Near Threatened (NT) under the *Territory Parks and Wildlife* Conservation (TPWC) Act. These flora species are described below in Table 12.

There are no threatened ecological communities recorded within 20km of the Project's mining and exploration leases.

116 flora species were recorded during the 2012 and 2016 surveys at 11 sites. No species listed under the *Environmental Protection and Biodiversity Conservation* (EPBC) or TPWC Acts were recorded in any survey sites.

Table 12 TPWC Listed Flora Species in 20km Radius of CTP Area

Species	TPWC	Tenements	Comment
Acacia abbreviate Hill Wattle	NT	MLS153, MLS167, EL28613	Grows well in disturbed rocky slopes, including waste rock dumps
Acacia stellaticeps	DD	MLS153	Grows well in red sand, stony sand and clay; on flats, sand ridge, plains and rubbish tip
Eucalyptus cupularis, Hall's Ck Ghost Gum	NT	EL2696 east of Jims and north of Hurricane Repulse and EL28613 north of Beaver Haul road	Skeletal soils on stony hills or along water courses. Edge of range in NT, common in WA
Heliotropium sphaericum	DD	MLS153	Grows well in red soils
Trianthema glossostigma, Annual prostrate pigface	NT	MLS167 on cleared areas	Sandy or loamy flats, more common in disturbed areas around WRD

5.6.4 Weeds

A desktop survey indicated eight declared weed species could potentially occur in the Project area, two of which are Weeds of National Significance. Declared weed species include Athel pine (*Tamarix aphylla*), Bellyache Bush (*Jatropha gossypiifolia*), Coffee Senna (*Senna occidentalis*), Hyptis (*Hyptis suaveolens*), Mossman River grass (*Cenchrus echinatus*), Parkinsonia (*Parkinsonia aculeata*), Rubber bush (*Calatropis procera*) and Sida (*Sida spp*.).

Only Hyptis, Mossman River Grass and Rubber Bush have been found on the lease areas previously.

Environmental weed/invasive species found within the CTP area on previous surveys (2006-2012) include Buffel grass (*Cenchrus ciliaris*), Purpletop Rhodes grass (*Chloris inflata*), Feathertop Rhodes grass (*Chloris virgata*) and Ruby dock (*Acetosa vesicaria*).

Environmental weed/invasive species known to or potentially occurring in the project area include:

- Bindii/Caltrop (*Tribulus terrestris*);
- Buffel grass (*Cenchrus ciliaris*);

- Deenanath grass *(Pennisetum pedicellatum*);
- Flannel weed (*Sida cordifolia*);
- Gallons curse (*Cenchrus biflorus*);
- Red natal grass (*Melinis repens*);
- Purpletop Rhodes grass (*Chloris inflata*);
- Feathertop Rhodes grass (*Chloris virgata*);
- Ruby dock (*Acetosa vesicaria*);
- Kapok (*Aerva japonica*); and
- Sicklepod (*Senna obtusifolia*).

A site visit conducted by LES consultants between 14-18 November 2016 noted no declared weeds under the *Weeds Management Act 2001* were observed although Mossman River Grass has been found in the central area in previous years (Low et al. various years). The survey also identified Buffel grass, Purpletop Rhodes grass, Feathertop Rhodes grass and Ruby dock as being relatively common on disturbed areas around the mill area and some waste rock dumps.

NST has implemented its Weed Management Plan (Appendix 7), which incorporates recommendations from the recent LES survey.

5.7 Fauna

5.7.1 Species of Conservation Significance

A total of 10 EPBC and/or TPWC listed fauna were identified as occurring, or potentially occurring, in the Project area. Identified species included the EPBC vulnerable listed Macrotis lagotis (Greater bilby) and Liopholis kintorei (Great Desert Skink), the TPWC vulnerable listed Dayscercus blythi (Brush-tailed mulgara) as well as the TPWC near threatened listed Onychogalea unguifera (Northern Nailtail Wallaby). Zyzomys pedunculatus (Central rock-rat) was listed however is now considered locally extinct in the Project area.

Potentially occurring threatened bird species in the area included Calidris ferruginea (Curlew Sandpiper), Dromaius novaehollandiae (Emu), Falco hypoleucus (Grey Falcon), Polytelis alexandrae (Princess Parrot) and Rostratula australis (Australian Painted Snipe).

Of ten EPBC and TPWC identified species listed as occurring, or potentially occurring, in the Project area, LES considers only four to be vulnerable to development activities given EPBC/PMST assessed fauna records and habitat availability. These included Greater Bilby, Brush-tailed Mulgara, Great Desert Skink and Northern Nailtail Wallaby. Bird species are generally not considered vulnerable to development activities as they are highly mobile and able to flee slow moving machinery.

A table of these findings is provided in Table 13.

Table 13 Threatened Fauna Species That May Occur

Type	Scientific Name	Common Name	Status		NT Fauna Atlas	PMST	Likelihood	Potential for disturbance
			TPWC[1]	EPBC[2]				
Mammal	*Macrotis lagotis*	Greater bilby	VU	VU	X	X	Moderate	Moderate
	Dasycercus blythi	Brush-tailed mulgara	VU		X		High	Moderate
	Onychogalea unguifera	Northern Nailtail Wallaby	NT		X		High	Low
	Zyzomys pedunculatus	Central rock-rat	EN	EN	X	X	Low	Nil
Reptile	*Liopholis kintorei*	Great desert skink	VU	VU	X	X	Moderate	Low
Bird	*Calidris ferrunginea*	Curlew Sandpiper	VU	CR	X	X	Moderate	Low
	Dromaius novaehollandiae	Emu	NT		X		High	Low
	Polytelis alexandrae	Princess parrot	VU	VU	X	X	Low	Low
	Rostratula benghalensis (sensu lato)	Painted snipe	VU	EN		X	Moderate	Low
	Falco hypoleucos	Grey falcon	VU		X	X	High	Low

The EBPC Protected Matters Search Tool found 8 migratory species have been known to, or may, occur in the area (Table 14).

Table 14 Migratory Species That May Occur

Type	Scientific Name	Common Name	Status		NT Fauna Atlas	PMST	Likelihood	Potential for disturbance
			TPWC	EPBC				
Bird	*Apus pacificus*	Fork-tailed swift				X	Moderate	Low
	Hirundo rustica	Barn swallow				X	High	Low
	Calidris ferrunginea	Curlew Sandpiper	VU	CR	X		Low	Low
	Motacilla cinerea	Grey wagtail				X	Moderate	Low
	Motacilla flava	Yellow wagtail				X	Moderate	Low
	Charadrius veredus	Oriental plover, Oriental dotterel				X	Moderate	Low
	Glareola maldivarum	Oriental pratincole				X	Moderate	Low
	Tringa nebularia	Common greenshank				X	Moderate	Low

5.7.2 Reptiles

A total of 13 reptile species were recorded during the survey from Elliot traps and pit traps as well as active searches and incidental observations. Geckoes (one species), skinks (six species), dragons (three species), snakes (one species) and monitors (two species) were represented across the survey sites. No threatened species of reptile were recorded at any survey sites.

[1] TPWC Act Status: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened as listed under the *Territory Parks and Wildlife Conservation Act* (TPWC)
[2] EPBC Act Status: EN, Endangered; VU, Vulnerable as listed under the *Environmental Protection and Biodiversity Act* (EPBC)

5.7.3 Birds

A total of 52 bird species were recorded during the survey (Appendix 6 Flora and Fauna Assessment). In the 2012 survey, birds were abundant and relatively high numbers of species were recorded, particularly in low lying drainage depressions and larger trees in flower. Bird numbers were lower but still relatively abundant in the 2016 survey. Several Near Threatened species were observed throughout the surveys including:

- Australian Bustard (*Ardeotis australis*) observed adjacent to the haul road in both 2012 and 2016
- Grey Falcon (*Falco hypoleucos*) recorded incidentally in the 2012 survey; and
- Emu (*Dromaius novaehollandiae*) recorded in the Groundrush tenement in 2016

5.7.4 Mammals

A total of 10 mammal species were recorded during the survey from Elliot traps, pit traps, tracking and active searches. Three threatened species were recorded including:

- Greater Bilby in 2012 within the Hurricane Repulse tenement (MLS153);
- Brush-tailed Mulgara in 2012 in MLS 153 and 2016 within the Groundrush tenement (ML22934); and
- Northern Nailtail wallaby within ML22934.

The EPBC PMST identified six introduced fauna species as occurring or potentially occurring within 20km of the Project Area:

- *Bos Taurus* (Cattle)
- *Camelus dromedarius* (Camel)
- *Canis lupus familiaris* (Domestic dog)
- *Feslis catus* (Cat)
- *Mus musculus* (House Mouse)
- *Vulpes vulpes* (Fox)

5.7.5 Consideration of Significant Impact

Eight fauna species of conservation significance identified by the EPBC PMST and NT Fauna Atlas were assessed as having a moderate or high likelihood of occurrence within the Project area based on distribution, habitat availability and distance to previous records. Of these, evidence of five threatened species was recorded in the survey areas including two bird species and three mammal species.

Only the Greater Bilby is listed under the EPBC Act. When assessed against the Matters of National Significance Significant Impact Guidelines 1.1 (2013), LES have concluded that if best practice procedures are adhered to, the Project is highly unlikely to have an impact on the population of Greater Bilby.

LES provided a series of recommendations in the November 2016 Flora and Fauna Assessment. NST will incorporate those recommendations into any clearing required under this MMP and into a Flora and Fauna Management Plan to be in place by 31 March 2017. NST will engage with the Lajamanu Rangers to assess both patch burning and feral animal control with the later targeted to commence before 30 June 2017. NST will provide the DPIR with the Flora and Fauna Management Plan when it is developed.

5.8 Land Use

The Central Tanami Project area is located on Aboriginal Freehold Land granted as inalienable freehold title to the Central Desert Land Trust as Traditional Owners, pursuant to the Aboriginal Land Rights Act NT (1976). Much of the land in the region is of high

ceremonial and cultural value to the Warlpiri people. The Tanami region is sparsely inhabited. The nearest settlements are Lajamanu and Balgo, 205km north and 180km west respectively, of the Central Tanami Mine.

5.9 Aboriginal and Heritage Sites

All Central Tanami mining agreements previously held by TGNL have been assigned to NST under the joint venture agreement.

As such, NST is signatory to the Tanami Consolidated Mining Agreement and the Groundrush Mining Agreement as well as numerous related Deeds for Exploration. Under the terms of those agreements NST is required to submit exploration work programs to the CLC for approval by the Traditional Owners.

Where necessary, a Sacred Site Clearance is conducted at NST's expense for any proposed area of disturbance. Heritage or sacred site Exclusion Zones are then advised for the protection of any culturally significant sites. Under the provisions of both the Mining Agreements and Deeds for Exploration, should NST find any areas of possible Aboriginal significance which are not recorded, NST is required to avoid working within 100m of the feature and advise the CLC of the location as soon as possible.

NST has obtained Sacred Site Clearance Certificate Number C2016-083 from the CLC which provides clearance for exploration within the Mineral Leases and Exploration Licences covered by this MMP. The information in respect of Exclusion Zones advised in the Sacred Site Clearance Certificates is provided on a confidential basis and the CLC have confirmed that we do not have approval to include information, co-ordinates or plans provided by the CLC in our Mining Management Plan.

It is noted however that this does not indemnify the operator from prosecution under the *Northern Territory Aboriginal Sacred Sites Act*.

An "Abstract of Records Inspection" was conducted through the Aboriginal Areas Protection Authority (AAPA) for all Mineral Leases and Exploration Licences covered by this MMP. The results of the inspection have been reviewed and matched against the Clearance Certificate provided by the CLC. Results of the inspection have been included in Appendix 26 [Confidential] - AAPA Search Results. The inspection did not identify any areas that impact plans under this MMP.

A search has been conducted of the online NT Heritage Register based on the following locations:

- Lot 1493: EL28282
- Lot 1740: EL10355, EL22061, EL23342, EL26926, EL28474, EL9763, EL9843, ML22934, MLS119 to ML133, 153, 167, 168, 180
- Lot 3973: EL26925, 8797
- Lot 4147: EL10411, 22229, 22378

No records were noted for any lot.

NST contacted the Department of Tourism and Culture Heritage Branch to confirm the status and requested a search of the NT Heritage Register and the Aboriginal Archaeological Sites Database. Confirmation has been received from the Heritage Branch that there are no declared heritage places within any of the four NT Portions listed above and that there are no previously recorded Aboriginal archaeological sites of note.

Systems and processes adopted by NST for the protection and management of these, and any other sites of historical or cultural significance include:

- Submission of exploration program details to CLC for approval by Traditional owners.

- As required Abstract of Records Inspections made via the Aboriginal Areas Protection Authority.
- As required searches of the NT Heritage Register and NT Archaeological Resources Database.
- Where necessary, commissioning of Sacred Site Clearance prior to any disturbance.
- Application of exclusion zones around any sites of significance.
- Adherence to the CLC site entry permit system.
- Communication to NST employees and contractors regarding sites of significance and relevant protection measures via site induction.
- All employees, contractors and sub-contractors to be provided with the Rules of Conduct for working on Aboriginal Land.

6. Environmental Management System

6.1 Environmental Policy and Responsibilities

Northern Star Resources' (NST) Environmental Management System (EMS) is applied across all its operations. Key aspects of the EMS include the Environmental Policy (Appendix 9 NST Environmental Policy) and various supporting documents including:

- NST-ENV-001-SYS Environmental Management System
- NST-ENV-002-STA Incident Reporting Standard
- NST-ENV-003-STA Mine Closure Standard
- NST-ENV-004-STA Energy and Climate Change Standard
- NST-ENV-005-STA Biodiversity Management Standard
- NST-ENV-006-STA Environmental Risk Management Standard
- Central Tanami site induction
- CTP Site Disturbance Permits
- CTP Drilling Site Preparation Procedure
- CTP Drill Site Audit Form
- CTP Exploration Rehabilitation Database

Other related policies and commitments are contained in the following external relations documents:

- NST-ER-001-STA - Management of Cultural and Heritage Sites Standard
- NST-ER-002-STA - Stakeholder Mapping Standard
- NST-ER-003-STA - Stakeholder Engagement Standard
- NST-ER-004-STA - Complaint and Grievance Management Standard
- NST-ER-005-REP - External Relations and Environment Report (incident reporting)

6.2 Statutory and Non-Statutory Requirements

Statutory Requirements Summary

Legislation	Comment
NT Aboriginal Land Rights Act 1976	Governs access to ALRA land. Deed for Exploration with the Central Land Council (CLC) in respect of tenements on ALRA land.
NT Aboriginal Land Act 1980	Requirement for permits for entry onto Aboriginal Land.
NT Aboriginal Sacred Sites Act 1989	Duty to report and protect Aboriginal archaeological and historic sites.
NT Heritage Act 2012	Duty to report and protect places and objects of historical and archaeological significance.
NT Mineral Titles Act 2010	Exploration Licenses granted under the terms and conditions of the Mining Act.
NT Mining Management Act 2011 and Regulations (amended in 2013)	Authorisation issued for ground disturbing activities and as amended.
Commonwealth Native Title Act 1993	Indigenous Land Use Agreement with Central Land Council in respect of tenements on Pastoral Land.
NT Weeds Management Act 2001	Responsibility to prevent the spread noxious weeds
NT Plant Health Act 2008 and Regulations (2012)	Regulations introduced due to the quarantine risk posed to the NT with the movement of machinery and equipment.
NT Work Health and safety (NUL) Act 2011	An act to promote health and safety in the workplace. Requirement to report employment/injury and safety statistics
Commonwealth Environment Biodiversity Protection Act (1999)	The EPBC Act focuses Australian Government interests on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance.
NT Soil Conservation and Land Utilisation Act 1980 (as amended)	An act to make provision for the prevention of soil erosion and for the conservation and reclamation of soil.
Territory Parks and Wildlife Conservation Act 2006	An act that provides for the protection of animals and plants and the preparation of plans of management for parks and reserves.
NT Bushfires Act 1980	Management of fire to prevent damage to persons, land or property.
Dangerous Goods Act 2011 and Regulations	Licensing for storage and handling of explosives, chemicals and fuel.
NT Environmental Assessment Act 1982 and Environmental Assessment Administrative Procedures Act 1984	
NT Environmental Offences and Penalties Act 1996	
NT Public Health Act 1952	
NT Soil Conservation and Land Utilisation Act 1980 (as amended)	
NT Waste Management and Pollution Control Act 1998	
NT Water Act 2011	

Non-Statutory Requirements Summary

Legislation	Comment
Northern Territory Guidelines	Guidelines to Prevent Mosquito Breeding, Department of Health and Community Services (1988).
	Erosion and Sediment Control Plan Content, NRETAS (2006).
	NT Health and Families: Requirements for Mining, Construction and Bush Camps (Environmental Health Information Fact Sheet No. 700), Department of Health.
	Policy - Road Traffic Noise on Northern Territory Government Controlled Roads, DPI (2006).
CLC Mining/Exploration Agreements	Approvals for exploration programs and establishes guidelines for rehabilitation and cultural awareness.
NT Resources Council	Code of Conduct for Mineral Explorers in the NT

6.3 Induction and Training

All staff and visitors entering the CTP operations are required to complete a site entry induction as an integral part of the CTP Safety Management System. This induction is provided in ***Error! Reference source not found.*** and includes the presentation of safety and environmental information. Currently the inductions have been developed based on exploration requirements.

The entry induction includes the following:

- Incident reporting
- Risk management process
- Social responsibility overview
- Stakeholder Policy
- Relationships with Indigenous people commitment
- Cultural heritage management
- Legal penalties for environmental non-compliance
- Fauna protection
- Dingo management
- Flora protection
- Weed management (including identification, legal requirements and weed hygiene practices)
- Hydrocarbon and chemicals storage and management

6.4 Identification of Environmental Aspects and Impacts

NST's risk management procedure (NST-COR-020-PRO) is used for the identification and management of environmental aspects and impacts associated with the proposed activities at the Central Tanami Project. This procedure has been designed to align with the International Environmental Management Systems Standard ISO14001:2015. Key elements of the risk assessment process adopted for the CTP include:

- Identification of potential risks and opportunities within a group/workshop setting.
- Identification of possible contributing factors and causes of such an event.

- Determining the likelihood and consequences of the event occurring. Consequences consider health & safety, environmental, community/stakeholders, legal compliance and financial.
- Rate the likelihood and consequence in the absence of control measures, to determine "initial risk".
- Identification of existing control measures in place for reducing the likelihood or consequences of the event.
- Rate the likelihood and consequence with consideration of control measures, to determine "residual risk".
- Identification of potential additional control measures that could be implemented to address any knowledge gaps or risks that are considered unacceptable.
- Allocation of timeframes and responsibility/accountability for the effective implementation of proposed control measures.

The information compiled from the process above is collated and documented within the Central Tanami Project risk register. The risk register is reviewed regularly and revised to consider changes to the operating conditions, implementation of control measures or simply the identification of new risks.

A site inspection by NST and DPIR personnel in October 2015 identified several issues for which the DPIR has requested additional information. The DPIR requested that specific risk assessments be conducted for:

- Hurricane Pit.
- Repulse Waste Rock Dump.
- Carbine Pit.

These risk assessments have been conducted in accordance with NST's Corporate Risk Management Procedure and Environmental Risk Management Standard. The results from the assessment are provided in sections 6.4.3, 6.4.4 and 6.4.6. The assessments are based on the findings of a geotechnical assessment of the pits and abandonment bunds conducted in October 2016 (Appendix 19 Hurricane Pit Risk Assessment, Appendix 20 Repulse Waste Dump Risk Assessment *and* Appendix 21 Carbine Pit Risk Assessment).

The DPIR also requested an assessment of all constructed landforms with particular emphasis on identifying early stages of adverse environmental issues. Details on the status are provided in section 6.4.7.

6.4.1 Central Tanami Project (Exploration) Environmental Risk Assessment

The key risk areas currently identified from the Project risk assessment are:

- Unauthorised clearing.
- Spread of weeds.
- Impacts on significant flora and fauna species or fauna habitat
- Hydrocarbon spills.
- Bushfire.
- Exploration rehabilitation is not done or fails.
- Inappropriate waste disposal.
- Excessive water consumption.
- Feral animals and Native Fauna.

These risk events were classified as having a moderate 'initial risk' (i.e. the level of risk in the absence of any control measures). With consideration of the risk control measures currently in place, the likelihood of each of these risks reduces to the extent that the 'residual risk' is low.

A summary of the risk register completed for this assessment is provided in Table 15. Many of the risks associated with drilling are associated with biodiversity management, which is described further in Section 6.4.2.

6.4.2 Biodiversity Management

Several operational practices and risk control measures exist at the CTP to ensure that significant flora and fauna species and habitats are protected from the proposed activities by NST. As the proposed activities and levels of disturbance increase beyond the scope of this MMP (e.g. more extensive drilling, dewatering or mining), the biodiversity management practices and risk control measures will be reviewed and amended to reflect the levels of risk.

For the drilling activities proposed in this MMP, biodiversity management is effected through measures outlined below.

Flora and Fauna Surveys

Prior to land disturbance associated with approved activities, surveys are conducted by suitably trained consultants to identify flora and fauna species of conservation concern, and associated habitats.

For the activities proposed in this MMP, a desktop and field survey was conducted by Low Ecological Services (LES). The results are summarised in Sections 5.6 Flora and 5.7 Fauna. The LES report is provided in Appendix 6 Flora and Fauna Assessment.

Induction and Training

The education of site personnel on issues relating to biodiversity management is largely achieved through the site induction processes. Staff are provided information so that they can identify particular animals, signs of the animals and potential habitat areas. Staff are required to read and sign that they have read and understand the Biodiversity Management Plan. The induction also addresses the identification and management of significant flora species and weed species.

The site induction process is described in Section 6.3 Induction and Training. The induction material itself is provided in **Error! Reference source not found.**, Appendix 10 Weed ID Induction Material and Appendix 12 Biodiversity Management Plan.

Workplace Inspections

Compliance with site systems and procedures relating to biodiversity management is monitored through regular inspections of work areas. Details of the workplace inspections, including schedules, are provided in Section 6.5.2 Workplace Inspections & Audits.

Weed Management

The management of weeds is a significant element of NST's biodiversity protection program. The existence and management of weed species was included in the scope of the Flora and Fauna assessment conducted by Low Ecological Services in 2016. A Weed Management Plan exists (Appendix 7 Weed Management Plan) and weed identification and management is included within site inductions and workplace inspections.

Objectives and Targets

NST has adopted key environmental performance objectives and targets for the CTP. One of the four key objectives are protection of flora and fauna. NST has identified specific performance targets and measurement tools that relate to this objective.

Details of the CTP objectives and targets are provided in Section 6.6.1 Objectives and Targets.

Incident Reporting

NST's incident reporting procedures (described in Section 6.7 Emergency Procedures and Incident Reporting) incorporate aspects of biodiversity management. Sightings of, or damage to threatened flora/fauna species are required to be reported via the site incident reporting process. Incident investigation processes will determine if further reporting is required (e.g. reporting to regulatory authorities).

Waste Management

Responsible management and disposal of wastes is important for the protection of native fauna and the management of pest fauna species. The CTP Waste Management Plan (Appendix 22 CTP Waste Management Plan) addresses waste management issues that can impact on flora and fauna, such as the collection and disposal of putrescible waste and the management of the landfill facility.

Flora and Fauna Management Plan

NST will produce a Flora and Fauna Management Plan by 31/03/2017. LES provided a series of recommendations in their November 2016 Flora and Fauna Assessment and these will be used in development of the Flora and Fauna Management Plan along with commitments above. NST will provide then DPIR with the Flora and Fauna Management Plan when it is developed.

Table 15 CTP Environmental Risk Register Summary

		Initial Risk				Residual Risk		
Risk/Activity	**Risk Description**	**Consequence**	**Likelihood**	**Rating**	**Current Controls**	**Consequence**	**Likelihood**	**Rating**
Clearing drill pads, tracks, sumps	Unauthorised clearing.	3 - Moderate	C -Possible	Medium	Updated heritage site surveys GPS guided clearing activities - based on approvals, heritage surveys. Inductions address heritage sites Sign-off on drill program includes tick-box of heritage site occurrence (ground-disturbance permit).	3 - Moderate	E - Rare	Low
	Interruption of surface water flows with tracks	5 - Insignificant	B - Likely	Low	Rehab includes re-establishing drainage - intersecting roads. Monitoring for erosion issues.	5 - Insignificant	D - Unlikely	Low
	Spreading of weeds	4 - Minor	B - Likely	Medium	Weed Management Plan. Inspection and wash down procedures. Wash down bay. Assessment of rehab and area inspections to consider presence of weeds.	4 - Minor	C -Possible	Low
	Driving off designated tracks	4 - Minor	C -Possible	Low	Induction instructs to stay on designated tracks. Demarcation of tracks for drill programs (e.g. flagging tape)	4 - Minor	D - Unlikely	Low
Drilling	Hydrocarbon spills	4 - Minor	A-almost certain	Medium	Plastic sheeting beneath drill rigs, Regular maintenance, spill kits, incident reporting requirements.	4 - Minor	C -Possible	Low
	Excessive dust	5 - Insignificant	B - Likely	Low	Cowling on drill/cyclone to limit loss of dust/sample.	5 - Insignificant	B - Likely	Low
	Release of drill mud and/or water.	4 - Minor	C -Possible	Low	Biodegradable, environmental-friendly drill mud, Field crew determine size and location of drill sumps - approved through ground disturbance permit/drill planning procedures.	4 - Minor	C -Possible	Low
	Cross contamination of groundwater	4 - Minor	D - Unlikely	Low	Hydro assessments - no indication of issues to be aware of.	4 - Minor	D - Unlikely	Low
	Inappropriate waste disposal	5 - Insignificant	B - Likely	Low	Waste Management Plan, induction covers waste management, inspections, landfill facility (including burn pit)	5 - Insignificant	B - Likely	Low
	Spill of water used for drilling	5 - Insignificant	D - Unlikely	Low		5 - Insignificant	D - Unlikely	Low
	Subsidence associated with existing open pits	2 - Major	D - Unlikely	Medium	Geotechnical risk assessment to be conducted as part of drill program planning. Unlikely to site drill hole in these areas.	2 - Major	E - Rare	Low
Storage of hydrocarbons	Spillage/leakage	4 - Minor	B - Likely	Medium	Bulk diesel bunded, currently removing un-bunded containers, pallet bunds provided for small containers. Spill kits, induction, waste management plan.	4 - Minor	C -Possible	Low
	Bushfire	3 - Moderate	C -Possible	Medium	Fire extinguishers on all vehicles and drill rigs. Information in induction, emergency response procedures.	3 - Moderate	D - Unlikely	Low
Rehab of drill holes	Rehabilitation does not occur	4 - Minor	B - Likely	Medium	Database, photos, GIS linked, procedures, audits.	4 - Minor	D - Unlikely	Low
	Completed rehabilitation fails	4 - Minor	B - Likely	Medium	Post-rehab inspection/audit	4 - Minor	D - Unlikely	Low

		Initial Risk				Residual Risk		
Risk/Activity	**Risk Description**	**Consequence**	**Likelihood**	**Rating**	**Current Controls**	**Consequence**	**Likelihood**	**Rating**
Rehab of drill pads/sumps/samples	Rehabilitation does not occur	4 - Minor	B - Likely	Medium	Database, photos, GIS linked, procedures, audits.	4 - Minor	D - Unlikely	Low
	Completed rehabilitation fails	4 - Minor	D - Unlikely	Low	Post-rehab inspection/audit	4 - Minor	D - Unlikely	Low
Rehab of tracks and gridlines	Rehabilitation does not occur	4 - Minor	C -Possible	Low	Database, procedures, audits	4 - Minor	D - Unlikely	Low
	Completed rehabilitation fails	4 - Minor	D - Unlikely	Low	Post-rehab inspection/audit	4 - Minor	D - Unlikely	Low
Waste management	Inappropriate disposal of wastes (e.g. hydrocarbon wastes, putrescible waste, batteries)	4 - Minor	B - Likely	Medium	Waste Management Plan. Procedures for waste management conveyed to all employees. Landfill and hydrocarbon waste management facilities maintained and regularly inspected.	4 - Minor	C -Possible	Low
Water management	Excessive consumption of water	4 - Minor	B - Likely	Medium	Bore monitoring - SWL and water quality. Ability to rotate consumption from various bores.	4 - Minor	D - Unlikely	Low
Feral animals	People feeding dingos, dingoes and cats source food from mine facilities (e.g. camp, landfill)	3 - Moderate	C -Possible	Medium	Putrescible waste is secured around the camp before removing to the landfill. Placed in the burn pit and burned regularly with other combustible (non-toxic) wastes. Landfill fences are maintained to prevent feral animals (although difficult) and gates are always shut.	3 - Moderate	D - Unlikely	Low

6.4.3 Hurricane Pit Risk Assessment

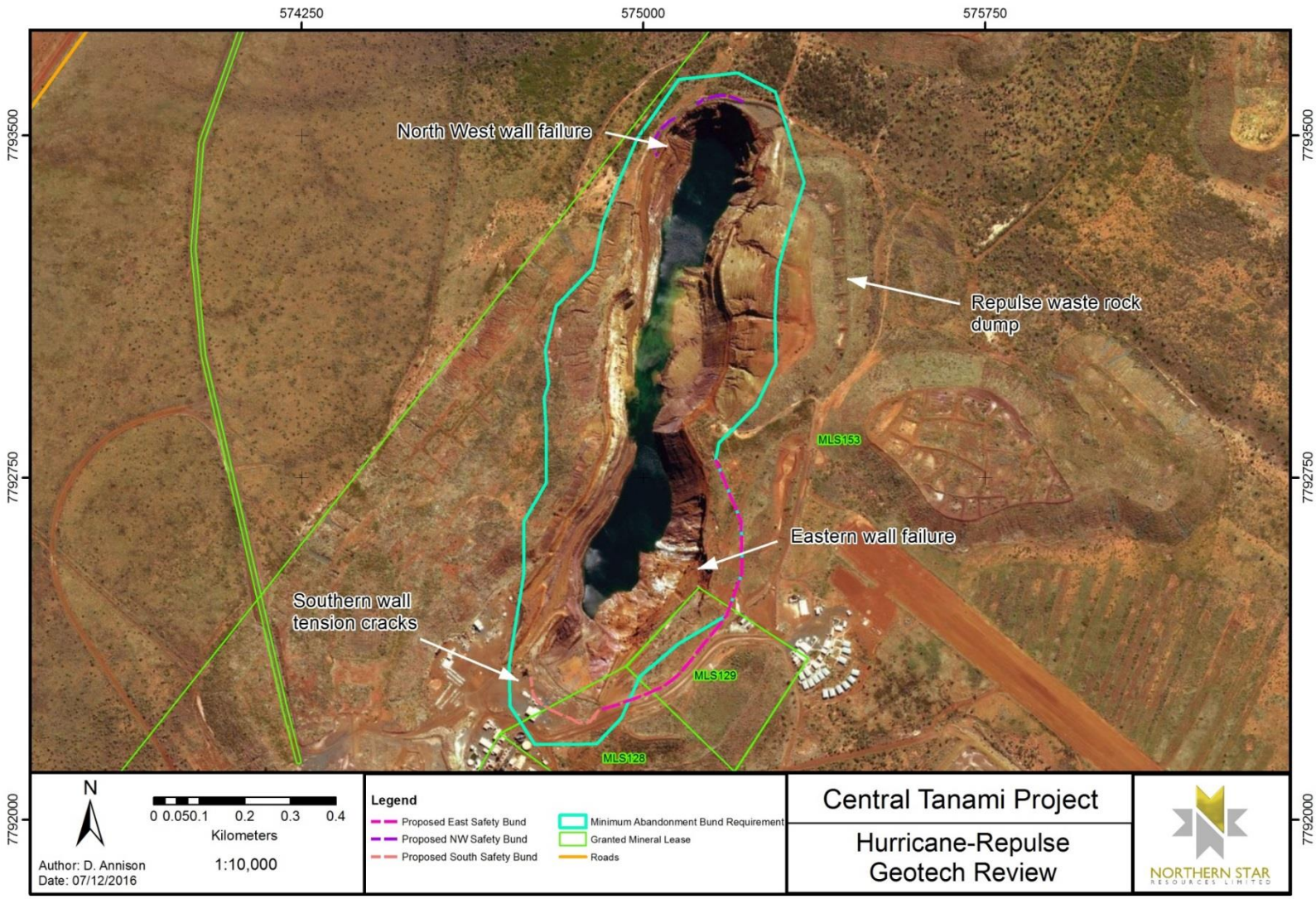
The Hurricane-Repulse Pit was mined between 1990 and 1994 with several wall failures occurring since the mining phase, particularly in the eastern wall of the Hurricane Pit. A large failure of the eastern wall has extended to the nearby Airstrip Pit which was backfilled with tailings and rehabilitated with a cover of waste rock. A site inspection by NST and DPIR personnel in October 2015 observed salts within the exposed subsoil of the failure near the Airstrip Pit. Subsequent investigations by NST personnel have identified an area where historical tailings material is exposed by the subsided pit wall.

NST engaged consultants Dempers & Seymour Pty Ltd in October 2016 to complete a geotechnical inspection of three pits in the CTP area (Hurricane-Repulse, Groundrush and Carbine) to assess the compliance of the current abandonment bunds, the stability of the pit walls and the required standoff distance for drilling near the pits. The report has been included as Appendix 17 Pit Geotechnical Assessment Report.

Informing the risk assessment of the Hurricane Pit is the Dempers & Seymour assessment results, as well as historical geotechnical and hydrogeological reviews commissioned by NST and previous mine owners and operators.

An aerial image of the Hurricane Pit showing the features identified in the geotechnical assessment is provided in Figure 15.

Figure 15 Hurricane-Repulse Pit Geotechnical Features



Geotechnical Risk

The following is an extract from the 2016 Dempers & Seymour Pty Ltd assessment report:

The Hurricane–Repulse pit has experienced three failures that extend to the pit crests. Two of the failures are in the North and North West walls; the largest failure is in the East wall with the failure mechanism a combination of planar and circular failure, approximately 290m long and 80m high, that has extended back past the pit safety bunds and currently has sections without any bunding. Tension cracks are also present behind the East wall failure, driven by the East wall failure and the settling of fill material in the back filled Airport Pit, and extends to the base of the access road bund. As the cracking at the base of the roadway bund is related to the settling of the Airport pit fill material and the actual roadway is outside the pit shell, the access roadway can continue to be used.

These failures will require new safety bunds to be built to limit access to the potential failure areas, with the two smaller Northern failures requiring a bund at least 20m from the current failure crest and the East wall failure requiring a new bund wall following the trace of the minimum abandonment bund trace in the North and following the access roadway bund wall to the South.

Most of the current abandonment bund walls are adequately located, being outside the minimum required distance to comply with the Western Australian Department of Mines and Petroleum (DMP) guidelines. The Western Australian guideline has been used in the absence of a Northern Territory guideline. However, there are currently access breaks in the abandonment bund wall around its perimeter and the bund ends at the processing plant/office areas. Before the site is abandoned these areas will need to be closed off with abandonment bunds that comply with the DMP guidelines.

The Southern wall of the pit has been backfilled with a large amount of waste material, with anecdotal evidence that a crack that runs along the pit/backfill boundary has become more pronounced over the last year. This is most likely due to settling of the backfill material, however as there is currently no active monitoring of this area it is recommended that a bund wall be constructed along the pit/backfill boundary to restrict access.

Drilling distances from the edge of the pit were assessed with the following recommendations;

- A minimum drilling distance of 20m from the pit crest.
- Behind the safety bund or 20m from the crest, whichever is distance is greater, for the identified failure areas.
- Directly behind the safety bund wall along the southern pit wall/backfill boundary is acceptable as the fill material will buttress the wall.
- Drilling on top of the waste dumps requires a safety bund 20m back from the crest and 10m from the crest of any washouts.

Geochemical Risk

There is a lack of geochemical information available for the tailings material deposited in the Airstrip pit.

The exposure of some tailings material by the subsided pit wall has allowed NST to collect a tailings sample and have it analysed for geochemical characterisation, including:

- acid-forming tendency;
- multi-element composition; and
- water-extractable solutes.

The program of geochemical analysis and interpretation of results was conducted by Graeme Campbell and Associates (GCA). The final report is provided as Appendix 18 Airstrip Pit Tailings Analysis Report. Results of the analysis and the GCA interpretation are summarised below.

The tailings-solids sample was characterised by:

- a Total-S value of 0.01 %;
- a Total-C value of 0.03 %; and,
- an Acid-Neutralisation-Capacity (ANC) value of 6 kg H2SO4/tonne

The tailings-solids sample is therefore classified as Non-Acid Forming (NAF) due to 'negligible-sulphides'.

The tailings-solids sample had contents of most elements below, or close to, those typically recorded for soil, regolith and bedrock derived from non-mineralised terrain.

Although variously enriched in As, Sb and B, the degree of enrichment in these minor elements was not marked. Moreover, the stability of these enriched-elements is shown by the results of the water extraction test work below.

Consistent with the multi-element assays, the water-extract of the tailings-solids sample typically had element concentrations less than of-the-order 10 µg/L.

Co was an exception with a concentration of 2.034 mg/L, corresponding to a leachable-Co loading of approximately 4-5 mg/kg. Although the Total-Co content of 44.7 mg/kg indicates a negligible enrichment in Co, a 'pool' of labile-Co was likely created through complexing with cyanide during the former ore processing. However, the resulting 'pool' of labile-Co in the tailings-solids at the prevailing circum-neutral-pH is modest.

A program of pit lake water quality monitoring has been initiated to monitor any impacts on pit water or groundwater quality and establish baseline water quality for assessing impacts from any future NST activities. The Hurricane-Repulse pit lake water is included in the monitoring program described in more detail in Section *6.5.1 Groundwater Monitoring*. Results are provided in Appendix 12 Pit Lake Water Monitoring Results which currently indicate little or no impact from the Airstrip tailings material.

The results of this risk assessment are provided in Appendix 19 Hurricane Pit Risk Assessment. All identified risks were regarded as 'low', except one 'moderate' risk associated with people inadvertently accessing the pit area. This risk is proposed to be addressed by reinstating pit safety bunds where a section of the safety bund (used during operations) has collapsed into the pit. An abandonment bund exists beyond the zone of instability but the area between the bund and the pit can still be accessed. Works will be commissioned to ensure that adequate bunding restricts access to the pit prior to operations (drilling) near the pit wall crest.

Action Plan

Based on the outcome of the Hurricane-Repulse Pit risk assessment and associated studies, the following action plan (Table 16) has been developed.

Table 16 Hurricane-Repulse Pit Risk Assessment Action Plan

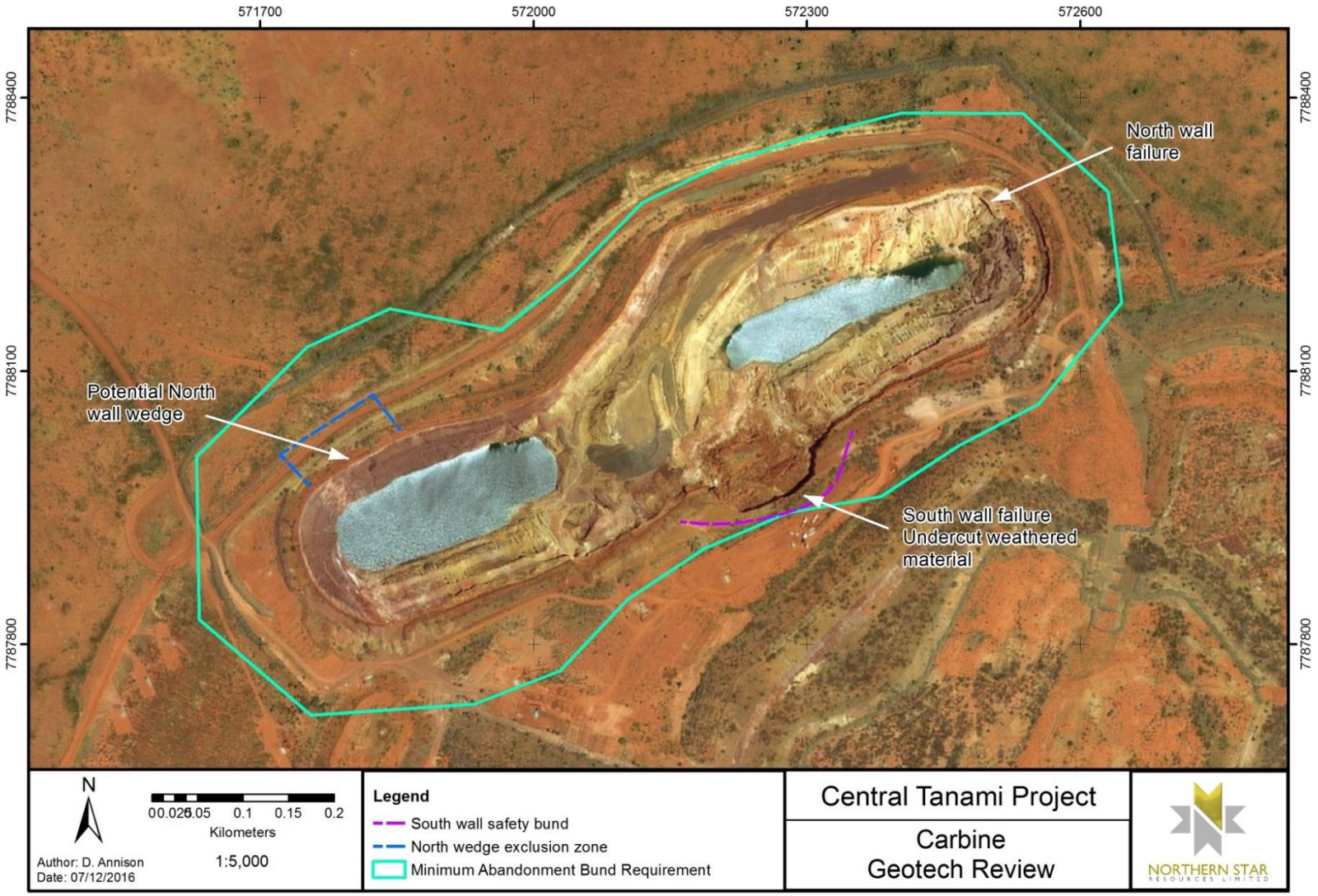
Action	Target Completion Date	Responsibility
Safety Bunds Reinstate the safety bund along the east pit wall as recommended in 2016 pit geotechnical assessment (current bund has failed into pit) Construct a safety bund at the Northern and North West pit walls, beyond the potential zone of instability (current bund is too close)	30 April 2017	Site Manger.

Construct a safety bund at the Southern end of the pit to restrict access onto backfilled section of the pit.		
Abandonment Bund Fill any interruptions/breaks in the existing abandonment bund (e.g. access points and bund interruption at processing plant site).	At site abandonment.	Site Manager.
Drilling Implement Drilling Geotechnical Management Plan with the following requirements: All drilling will be conducted behind the current or recommended pit safety bunds. If any safety bund is required to be breached to reach a drilling location or drilling is required on backfill material a full geotechnical report and safety plan on that drilling location must be completed before work commences.	Prior to commencing relevant drilling activity.	Site Manager.
Monitoring Visual geotechnical inspections of the pit are to be conducted at least twice a year by trained personnel. At least one of the inspections should be completed after the wet season to check for any major failures that may have been triggered by the rainfall. If drilling or other activities commence near the pit walls, a more rigorous inspection regime to be detailed in a geotechnical drilling management plan, must be implemented for the period of the drilling operations. Geochemical assessment of tailings material exposed from Airstrip Pit. Initiate pit lake water quality monitoring as per Section 6.5.1 of this MMP. Continue groundwater monitoring in vicinity of pit as per Section 6.5.1 of this MMP.	Ongoing.	Site Manager.

6.4.4 Carbine Pit Risk Assessment

The geotechnical assessment conducted in October 2016 by Dempers & Seymour Pty Ltd, included assessment of the Carbine Pit and associated abandonment bunding. An aerial image of the Carbine Pit showing the features identified in the geotechnical assessment is provided in Figure 16.

Figure 16 Carbine Pit Geotechnical Features



The following is an extract from the Dempers & Seymour report:

The Carbine pit has experienced two failures detailed in North and South in the weathered material and a potential wedge failure in the North wall. The failure in the South wall is the most significant extending approximately 60m high and 130m in length, with tension cracks extending to the west of the failure. As there is no active monitoring of this failure a new safety bund is required 15m back from the current failure crest to restrict access to this area. The failure in the North has not broken back to surface but is undercutting the weathered wall, with a projection of the failure indicating it will potentially fail back to the ramp. The ramp is bunded off and as such no new safety bund is required however the ramp should not be used until a full geotechnical assessment is completed.

The potential wedge failure identified in the Northern wall currently exhibits no signs of failure however as the available data does not allow for aa rigorous analysis of the potential for failure a drilling exclusion zone, 20m either side of the wedge and 50m back from the pit crest, is recommended.

Two sections of the current abandonment bund wall, in the West and North West, around the pit were found to be within the minimum distance from the pit required by the Western Australian Department of Mines and Petroleum (DMP) guidelines. The Western Australian guideline has been used in the absence of a Northern Territory guideline. These areas will need to be pushed out further from the pit to meet the guidelines.

Drilling distances from the edge of the pit were assessed with the following recommendations;

A minimum drilling distance of 20m from the pit or failure crests.

No drilling on the ramp.

No drilling in the North wedge exclusion zone.

Action Plan

Based on the outcomes of the Carbine Pit risk assessment, the following action plan (Table 17) has been developed.

Table 17 Carbine Pit Risk Assessment Action Plan

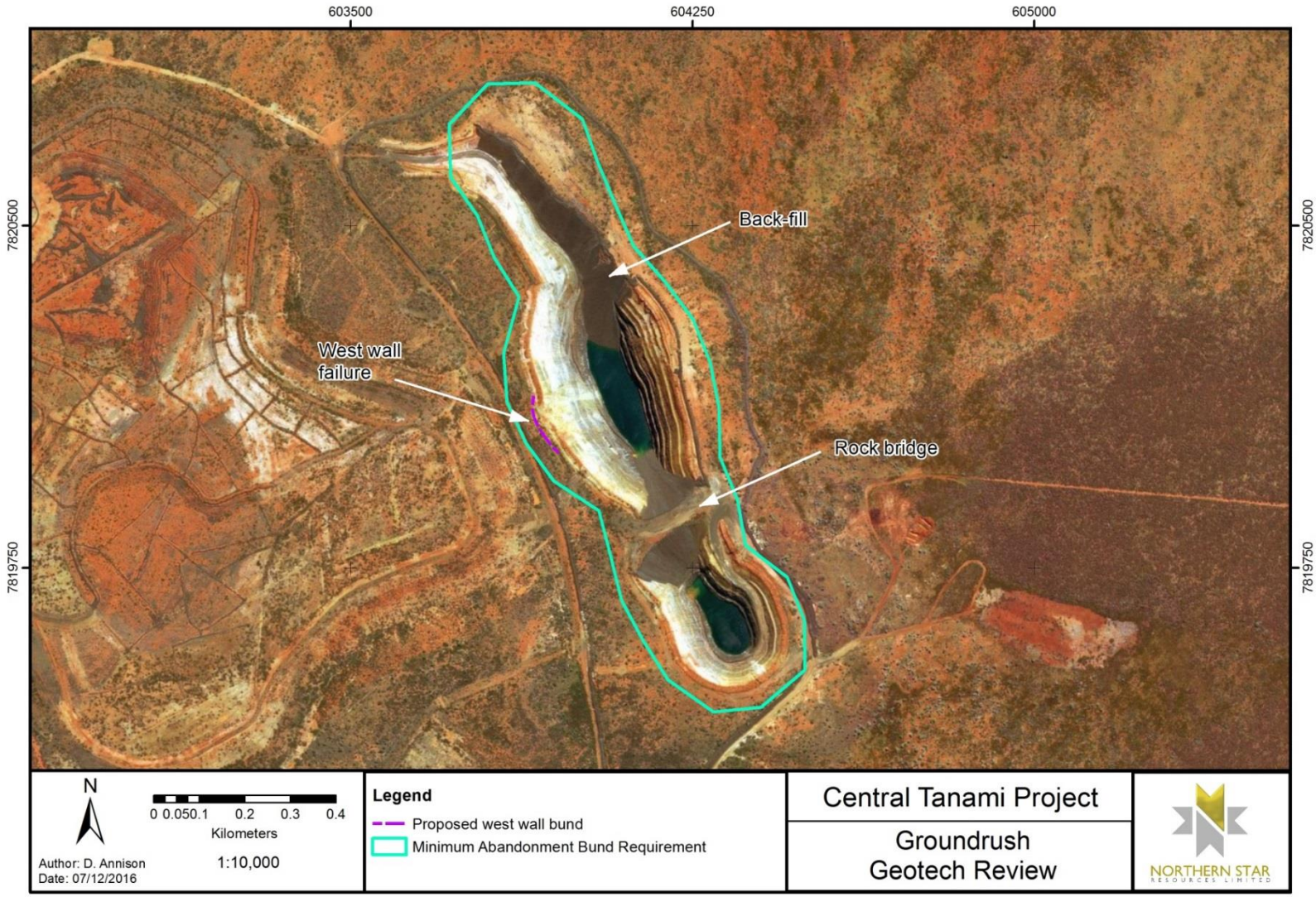
Action	Target Completion Date	Responsibility
Safety Bunds		
Reinstate the safety bund around the South wall failure as recommended in 2016 pit geotechnical assessment (current bund has failed into pit)	Prior to any relevant activity beyond the abandonment bund.	Site Manager
Abandonment Bund		
Infill gaps in the abandonment bund that currently allow access.	30 April 2017	Site Manager.
Move the two sections of existing abandonment bund at the Western and Northern walls of the pit as recommended in the 2016 pit geotechnical assessment (current bund is too close to pit crest).	At site abandonment.	Site Manager.
Exclusion Zone		
Implement, including signage, an exclusion zone around the potential wedge at the Western end of the Northern wall as recommended in the 2016 pit geotechnical assessment. Is this inside or outside of the abandonment bund?	30 April 2017.	Site Manager.
Drilling		Site Manager.

Implement Drilling Geotechnical Management Plan as per Hurricane-Repulse Pit Action Plan.	Prior to commencing drilling activity.	
Monitoring Visual geotechnical inspections of the pit are to be conducted at least twice a year by trained personnel. At least one of the inspections should be completed after the wet season to check for any major failures that may have been triggered by the rainfall. If drilling or other activities commence near the pit walls a more rigorous inspection regime, to be detailed in a geotechnical drilling management plan, must be implemented for the period of the drilling operations.	Ongoing.	Site Manager.

6.4.5 Groundrush Pit Risk Assessment

Geotechnical assessment of the Groundrush pit was included by NST in the scope of the Dempers and Seymour assessment due to the proposed drilling activities being in close vicinity to this pit. An aerial image of the Groundrush Pit showing the features identified in the geotechnical assessment is provided in Figure 17.

Figure 17 Groundrush Pit Geotechnical Features



The following is an extract from the assessment report:

The Ground Rush pit walls are in relatively "good" condition with only one failure in the Western wall noted. This failure in weathered material that is approximately 50m in length and 30m high has failed back to the pit side toe of the safety bund. As there is no active monitoring of the failure a new safety bund is recommended 15m back from the failure crest to restrict access to this area.

The minimum required abandonment bund locations were calculated with the current abandonment bund locations considered sufficient to meet the Western Australian Department of Mines and Petroleum (DMP) guidelines. The Western Australian guideline has been used in the absence of a Northern Territory guideline. However access points have been opened in the abandonment bund walls that will need to be closed with adequate bund walls once the site is abandoned.

The waste rock bridge across the pit was analysed and found to be stable, however adequate bund walls need to be constructed at least 10m back from the wall crests. Heavy vehicle and equipment traffic should be restricted across the rock bridge.

The North wall of the pit has been backfilled with waste rock and while there are no signs of failure there is no monitoring of the rock fill wall. Therefore it is recommended that no drilling on backfill material. In addition the toe of the backfill wall sits against the pit ramp with no catch bund between the wall and the ramp. A catch bund is required to restrict potential rill material impacting the ramp, vehicles or personnel.

Drilling distances from the edge of the pit were assessed with the following recommendations:

- A minimum drilling distance of 15m from the pit crest from a non-failed pit wall.
- Behind the safety bund or 15m from the crest, whichever is distance is greater, for the West wall failure area.
- No drilling on the Northern backfill or the rock bridge.
- Drilling directly behind the backfill material along Northern pit wall/backfill boundary is acceptable as the fill material will buttress the wall.

Action Plan

Based on the outcomes of the Groundrush Pit risk assessment, the following action plan (Table 18) has been developed.

Table 18 Groundrush Pit Risk Assessment Action Plan

Action	Target Completion Date	Responsibility
Safety Bunds Construct a safety bund at the West wall failure area beyond the potential zone of instability (current bund is too close).	Prior to commencing relevant drilling activity.	Site Manager.
Abandonment Bund Re-establish the abandonment bund where breaks for access currently exist	At site abandonment	Site Manager.
Rock Bridge Implement procedures that prevent heavy vehicles from using the rock bridge. Construct safety bunds along each side of the rock bridge as recommended in the 2016 pit geotechnical assessment.	Prior to commencing relevant drilling activity.	Site Manager.

Exclusion Zone Implement a drilling exclusion zone around the backfill area at the Northern section of the pit, as recommended in the 2016 pit geotechnical assessment.	Prior to commencing relevant drilling activity.	Site Manager.
Drilling Implement Drilling Geotechnical Management Plan as per Hurricane-Repulse Pit Action Plan.	Prior to commencing relevant drilling activity	Site Manager.
Monitoring Visual geotechnical inspections of the pit are to be conducted at least twice a year by trained personnel. At least one of the inspections should be completed after the wet season to check for any major failures that may have been triggered by the rainfall. If drilling or other activities commence near the pit walls a more rigorous inspection regime, to be detailed in a geotechnical drilling management plan, must be implemented for the period of the drilling operations. Initiate pit lake water quality monitoring as per Section 6.5.1 of this MMP. Continue groundwater monitoring in vicinity of pit as per Section 6.5.1 of this MMP.	Ongoing.	Site Manager.

6.4.6 Repulse WRD Risk Assessment

The Repulse WRD (shown in Figure 15) was identified by the DPIR during their site visit as a landform of concern due to the large erosion gully that has developed from the top of the WRD, down the western batter and into the Repulse pit. An environmental mine closure consultant was engaged to visit the site and assist in assessing this landform.

The assessment concluded that the closure strategy adopted by Newmont for this waste dump included the preferential directing of surface water flow from the top of the dump, down the western wall and into the Repulse pit. It would therefore have been expected that significant erosion was likely to eventuate on these areas. It is understood that a risk-based approach taken by Newmont considered the western face of the WRD as a 'sacrificial' area that would erode into the pit but have limited environmental impacts. This strategy greatly reduces erosion on the other WRD batters, where the environmental impacts from such erosion are much greater because the sediment would not be contained by the open pit. Contributing to the gully erosion on the western side is the poor quality and highly erodible nature of the waste material.

The results of this risk assessment are provided in Appendix 20 Repulse Waste Dump Risk Assessment. No further action is planned for the Repulse waste dump.

From a safety perspective, the pit geotechnical assessment conducted in 2016 concluded that '*drilling can be conducted on the waste dumps, however as the toe of the waste dumps are generally situated on the crest of the pit wall, drilling will need to be conducted behind a safety bund to be constructed 20m from the dump edge and 10m from any erosion gullies*'. This recommendation will be included within the site's Drilling Geotechnical Management Plan.

6.4.7 Assessment of Other Landforms

Following the site inspection in October 2015, the DPIR requested an assessment of all constructed landforms with attention to identifying early stages of adverse environmental issues relating to stability, erosion, weeds and water quality. Assessments have been conducted for the landforms that are most likely to be impacted by potential activities by NST (i.e. Groundrush pit, Hurricane/Repulse pits, Carbine pit).

Securities for remediation of waste rock dumps, open pits and tailings dams were returned to the operators of the Tanami Mine Joint Venture (Newmont Tanami Pty Ltd and Otter Gold Pty Ltd). The outstanding liabilities on the titles were transferred to Tanami Gold NL under Authorisation 0266-04 in May 2010.

Tanami Gold NL and NST, as the Joint Venture parties, have ongoing obligations to take care of the environment which includes responsibility for remediation of disturbances and the maintenance and monitoring of works by them since May 2010.

Assessments conducted of the pits have focussed on geotechnical stability, impacts on surrounding landforms and infrastructure and pit water quality.

Assessments of other landforms will be conducted as details of the scope and scale of NST activities become available. For example, if plans for mining eventuate, an assessment will be conducted of the landforms that could be impacted by these activities. This will be in addition to other environmental and safety considerations, including assessment of pit bunds their compliance with regulatory guidelines.

Assessments of above-ground landforms such as waste rock dumps and tailings storage facilities are expected to involve inspections that consider the following aspects:

- Physical Stability/Erosion
    - Type – sheet, gully, tunnelling
    - Active/inactive (e.g. presence of vegetation, crusting, cracks)
    - Location
    - Depth, width
    - Sedimentation
    - Receiving environment – signs of vegetation stress, sediment loading, pit lake
    - Cause (e.g. bund/berm failure, tunnelling, ripping contours, surface water flows from other areas, slumping, geotech instability from other sources)
    - Material types – colours (refer to Landloch report – purple, yellow etc.)
    - Potential impacts if erosion continues (e.g. infrastructure, other landforms)
    - Options for preventative measures and rehabilitation, potential costs.
- Chemical Stability
    - Signs of hostile material – salts, crusting
    - Receiving environment – signs of vegetation stress, pit lake water quality
- Biological Stability
    - Rehabilitation species density and diversity
    - Presence of weeds
    - Any areas of revegetation failure

If the results of these assessments indicate issues that require further investigation or management, these will be further considered by NST as appropriate.

6.4.8 Hydrocarbon Management

Hydrocarbon management associated with NST's current operations is at a high standard. However, the legacy of waste hydrocarbons left by previous mine operators is progressively being addressed by NST. In July 2016, NST removed approximately 50,000 litres of legacy hydrocarbons from site as part of this process.

NST has conducted a detailed site inspection and prepared an inventory of hydrocarbon storage facilities (Table 19) including details of compliance with AS1940-2004 and control measures proposed to address any instances of non-compliance, as outlined in

Appendix 33A Hydrocarbon and Chemical Spill Clean Up Procedure.

NST will ensure that all storage of hydrocarbons on site will comply with Australian Standard 1940-2004 'The storage and handling of flammable and combustible liquids' by 30 April 2017.

Table 19 Inventory of Hydrocarbon Storage Facilities

Name:	Location:	Type:	Tank Names:	Capacity:	Status:	Condition:	AS1940-2004 compliance	Current Controls:	Future Controls:	Date to Complete	Comment:
Mobile Plant Fuel Refuelling.	Between Camp and Hurricane Pit.	Self-bunded diesel tanks.	DT1 & DT2	2 x 52,400 L	In use.	Double skinned self-bunded tanks. Installed in-ground sumps with grid mesh at fuelling points.	Yes	Inspections, labelling, training, spill kits, firefighting equipment.	NA	NA	Expected future relocation to new combined camp and admin PowerStation. MMP amendment required.
Camp Power Station.	Between Camp and Hurricane Pit.	Single skin diesel tanks.	DT3 & DT4	51,900 L and 58,900 L respectively.	In use.	Tanks in good condition. Low Earth bund – unlined. Earthen bund, Unlikely to meet requirements for jetting, permeability, removal of water etc.	No	Inspections, labelling, training, spill kits, firefighting equipment.	Tanks to be decommissioned and emptied.	30 April 2017	Tanks to remain on site for possible future use in a bunded location.
Diesel Tank Farm	SE corner Processing Plant	Bulk Diesel	E Tank & W Tank	2 x 458,000 L	Decommissioned and empty.	Low Earth bund – unlined. Earthen bund, Unlikely to meet requirements for jetting, permeability, removal of water etc. Tanks in poor condition. Paint protection peeling and rust.	No	NA	NA	NA	Decommissioned, not to be reactivated. Assessment for water storage required.
Processing Powerhouse Day Tanks	Adjacent Processing power station	Single skin diesel tanks.	Tank E & Tank W	2 x 57,000 L	Decommissioned and empty.	Low Earth bund – unlined. Earthen bund, Unlikely to meet requirements for jetting, permeability, removal of water etc. Tanks and pipework in excellent condition.	No	NA	NA	NA	Tanks to remain on site for possible future use in a bunded location.
Processing Powerhouse Bulk Oil	Opposite Processing power station.	Single skin tank.	Bulk Oil	30,000 L	Decommissioned and empty.	Shallow earth bund – unlined. Contaminated site. Tank condition good.	No	No longer in use.	Site to be cleaned up with mill refurbishment.	NA	Possible recommissioning in a bunded location.

Name:	Location:	Type:	Tank Names:	Capacity:	Status:	Condition:	AS1940-2004 compliance	Current Controls:	Future Controls:	Date to Complete	Comment:
Processing Powerhouse Waste Oil	Opposite Processing power station.	Single skin tank.	Bulk Oil	25,000 L	Decommissioned. Waste Oil tank recently pumped out and removed from site. Sludge remains in bottom of tank.	Shallow earth bund – unlined. Contaminated site. Tank condition good.	No	No longer in use.	Site to be cleaned up with Processing Plant refurbishment.	NA	Possible recommissioning in a bunded location.
Processing Propane Supply	Adjacent to ROM	Single skin propane tank.	Processing Propane	102,000 L	Empty. Isolated from systems.	Good condition	Yes	Routine visual inspections. Periodic licenced/regulatory inspections/certification.	Purge with nitrogen – full decommission.	30 Sept 2017	Possible recommissioning.
Camp Propane Supply	Adjacent camp carpark	Single skin propane tank.	Camp Propane	5,100 L	In use.	Good condition	Yes	Routine inspections. Certified regulatory inspections. Fire irrigation system.	Irrigation system on dedicated water supply.	30 April 2017	To remain in use.
Workshop Store	Adjacent Workshop	Various general mechanical oils and greases. Hydraulic fluid, 1 200L drum AVGAS.	Workshop Various.	<2,500 L	In use. Concrete floor (un-bunded). Various 200L drums, 20L containers and ICB's stored on bunded pallets.	Good condition	Not fully.	Bunded pallets. I inspections. Spill kits. Firefighting equipment. Induction, labelling, training.	Construction or purchase of compliant bunding solution for storage of all oils, fluids and fuels. Use of bunded pallets to be for ready supply in workshop or temporary storage only.	30 April 2017	To remain in use.
Other (some scrap) items in laydown area.	Predominately lay down area.	Various small tanks, including for remote gensets.	NA	NA	Decommissioned. In lay down areas.	Mixed.	Not without bunding.	Empty. 50,000 litres of waste hydrocarbons removed from site	Continued clean up and assessment. Removal from site of items never to be used.	30 Sept 2017	Some items suitable for future redeployment, with appropriate bunding.

6.4.9 Processing / Powerhouse Bulk Oil / Waste Oil.

As noted in Table *19*, the bulk oil/waste oil area is subject to relatively minor contamination after many years of use. The oil storage tanks will be removed to the lay down area and hydrocarbon contaminated material will be removed to a bio-remediation area prior to the end of 2017. Details of a bio-remediation area will be submitted in a later MMP amendment when confirmed.

Figure 18 Bulk Oil / Waste Oil tanks.

Figure 19 Bulk Oil / Waste Oil tanks – Example Minor Hydrocarbon Contamination.

6.4.10 Landfill and Waste Management

The site has a Waste Management Plan (Appendix 22), which addresses issues such as:

- Waste minimisation and recycling.
- Waste segregation and disposal methods.
- Management of the landfill facility including use of the burn pit and bury pit.
- Inspections, monitoring, waste tracking and reporting.

The current landfill facility is an existing facility used by previous mine operators. It includes a 'burn pit' for the incineration of combustible, non-hazardous wastes and a 'bury pit' for burying non-combustible materials and remnants from the burn pit. The management of wastes to minimise wind-blown litter and attracting feral and native animals includes the following measures:

- Waste receptacles at site (e.g. rubbish bins) are secured and emptied regularly to the landfill.
- The burn pit receives waste that is most susceptible to distribution by wind and feral animals and native fauna (paper and food scraps). This pit is burned regularly and immediately any putrescible waste, food scraps or similar is deposited (weekly) to prevent the build-up of waste material. Any remnants from the burning process (e.g. ash, unburned metal) will be periodically transferred by front end loader to the bury pit.
- The bury pit is checked regularly (weekly), formally inspected monthly and is included on the site inspection schedule (see Table 20 CTP Workplace Environmental Inspection Schedule). The bury pit will be periodically covered with soil to minimise the distribution of waste material by wind, feral animals or native fauna.
- The fence around the landfill site is maintained to minimise access by animals, especially dingoes.
- The gate of the landfill is always closed with prominent signage to keep it closed at all times.

The frequency of covering the bury pit will be determined through monitoring and inspection, and will vary subject to the number of people on site and the quantity of material being placed in the bury pit.

Works will be completed in 2017 to "square off" the bury pit and improve access. The footprint will be largely unchanged and remain within the current fenced area.

6.5 Environmental Audits, Inspections and Monitoring

6.5.1 Groundwater Monitoring

Groundwater monitoring at the site has occurred in the past during operational and rehabilitation phases. Since the completion of closure and rehabilitation activities by Newmont, and the return of security bonds, regular monitoring of groundwater ceased. This is consistent with the low risk of the recent exploration drilling activities having any significant impact on groundwater quality.

NST have commenced a program of groundwater monitoring consistent with the re-establishment of baseline data in preparation for activities at CTP beyond those proposed in this MMP including potential mining activity. The objective of this program is to understand baseline conditions and to then determine trigger levels for activities that could impact on groundwater. Initially, three rounds will be conducted in the Sept'16, Dec'16 and March'17 quarters to re-establish baseline data. Subsequently monitoring will be bi-annual commensurate with exploration activity levels.

Details of the NST program are provided below:

Pit Lake Monitoring (Groundrush Sth Pit, Hurricane/Repulse Pit)

Field Monitoring (biannually):

- pH
- electrical conductivity (EC)

Laboratory analysis (biannually):

- pH
- electrical conductivity (EC)
- Total Dissolved Solids (TDS)
- Cations (Ca, Mg, Na, K)
- Anions (HCO_3, Cl, SO_4, NO_3)
- Ionic balance
- Metals (As, B, Co, Cr, Cu, Fe, Pb, Ni, Se, Sr, Zn) – both filtered and unfiltered samples

The first round of pit water monitoring was conducted in October 2015 by Significant Environmental Services. A second round of samples at Groundrush and Hurricane/Repulse was collected in May 2016 by NST personnel. A third round of samples was taken by Low Ecological and Lajamanu Rangers in September 2016 and December 2016. Results for all samples other than those from the December 2016 round (not yet received) are provided in Appendix 12 Pit Lake Water Monitoring Results.

Groundwater Monitoring (Production Bore field)

Field Monitoring (biannually):

- Standing Water Levels (SWL)
- pH
- electrical conductivity (EC)
- Note – SWL to be measured for all production and monitoring bores. pH and EC to be measured only from bores equipped for production.

Laboratory analysis (biannually):

- For bores equipped for production
- pH
- electrical conductivity (EC)
- Total Dissolved Solids (TDS)
- Cations (Ca, Mg, Na, K)
- Anions (HCO_3, Cl, SO_4, NO_3)
- Ionic balance
- Metals (As, B, Co, Cr, Cu, Fe, Pb, Ni, Se, Sr, Zn)

The first round of groundwater sampling was completed in September 2016 and the second round completed in December 2016. Results for the September round are provided in Appendix 13 Groundwater Water Monitoring Results.

Groundwater Monitoring (Existing monitoring bores around project areas)

Field Monitoring (biannually):

- Standing Water Levels (SWL)

Laboratory analysis (biannually):

- pH
- electrical conductivity (EC)
- Total Dissolved Solids (TDS)
- Cations (Ca, Mg, Na, K)
- Anions (HCO_3, Cl, SO_4, NO_3)
- Ionic balance
- Metals (As, B, Co, Cr, Cu, Fe, Pb, Ni, Se, Sr, Zn)

The first round of groundwater sampling was completed in September 2016 by Low Ecological Services, with T.O. Lajamanu Rangers. Results are provided in Appendix 13 Groundwater Water Monitoring Results.

The results from this continuing monitoring program (as well as historical water quality monitoring records from previous operators) will be used to assess the potential hydrogeological impacts of any future activities proposed by NST beyond those described in this MMP.

6.5.2 Workplace Inspections & Audits

A schedule of workplace inspections has been developed and will be implemented at the commencement of the proposed exploration drilling activities.

Table 20 CTP Workplace Environmental Inspection Schedule

Workplace Environmental Inspection Schedule			
Inspection Type/details	**Frequency**	**Records Management**	**Responsibility**
Pre-drill program inspections: Confirm proximity to Cultural and heritage sites (if applicable) Weeds - check for dirt/mud on equipment (wash down if necessary), check for presence of weeds at proposed drill sites. Site safety – if in proximity to pits, check for any signs of ground instability (e.g. cracks). Confirm in accordance with drilling geotechnical management plan.	Prior to drilling commencing	Ground disturbance permit Drill rig and drill site audit form (Appendix 16) – one for each general area of drilling.	Site Manager
Operational drill inspections: Land disturbance (tracks, pads, sumps) limited to that necessary for operations and approved under Authorisation. Clearing is not contributing to unacceptable rates of erosion/sedimentation (e.g. along tracks). Sump capacity adequate to prevent overtopping. Hydrocarbon and waste management is occurring as per site procedures (e.g. no litter or hydrocarbon contamination)	Monthly, with frequent informal inspections.	Drill rig and drill site audit form – performed at pre-drill and monthly intervals.	Site Manager
Post drill inspections: Conducted as part of the rehabilitation program (refer section 7 Exploration Rehabilitation)	Within 6 months of drilling	CTP Rehab database	Site Manager
Infrastructure inspections: Includes the processing plant, site offices, accommodation camp, airstrip, haul/access roads, bore field, landfill facility. Checklists include inspection for: Housekeeping	Monthly	Inspection checklists	Site Manager

Emergency equipment Personal health and safety (e.g. PPE, ergonomics) Electrical safety Chemical and hydrocarbon storage Waste management (litter, segregation of waste types) Water management (leaks, potential for contamination) Weeds			

6.6 Environmental Performance

6.6.1 Objectives and Targets

NST's environmental performance objectives for the company are outlined in the NST's Environmental Policy (Appendix 9), Environmental Management System and associated Environmental Standards, which have been provided as separate files to the DPIR accompanying this MMP.

The project specific environmental performance objectives for the CTP include:

- **Stakeholder engagement** – Liaise with relevant stakeholders to understand issues such as cultural/heritage values, future land users and Regulator expectations. Ensure stakeholder views and expectations are considered throughout NST's activities.
- **Protect flora and fauna** – Impacts on flora and fauna are minimised, including those associated with waste disposal, weeds, erosion and sediment.
- **Prevent groundwater and soil contamination** – Ensure the appropriate management and disposal of environmentally hazardous substances to minimise the risks of contamination.
- **Progressive rehabilitation** – Ensure that rehabilitation of exploration disturbance is conducted in a timely manner and is conducted to standards that enable long-term success.

Specific performance targets relating to each objective are provided in Table 21.

Table 21 CTP Environmental Objectives and Targets

Objective	Targets	Measurement Tools / KPI's
Stakeholder engagement	Areas of interest are covered by cultural and heritage surveys.	Existence of surveys over areas of interest. Identification of sites of significance.
	Any areas of significance are documented and are considered as part of NST's ground disturbance permitting process.	Ground disturbance permits – evidence of considering the proximity to sites of significance.
	Consultation with relevant stakeholders regarding activities on site.	Stakeholder consultation register
Protect flora and fauna	Cap drill holes immediately after drilling.	CTP Rehab Database
	Prevent the spread of litter by wind or feral animals – inductions, landfill management, drill site inspections.	Operational drill site inspection forms
	Minimise the spread of weed species – by pre-drill inspections. Compliance with Weed Management Plan.	Pre-drill inspection forms
	Minimise impacts from stormwater flows (erosion/sedimentation from sumps or along tracks, drainage shadows or flooding).	Pre-drill inspection forms Operational drill inspections
Prevent water/soil contamination	Minimise hydrocarbon spills and ensure appropriate waste disposal.	Incident reporting forms Operational drill inspections

Objective	Targets	Measurement Tools / KPI's
	Ensure drill sumps are sized adequately to prevent risk of over-topping.	Incident reporting forms Operational drill inspections
Exploration Rehabilitation	Restore exploration drill sites and tracks in so far as is practical the original condition. Focus on removal of rubbish, hydrocarbon, sample bags, and practices to minimise potential slumping or collapse into buried drill holes or sumps and interference with aquifers.	CTP Rehab Database, incl. photo records before, during and after rehab. Audits to be completed 12 months after final rehab.

6.6.2 Performance Reporting

The implementation of the post-drill inspections as described in section 6.5.2 Workplace Inspections & Audits has been successful in maintaining an accurate record of drill site rehabilitation status. The status of rehabilitation of the latest drill program conducted during the 2015-16 program is presented in Table 22.

In addition, an audit of all drilling under Authorisations 0266-04 and 0266-05 was completed in late 2016. Results of the audit have been used to update the Rehabilitation Register (Appendix 4) with the data is summarised by tenement in Table 4. Each drill site was visited and inspected for the presence of rubbish, sample bags, sumps and drill collars with photographs taken of each site. This audit will form the basis of a program to progressively address legacy exploration rehabilitation.

All NST exploration rehabilitation from the 2015-16 drilling campaign at Groundrush is on track to be completed within 12 months of the end of drilling in April 2016. Targets for pre-NST exploration sites are to have 60% of outstanding sites rehabilitated by December 2017, 90% by December 2018 with 100% to be completed in line with completion of operations.

The pre-drill inspections and operational drill inspections will be continued as part of the drilling program proposed in this MMP. The results of these inspections will be included in subsequent MMP submissions.

Photographic evidence is taken of the rehabilitation progress of each hole.

Appendix 15 shows examples of these records, including holes prior to rehabilitation and then with partial rehabilitation. From the 2015-16 program, 100% of drill sites have had rubbish/sample bags removed and all sumps have been backfilled within 6 months of completion of drilling (5/4/16). Collar cutting and below ground plugging commenced in November 2016 and was near completion as of 10/12/2016. Full rehabilitation including re-contouring and removal of all-weather pads will be completed by end of March 2017.

Table 22 Results of 2015-16 drill program rehabilitation (by drill collar) as of 10 December 2016.

Number of drill collars on database	118
Holes temporarily capped above ground	118
Approved for removal of bags	118
Bags removed	118
Sumps filled (by Drill Collar)	118
Collars cut and hole plugged below ground	84
Drill Pad smoothed/ripped (by Drill Collar)	105
Hole Id / Photo peg removed	0

Note - Drilling was completed 5 April 2016, final sampling of pre-collars in May 2016.

6.7 Emergency Procedures and Incident Reporting

The risks associated with environmental emergencies have been considered as part of the risk assessment for the project. Potential emergency situations include hydrocarbon spills and bushfire events. Hydrocarbon spill kits and waste management procedures exist to address the correct disposal of contaminated wastes.

Bushfire response measures include the requirement for fire extinguishers on all vehicles and drill rigs. Water supply and pumps/hoses are also required on all drill rigs. Emergency evacuation plans involve evacuating to the central laydown areas in open clear spaces. Fire risk awareness information is included in the site induction. Operational inspections also consider fire risk e.g. appropriate disposal of cigarette butts.

NST has developed and implemented an Emergency Response Plan for the CTP. The plan is designed to be an overarching document containing general emergency procedure information including the delegation of responsibilities, important contact numbers and general procedure to be followed when an emergency is identified.

Environmental emergency situations that are addressed within the CTP Emergency Response Plan include:

- Fire – Mobile Plant/Light Vehicles/Buildings.
- Bushfire.
- Tyre fire/explosion.
- Dangerous goods – spill or release.

The reporting and investigation of environmental incidents are conducted in accordance with NST's Incident Reporting Standard. As the operator at the CTP, NST is progressively implementing its own incident reporting system. Incidents and accidents are reported in the internal sever based database and events management system INX. All events are recorded, rated and have the associated impact area identified i.e. Environment, Injury (HSLP), Social Responsibility etc. Actions are raised and managed from the system to ensure appropriate closeout.

Current Incident Reporting Requirements:

- All incidents and accidents must be reported to the Supervisor immediately.
- The Department Head shall be informed by no later than the end of that working shift.
- The Site Manager, as appropriate, shall be informed of any hazard/incident that has a high or significant risk ranking as soon as possible.
- The hazard/incident report shall be completed within two working days.

In addition, NST are aware of the requirements to notify the DPIR on becoming aware of a serious environmental accident or critical incident on the site (Section 29 MMA). NST will refer to the NT DPIR Guideline 'Environmental Incident Reporting' (Advisory # AT8-006) with regards to classifying the severity of the incident and complying with subsequent reporting and incident investigation obligations under sections 29 and 31 of the MMA.

Environmental incidents are reported internally using the site incident reporting form. The site maintains an environmental and health and safety incident register. At the time of preparing this MMP, no environmental incidents have been reported since the commencement of the Joint Venture.

7. Exploration Rehabilitation

Rehabilitation methods adopted at the CTP are described in Table 23. These methods apply to exploration disturbance resulting from NST managed drilling programs as well as historical disturbance remaining from drilling programs conducted by previous operators.

Table 23 Description of Rehabilitation Methods

Disturbance	Rehabilitation Methods	Schedule (Timing)	Closure Objectives / Targets	Monitoring and Remediation
Drill holes - RC/DD	*All PVC collars to be capped immediately after drilling.*	*On completion of drilling the hole (or collar location).* *(Note. Do not cap If drilling multiple holes off same collar due to risk of plug/cap ejection)*	*All holes are capped/safe prior to the end of the program.* *Ensure cap is tightly sealed (use Tek screw or Loctite glue)*	*Site checked before moving on to next drill hole.*
	Cut PVC below ground to a minimum depth of 40cm and insert concrete plug, backfill and mound hole.	*Within 6 months of completion of drilling (unless hole considered necessary for further drilling)*	*Holes are plugged and will be safe and stable in the long-term.* *Prevent fauna access.* *Prevent pooling of surface water and prevent washouts.*	*Visual inspection, photograph and complete Rehabilitation Audit Form*
Drill holes - RAB or Aircore	*All collars plugged at a minimum depth of 40cm* *Backfill soil into hole, compact and mound over the hole approximately 20cm high and 80cm wide and cover with topsoil*	*On completion of drilling hole.*	*Holes are plugged and will be safe and stable in the long-term.* *Prevent fauna access.* *Prevent pooling of surface water and prevent washouts.*	*Visual inspection, photograph and complete Rehabilitation Audit Form*
Sample bags	*Sample bags to be removed and disposed of at site landfill.*	*Within 6 months of completion of drilling*	*Remove all plastic bags and dispose of responsibly.*	*Check site, photograph and complete Rehabilitation Audit Form*
	Drill sample material from bags to be buried in sump.	*Within 6 months of completion of drilling (unless hole considered necessary for further drilling)*	*Reduce visual impact of different coloured drill spoil by burying.*	*Check site, photograph and complete Rehabilitation Audit Form*
Sumps	*Check sumps to ensure water has evaporated.* *Infill sump with drill spoil and excavated material using backhoe and rake flat.*	*Within 6 months of completion of drilling (unless hole considered necessary for further drilling)*	*Ensure all sites are safe and rehabilitated.*	*Check site, photograph and complete Rehabilitation Audit Form*
Drill pads	*Check ground for any hydrocarbon leaks or spills- excavate and bag any affected soil for disposal.* *Remove all rubbish*	*Immediately following drilling*	*Prevent soil/water contamination* *Drill site is clean of rubbish*	*Visual inspection, ensure regrowth is adequate. If signs of issues with compaction ripping to be carried out (re-inspect in 6-12 months)*
	Rip or rake the collar area to smooth any drill spoil or channels and berms excavated during drilling	*Within 12 months after drilling*	*Ensure disturbed area is returning to pre-disturbed state*	
All-weather drill pads	*Check ground for any hydrocarbon leaks or spills- excavate and bag any affected soil for disposal.* *Remove all rubbish Fresh rock used to construct all weather pads is removed to Pit safety bund or pit backfill.* *Rip or rake the collar area to smooth any drill spoil or channels and berms excavated during drilling*	*Within 12 months after drilling*	*Prevent soil/water contamination* *Drill site is clean of rubbish* *Ensure disturbed area is returning to pre-disturbed state*	*Visual inspection, ensure regrowth is adequate. If signs of issues with compaction ripping to be carried out (re-inspect in 6-12 months)*

Disturbance	Rehabilitation Methods	Schedule (Timing)	Closure Objectives / Targets	Monitoring and Remediation
Tracks / Gridlines	*Where possible, tracks are cleared with 'blade-up' method to minimise impact. Inspect tracks/gridlines for compaction or risk of erosion. Remediate is necessary.*	*Within 24 months of of drilling (unless access considered necessary for further drilling)*	*Areas regenerate to pre-disturbance state. Prevent erosion along tracks/gridlines.*	*Check site, photograph and complete Rehabilitation Audit Form*
Infrastructure – processing plant, workshops, hydrocarbon storage facilities, accommodation village *Infrastructure – bore fields and pipelines* *Infrastructure – airstrip* *Infrastructure – haul roads and tracks* *Infrastructure – landfill site*	*Post-closure land users to be consulted on potential post-closure use for infrastructure.* *Remove all buildings and above-ground infrastructure. Materials not removed from site for scap/salvage and with no contamination risk will be disposed of into the Hurricane/Repulse pit.* *Any material placed into Hurricane Repulse open pit will be covered, with waste from either the ROM pad or dozing down, to reduce visual impacts.* *Remove concrete footings to at least 1.5m below ground surface and fill with clean fill, or cover with at least 1.5m clean fill.* *Excavate any contaminated soil and either treat on site or send off site for disposal.* *Any buried services (pipes/cables) will be left buried unless they pose a contamination risk or are retrieved for economic value.* *Rip and seed footprint area to encourage revegetation.*	*Whenever it is decided that the infrastructure will not be utilised in the future.*	*Public health and safety* *Physical stability (prevent unacceptable rates of erosion or instability)* *Chemical stability (protection of land and groundwater from contamination)* *Biological stability – rehabilitated areas supports sustainable ecosystems.* *Stakeholder engagement – facilitate the retention of infrastructure/services that are requested by the post-closure land user (e.g. roads for Traditional Owner access to lands).*	*Contaminated site assessment and verification* *Post-works health and safety assessment* *Post-closure inspections for signs of erosion or instability.* *Post-closure groundwater monitoring* *Post-closure rehabilitation monitoring.*

7.1 Exploration Rehabilitation Register

NST maintains records of all drill holes drilled by NST on the CTP leases within its CTP Rehabilitation Database. Records for each drill hole include:

- Drill hole I.D.
- Tenement
- Hole type
- Date completed
- Maximum depth
- Project/prospect name
- Geologist supervising
- Drilling contractor
- Coordinates (easting, northing and RL)
- Survey method and date
- Rehabilitation status (e.g. hole capped at surface, plugged below surface, sumps backfilled, bags removed, pre and post rehab photographs taken, post-rehab inspection/audit undertaken)

The Rehabilitation Register provided in Appendix 4 details the rehabilitation status of all drill sites from the previous year, the rehabilitation methods used and evidence of rehabilitation (before and after photos). Examples of these photographic records are provided in

Appendix 15 Post Drill Photographic Monitoring Examples.

7.2 Existing Infrastructure and Services

The demolition and removal of existing infrastructure was assessed in October 2016 by a third-party demolition contractor – Liberty Industrial Pty Ltd. The assessment included an estimate of demolition costs based on the rehabilitation methods for infrastructure outlined in Table 23 with the assessment report included as Appendix 24. The estimated demolition costs have been included in the security estimate for the Project which is provided in Appendix 23. The cost estimate assumes that all infrastructure requires demolition and excludes any allowance for salvage or scrap value (in accordance with Australian Accounting Standards).

Traditional owners have requested (see Appendix 27 [Confidential] - CLC Letter re. Roads.) via the Central Land Council, that haul roads associated with the Project are retained for access to country. NST have therefore identified the main access roads to the north (Groundrush) and south (Southern Tenements) as not requiring rehabilitation. All other access roads and tracks associated with the Project have been identified for rehabilitation and costs have been included in the security calculation.

Roads not requiring rehabilitation will be inspected and assessed to ensure they are left in a satisfactory condition for long term use. This will include minimisation of windrows, other than those used for water diversion and erosion prevention, and the installation of whoa-boys as per applicable guidelines and/or rock armoring where there is evidence of erosion or erosion appears probable.

Plans of the areas identified for rehabilitation and access roads identified for retention are provided in Figure 20, Figure 21 and Figure 22.

Figure 20 CTP Road and Infrastructure Rehabilitation Plan

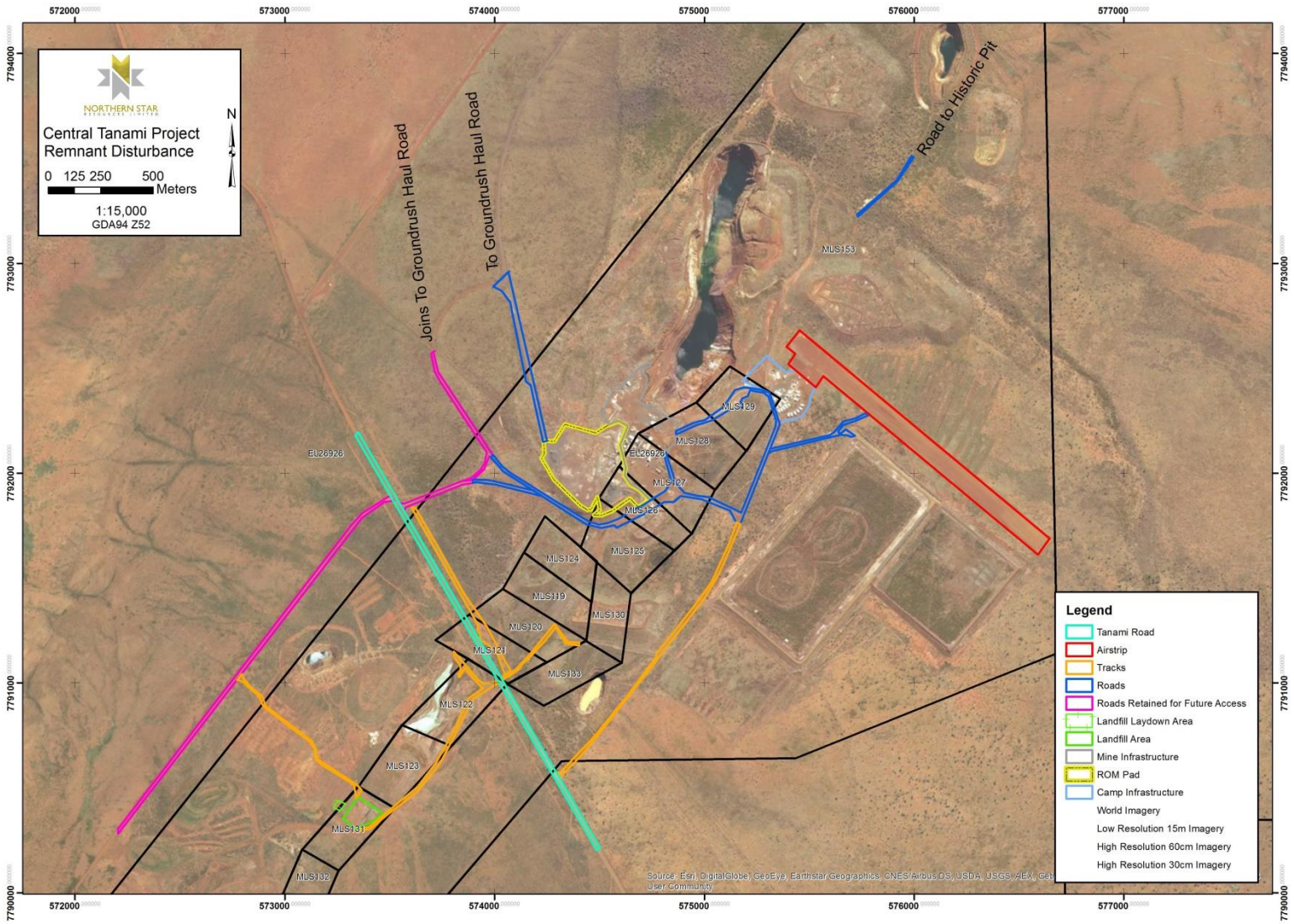


Figure 21 CTP Regional Road Rehabilitation Plan

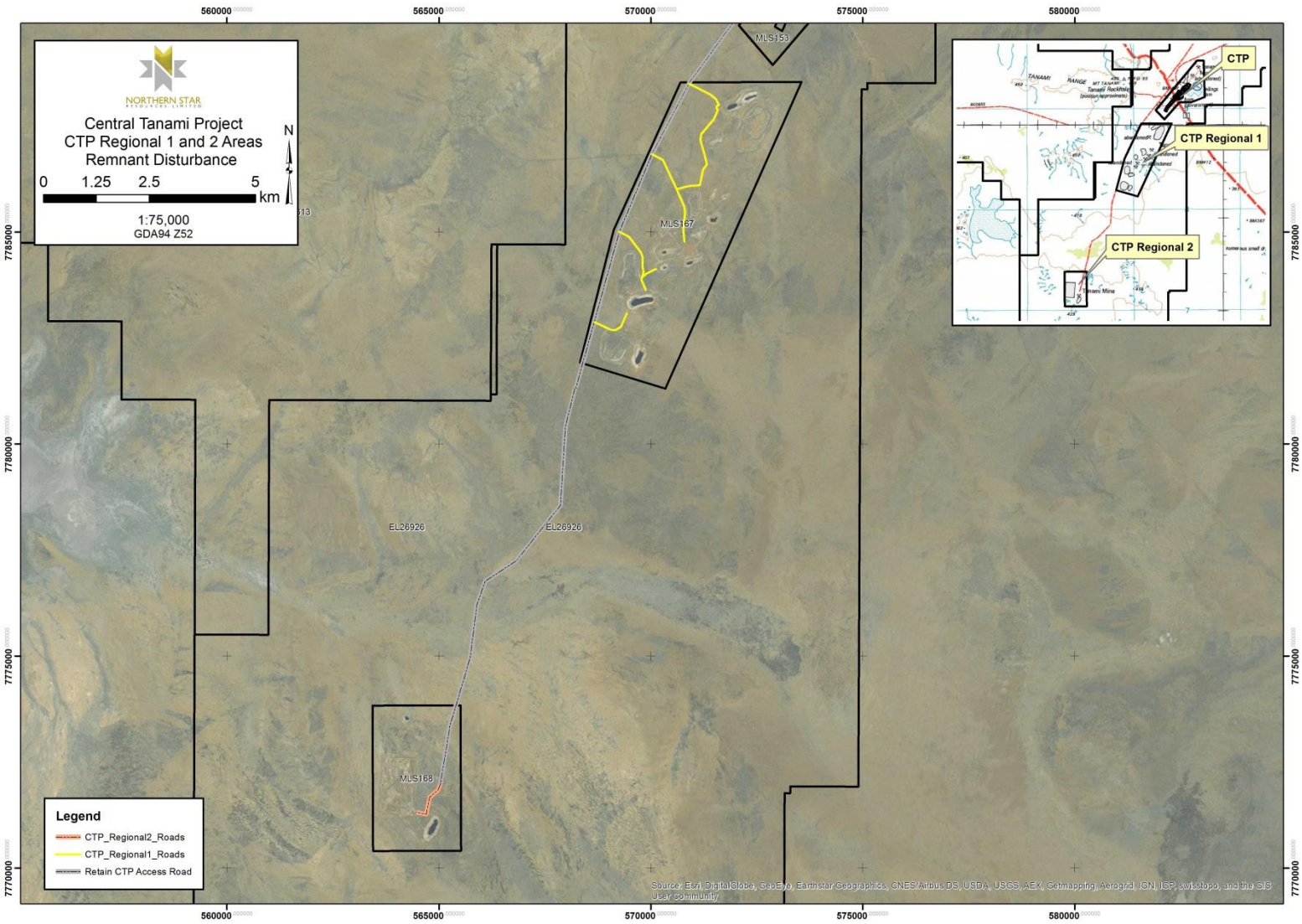
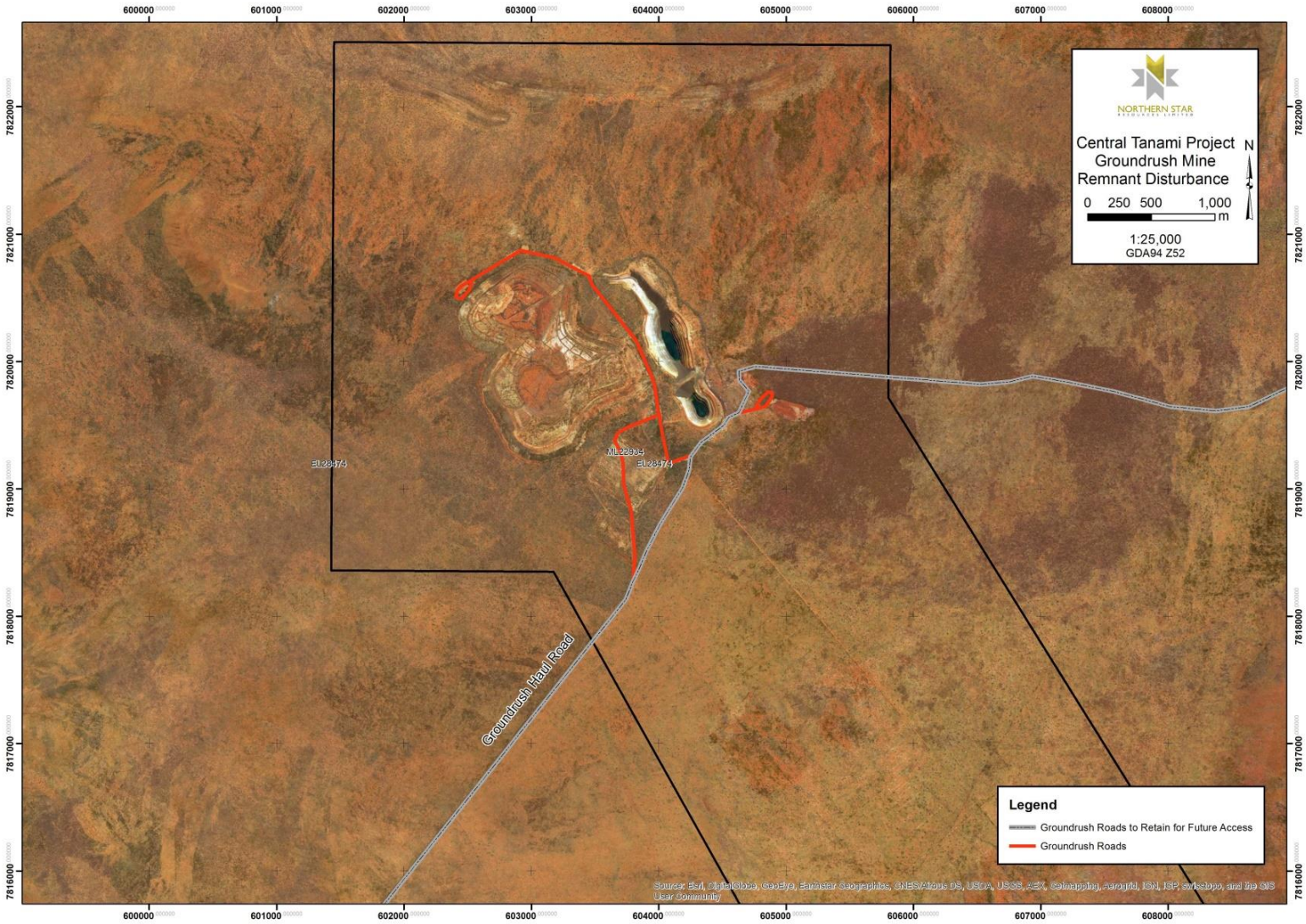


Figure 22 Groundrush Road Rehabilitation Plan



7.3 Costing of Closure Activities

APPENDICES

Appendix 1 NST Complaint & Grievance Management Standard

Appendix 2 Tenement Details

Appendix 3 Authorisation History

Appendix 4 Rehabilitation Register

Appendix 5 NST Drilling Rehabilitation SOP

Appendix 6 Flora and Fauna Assessment

Appendix 7 Weed Management Plan

Appendix 8 NST Drill Site Preparation SOP

Appendix 9 NST Environmental Policy

Appendix 10 Weed ID Induction Material

Appendix 11 Biodiversity Management Plan

Appendix 12 Pit Lake Water Monitoring Results

Appendix 13 Groundwater Water Monitoring Results

Appendix 14 CLC Correspondence Re NT Rangers for Water Monitoring

Appendix 15 Post Drill Photographic Monitoring Examples

Appendix 16 Drill Rig & Drill Site Audit Form

Appendix 17 Pit Geotechnical Assessment Report

Appendix 18 Airstrip Pit Tailings Analysis Report

Appendix 19 Hurricane Pit Risk Assessment

Appendix 20 Repulse Waste Dump Risk Assessment

Appendix 21 Carbine Pit Risk Assessment

Appendix 22 CTP Waste Management Plan

Appendix 23 [Confidential] - Mine Closure Security Calculations

Appendix 24 [Confidential] - Infrastructure Demolition Assessment

Appendix 26 [Confidential] - AAPA Search Results

Appendix 27 [Confidential] - CLC Letter re. Roads.

Appendix 28 [Confidential] - GIS Rehabilitation Database.

Appendix 29 [Confidential] - Environmental Management System and Associated Standards.

Appendix 30 CTP Site Disturbance Permit.

Appendix 31 Management of Cultural and Heritage Sites Standards

Appendix 32 [Confidential] - NST Stakeholder Related Standards

Appendix 33 [Confidential] - Emergency Response Plan

Appendix 33A Hydrocarbon and Chemical Spill Clean Up Procedure