



TODD RIVER RESOURCES

NORTHERN TERRITORY DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES




MINING MANAGEMENT PLAN (MMP)

FOR
EXPLORATION OPERATIONS

MOUNT HARDY PROJECT

Authorisation 0923-01

December 2018

	Compiled by	Reviewed by	Approved by
Date	17/12/18	18/12/18	18/12/18
Name	Cath Wetherley	Kim Grey	Will Dix
Signature			

I *Will Dix (Chief Executive 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: 18/12/18

Document Distribution:

Todd River Resources Limited

Department of Primary Industry and Resources

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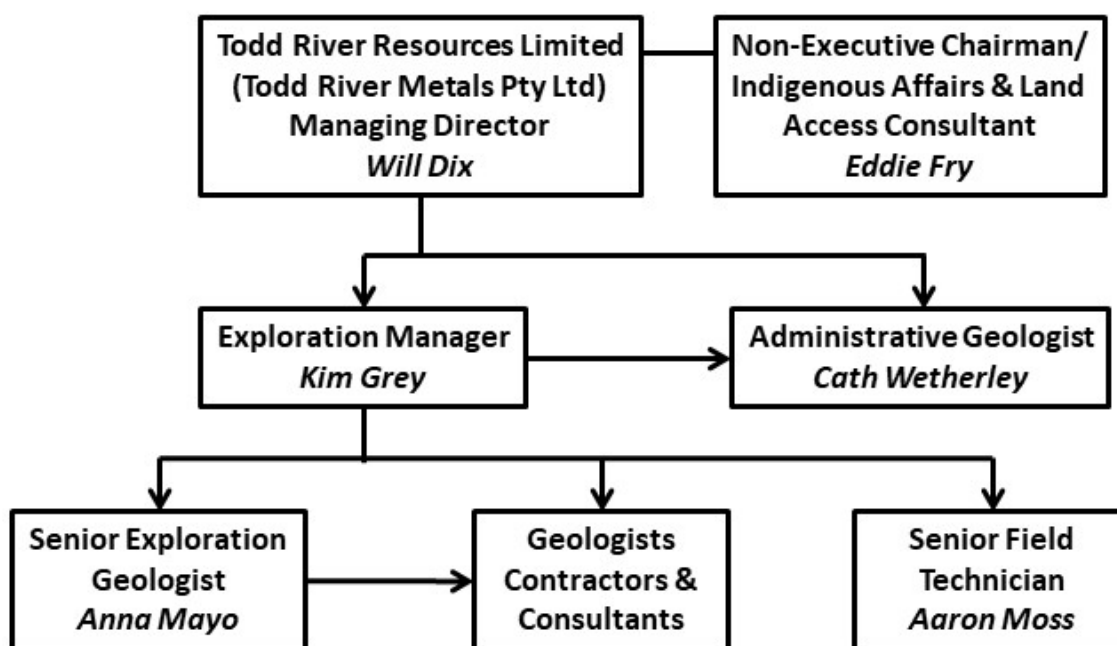
AMENDMENTS

Section	Amendment
1.1 Organisational Structure	Updated
Figure 1	Tenure outline updated
3.1 Previous Activities and Current Status- TRM 2018 Exploration Activities	Updated
Exploration Activities table	Updated to 14 December 2018
3.2 Proposed Activities in 2019	Updated
4.3 Flora and Fauna	Reviewed
4.5 Historical, Aboriginal and Heritage Sites	Updated
5.5 Environmental Inspection, Audits and Monitoring – External Audits	Updated
5.5.2 Site Monitoring – Drill site and Access Track Monitoring Stations	Updated
5.6.1 Objectives and Targets	Reviewed
5.6.2 Performance Reporting	Updated
Appendix 10, 11, 12	Updated

1.0 OPERATOR DETAILS

Operator Name:	Todd River Metals Pty Ltd (ACN: 600 314 038) is a wholly owned subsidiary of Todd River Resources Ltd. Todd River Resources Limited (ACN: 600 308 398) is a company Listed on the Australian Stock Exchange (ASX).
Key Contact Person/s:	Kim Grey (Exploration Manager) Mobile 0421 735 118
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1.1 TRM ORGANISATIONAL STRUCTURE



1.2 WORKFORCE

- 1 Exploration Manager
- 1 Senior Exploration Geologist
- 1 Junior Geologist
- 1 Senior Field Technician
- 1 Field Assistant

2.0 IDENTIFIED STAKEHOLDERS

Parts of the following NT Portions are affected by the granted EL's (Figure 1):

- EL27892: NT Portion 01947, PPL1035 "Mount Doreen Station" - Braitling Nominees Pty Ltd. Matthew Braitling.

Other stakeholders consulted with:

- Traditional Landowners and the Yuendumu Community.
- Central Land Council (CLC), Native Title Representative Body for the region.
- Aboriginal Areas Protection Authority (AAPA).
- Department of Primary Industry and Resources (DPIR)

TRM promotes its exploration programs to all known and affected stakeholders prior to any exploration work being carried out to avoid or minimise disruption to the daily routines of the pastoralist activities and to have input into the exploration process if they see it necessary.

All statutory stakeholder notifications and newspaper advertisements were submitted with the applications. Before field exploration commences each of the station owners/managers affected by exploration are notified and consulted with. Station owners are visited prior to exploration activities commencing and accommodation will often be arranged onsite at the station homestead. Routine updates are provided as to the onset, progress and cessation of field activities.

Communication with station owners is paramount and relevant parties are encouraged to bring any foreseeable issue prior to, during and after exploration to the immediate attention of staff on the ground or the Exploration Manager (if not on site).

As per the recent Land Access Guidelines land managers will be notified 14 days prior to any non-intrusive exploration activity being carried out.

Updates to the current programme have been provided to the Landholder on a regular basis. All recent communication is attached in APPENDIX 1.

3.0 PROJECT DETAILS

Authorisation Number	0923-01
Project Name:	MOUNT HARDY PROJECT
Location:	Centred approximately 297 kilometres northwest (306°) of Alice Springs or 30 kilometres northwest (303°) of the Yuendumu community.
Site Access:	Turn off is approximately 23 kilometres northwest of the turn off into the Yuendumu community on the Tanami Road and then 18.5 kilometres north along the station track to Gintys Bore and then on existing exploration drill roads.
Mining Interest/s:	EL27892, EL28694, EL29219
Title holder/s:	Todd River Metals Pty Ltd (A wholly owned subsidiary of Todd River Resources Ltd)

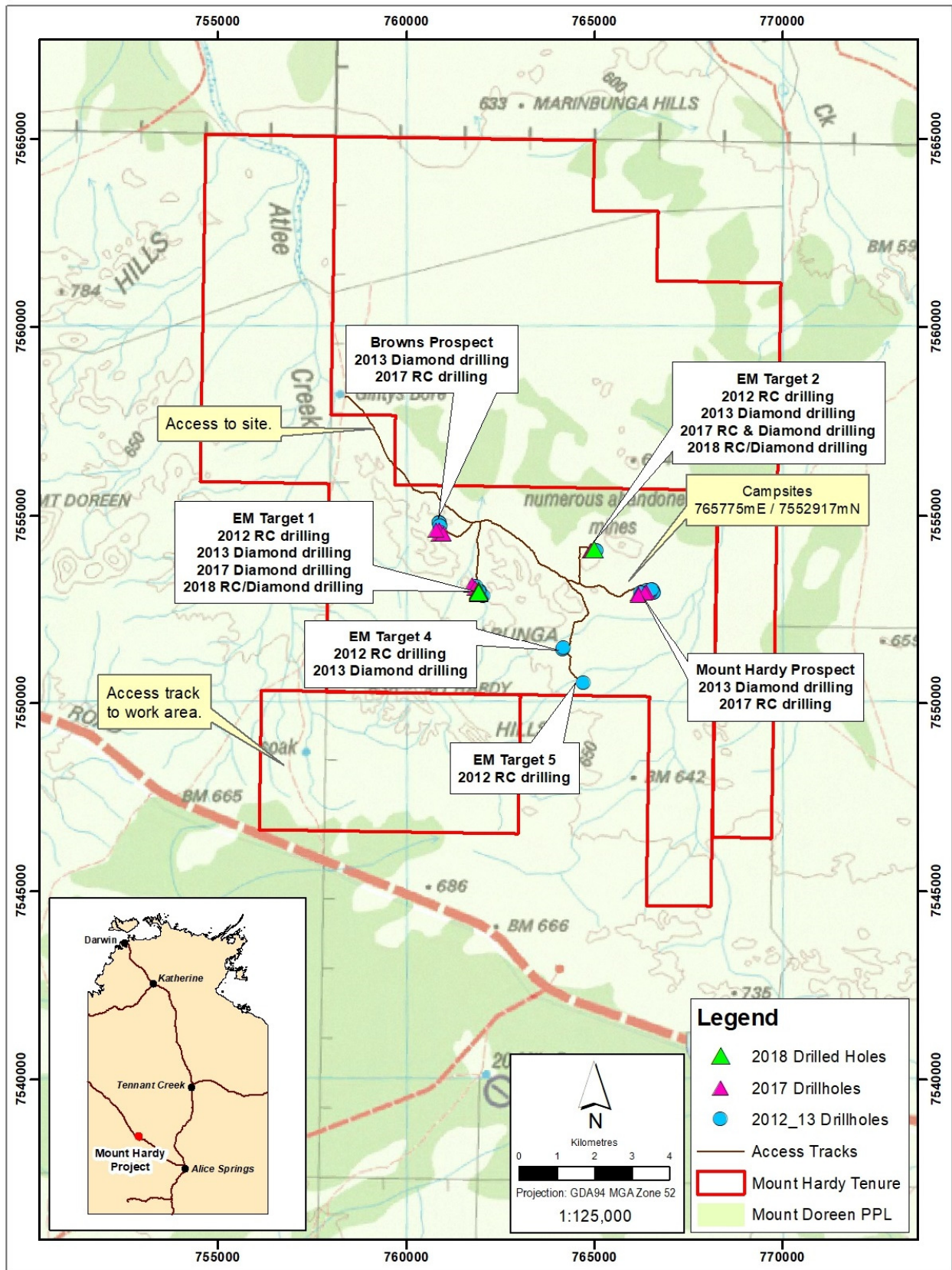


Figure 1: Mount Hardy Project Location and Site Layout.

3.1 PREVIOUS ACTIVITIES AND CURRENT STATUS

3.1.1 Historical Mining/Exploration

The following exploration was carried out on the Mount Doreen mapsheet and around the Mount Hardy area:

- Mount Hardy copper prospects were discovered by W.W. Braiuling in 1935.
- Uranium Development and Prospecting N.L. carried out diamond drilling in the area in 1956.
- Bureau of Mineral Resources (BMR) conducted aeromagnetic, radiometric and gravity surveys in the 1960s.
- Central Pacific Minerals held AP1722 in the Mount Hardy area from 1967-69.
- NTGS assessed the economic feasibility of the Mount Hardy and Clarke copper deposits from 1968 to 1972.
- NTGS and BMR completed 2nd edition mapping of Mount Doreen sheet in the 1990s.
- White Industries conducted exploration on EL 5688 from 1988-90. Rock chip and stream sediment sampling was carried out from Wolfram Hill through to Mount Hardy.
- Bruce and Mules' explored the Silver King area for gold and base metals from 1988-1991.
- MIM/Roebuck Resources Joint Venture targeted magnetic highs in the early 1990s and explored the silver King deposit.
- Yuendumu Mining Company/Posgold explored the western parts of the Mount Doreen area from 1992 to 1996, particularly Terry's Find, other targets were 'Buger' and 'Grasshopper'.
- BMR completed airborne magnetic and radiometric surveys in 1993.
- Aberfoyle Resources were granted EL's 8913 and 8608 in late 1994. They undertook ground magnetics surveys and significant RAB drilling. Exploration failed to locate significantly anomalous gold mineralisation and the tenement were surrendered.
- BHP tested the northern Mount Doreen and southern Mount Theo mapsheets for Cu-Au in the late 1990s, but concluded that no major deposits were likely.
- Tanami Gold NL explored for Tanami-style gold mineralization and Tennant Creek-style copper mineralization in the Mount Doreen area from 2001 to 2005. The main target areas were the Terry's Find, Mount Hardy and Pyramid Hill Prospects. 7 Rock chip samples returned copper assays of 7032 ppm to 217972 ppm within the Mount Hardy project area.
- Deep Yellow conducted exploration for uranium in the Mount Hardy area in 2009 and 2010. No other commodities were investigated.

Mining in the Mount Hardy Copper Field.

There are two published reports on the geology and mineralisation of the field – Kiek, 1941 and Grainger, 1968.

The field was discovered in the 1930's and had some small scale prospecting work done from then through into the late 1960's. Most recent activity was in 2002-3 where some percussion holes were drilled by Tanami Gold. This was the most recent ground disturbing activity and the site of 2 of these holes was visited recently and the company has done a good job rehabilitating them.

There has been no large scale mining carried out and even small pits are less than 5m deep. The largest cutting is the open pit at Mount Hardy Copper Mine, which is around 20m long 3-6m wide and cuts into a hill so is less than 3-5m deep. The largest visible sign of activity is the costean at Mount Hardy – which was dug by hand by workers from Yeendumu in 1967 and is 75m long, 1-2m wide and 0.5-2m deep.

There is no evidence of processing of any ore from any of the old workings – a few tonnes (total from all areas) of "ore" was stockpiled but not taken away to be processed. Water was a problem in the vicinity hindering any on-site processing. As such there are no tailings dams or waste dumps – the largest ground disturbances are piles of ore and rock adjacent to each of the workings. These are rarely more than 3x3m and 1 metre thick/high.

In the areas covered by this MMP and where TNG drilled there are even less signs of previous work. Of the 4 sites EM Target #1 has some old workings to the SE of where work was carried out, with no pit deeper than 1m deep and the largest covers only a 2x2m area. These workings are some 200m SE of the TNG drilled, and was not disturbed by TNG activities. There are 6 drums of hand sorted "ore" near the workings which may have been sitting there for 45 to 60 years.

In June 2012 TNG Limited purchased the exploration licence from Walla Mines Ltd.

TNG 2012 Exploration Activities

A HELITEM survey was flown in July 2012 with the aim of outlining conductors that may represent sulphide accumulations of base and precious metals. The survey was completed by Fugro Airborne Surveys and comprised 930 line kilometres of 200 metre spaced lines.

Five anomalous areas within EL 27892 were field checked and mapping was completed. Niton readings were taken from rock and soil samples and additional grab samples collected for analysis.

A seven hole RC drilling programme was undertaken over the Mount Hardy copper licence EL 27892 in November 2012. The programme targeted four strong EM targets identified from the HELITEM survey completed earlier in the year. Drill hole locations are listed in APPENDIX 2.

TNG 2013 Exploration Activities

A fifteen hole diamond drill program commenced in March 2013 totalling 2824m, with 2183m of diamond core and five RC precollars totalling 642m. The program was completed on 28th April 2013. Drillhole locations are listed in APPENDIX 2.

Drilling testing was conducted at the Mount Hardy and Browns Mine prospects investigating mapped mineralisation and IP anomalism and at EM Targets #1, #2 and #4, targeting DHEM plates.

TNG 2014 Exploration Activities

Exploration across EL 27892 during 2014 included down hole electromagnetic (DHEM) surveys of four diamond drill holes drilled during 2013 and IP surveys at the Browns Prospect.

In April 2014 TNG commenced rehabilitation of drill sites and setting up monitoring stations at three sites. All plastic sample bags, drill sump liners and rubbish was removed from site and disposed of at the Alice Springs rubbish tip.

TNG 2015 Exploration Activities

No on-ground exploration has been undertaken at Mount Hardy during 2015. Some site rehabilitation was carried out in August 2015 though further earthworks were required to complete the process. Additional rehabilitation was completed in October 2015 following the recommendations of the Field Inspection Report completed by officers from DME in September 2015. A Rehabilitation Report addressing the issues from the Field Inspection Report was included in the 2015 MMP.

TNG 2016 Exploration Activities

No on-ground exploration has been undertaken at Mount Hardy during 2016. A site monitoring visit was completed in October 2016. All monitoring sites (6 sites) were visited and photographed and an audit of tracks throughout exploration area was undertaken. A Field Inspection was undertaken by the DPIR in May 2016 and the report was received in December 2016. Several recommendations were made in regards to remediation required and these have been addressed in 2017.

TRM 2017 Exploration Activities

Authorisation 0923-01 was granted under the name of the new licence holder and operator Todd River Metals Pty Ltd in March 2017.

A total of 14 RC and diamond holes for 2,839m were drilled across the Mount Hardy prospect areas in April, May and June 2017. Rehabilitation was completed in October 2017.

TRM 2018 Exploration Activities

Two main phases of drilling have been completed at Mount Hardy during 2018.

Five holes (MHDD0030-0034), and the diamond extension of a sixth hole (MHDDH0021A) were approved for drilling by the DPIR in January 2018 (Table 1). Based on the results an additional six holes (MHDD0035-0040) were approved for drilling at short notice in June 2018. Details of these holes are shown in Table 2.

Minimal clearing was required for the latter programme, 200m of extra track was estimated but only 110m was cleared due to drill pads being adjacent to the current access track. Details of disturbance is included in Tables 3 and 4.

Hole locations and access tracks are shown on Figure 2.

Thirteen additional holes (MHDD0041-0053) were approved for drilling at Mount Hardy in September 2018, all at EM Target #1. Only 12 holes of these holes were drilled and 455m of tracks cleared (Table 5 and 6)

Hole locations and access tracks are shown on Figure 3.

Rehabilitation of all sites drilled during the first half of 2018 (MHDD0030-MHDD0040) has been all but completed except that drillholes have not yet been cut and plugged below ground as access may be required for further drilling or geophysical surveys. Holes have been cased with 6" PVC pipe and 50mm PVC has been inserted to complete DHEM surveys. The gap between the outer and inner casings have been sealed with two part polyurethane foam and end caps placed on the inner casing. There is also minor recontouring to be undertaken at MHDD0030. Assessment and review of the results from these holes will take place over the break in fieldwork and full rehabilitation will be completed early in the next field season if access to holes is not required.

Sites drilled from October to December 2018 have been left clean, tidy and safe though full rehabilitation has not yet been completed. Drillholes have been plugged as above with caps placed on the 50mm PVC and gaps between the inner and outer casing filled with two part polyurethane foam. Samples bags will be removed and sumps filled in early in the 2019 field season.

All drillhole locations are included in APPENDIX 2 and shown on Figure 1. Drillholes and access tracks from the two 2018 programmes at EM1 appear on Figures 2 and 3. Hole locations and disturbance are shown in Tables 1-6. All digital data for drillholes and access tracks is included in APPENDIX 3. Rehabilitation photos are included in APPENDIX 4.

Table 1: Drillhole details, MMP approved January 2018.

Hole_ID	Prospect	Easting	Northing	AHD	Azimuth	Dip	Depth
MHDD0030	EM1	761940	7552962	638	100	-47	245.85
MHDD0031A	EM1	761930	7552913	635	90	-47	261.84
MHDD0032	EM1	761925	7552999	635	95	-62	315.21
MHDD0033	EM2	764994	7554079	636	125	-66	420.10
MHDD0021A	EM1	761923	7552974	636	94	-73	405.2
MHDD0034	EM1	761924	7552913	635	91	-59	252.57

Table 2: Drillhole details, MMP approved June 2018.

Hole_ID	Prospect	Easting	Northing	AHD	Azimuth	Dip	Depth
MHDD0035	EM1	761946	7552867	637	85	-50	228.3
MHDD0036	Not drilled						
MHDD0037	EM1	761956	7552834	636	91	-46	188.8
MHDD0038	EM1	761924	7552977	635	102	-52	315.2
MHDD0039	EM1	761925	7552970	637	108	-60	289.52
MHDD0040	EM1	762064	7552875	648	27	-80	228

Table 3: Disturbance – programme approved January 2018 (rehab in brackets).

Target EM1 – Approved January 2018				
Disturbance	Area	Number	Total (m ²)	Total (ha)
Pads	20m x 15m	2	600	0.06 (0.03)
Sumps	3m x 2m	5	30	0.003 (0.003)
Tracks	65m x 2.5m	NA	162.5	0.016
			TOTAL	792.5 m²
				0.079 Ha (0.033)
Target EM2 – Approved January 2018				
Disturbance	Area	Number	Total (m ²)	Total (Ha)
Pads	20m x 15m	1	300	0.03 (0.03)
Sumps	3m x 2m	1	6	0.0006 (0.0006)
			TOTAL	306 m²
				0.031 Ha (0.031)

Table 4: Disturbance – programme approved June 2018.

Target EM1 – Approved June 2018				
Disturbance	Area	Number	Total (m ²)	Total (Ha)
Pads	20m x 15m	6	1,800	0.18 (0.18)
Sumps	3m x 2m	6	36	0.004 (0.004)
Tracks	110m x 2.5m	NA	275	0.0275
TOTAL			2,111m²	0.212 Ha (0.184)

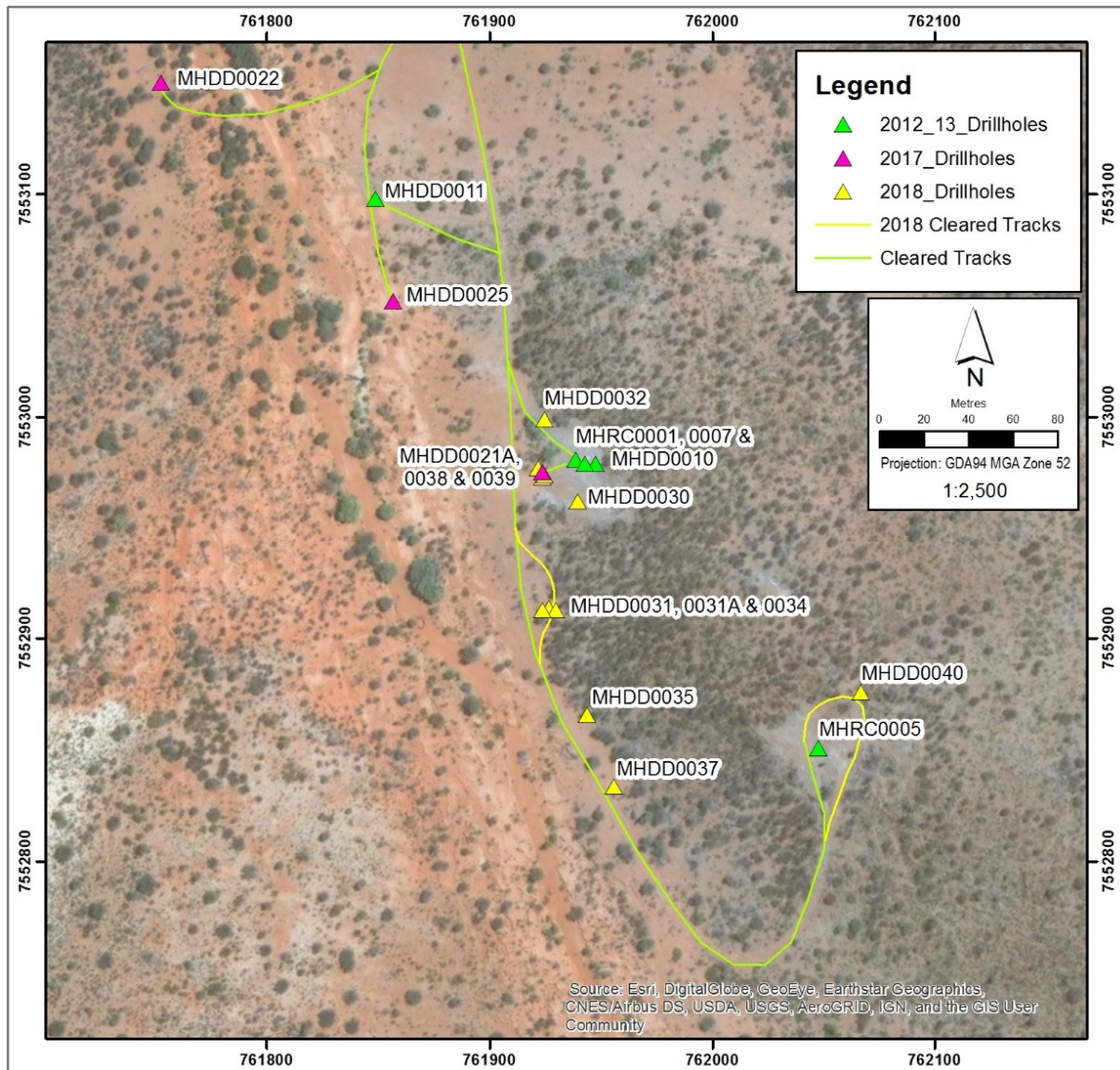


Figure 2: Location of drillholes and cleared track at Target EM1 – Phase 1 drilling (Apr-Jul 2018).

Table 5: Drillhole details, MMP approved September 2018.

Hole_ID	Prospect	Easting	Northing	AHD	Azimuth	Dip	Depth
MHDD0041	EM1	761892	7553038	642	113	-59	398.25
MHDD0042	EM1	761888	7553041	642	111	-77	679.00
MHDD0043	EM1	761919	7553066	642	112	-72	519.51
MHDD0044	EM1	761901	7552988	642	113	-63	361.01
MHDD0045	EM1	761896	7552992	642	112	-72	394.11
MHDD0045W	EM1	761896	7552992	642	112	-72	448.84

MHDD0046	EM1	761906	7552944	642	116	-57	314.16
MHDD0047	EM1	761897	7552986	642	115	-57	350
MHRC0048	EM1	762071	7553092	650	205	-88	188
MHRC0049	EM1	762079	7552982	650	117	-62	138
MHRC0050	EM1	762088	7552934	650	117	-62	92
MHRC0051	EM1	762067	7552946	650	117	-62	136
MHDD0052	EM1	761922	7553061	642	115	-68	450

Table 6: Disturbance – programme approved September 2018.

Target EM1 – Approved September 2018				
Disturbance	Area	Number	Total (m ²)	Total (Ha)
Pads	20m x 15m	12	3,600	0.36
Sumps	3m x 2m	8	48	0.005
Tracks	455m x 2.5m	NA	1,137	0.1137
TOTAL			4,785 m²	0.479 Ha

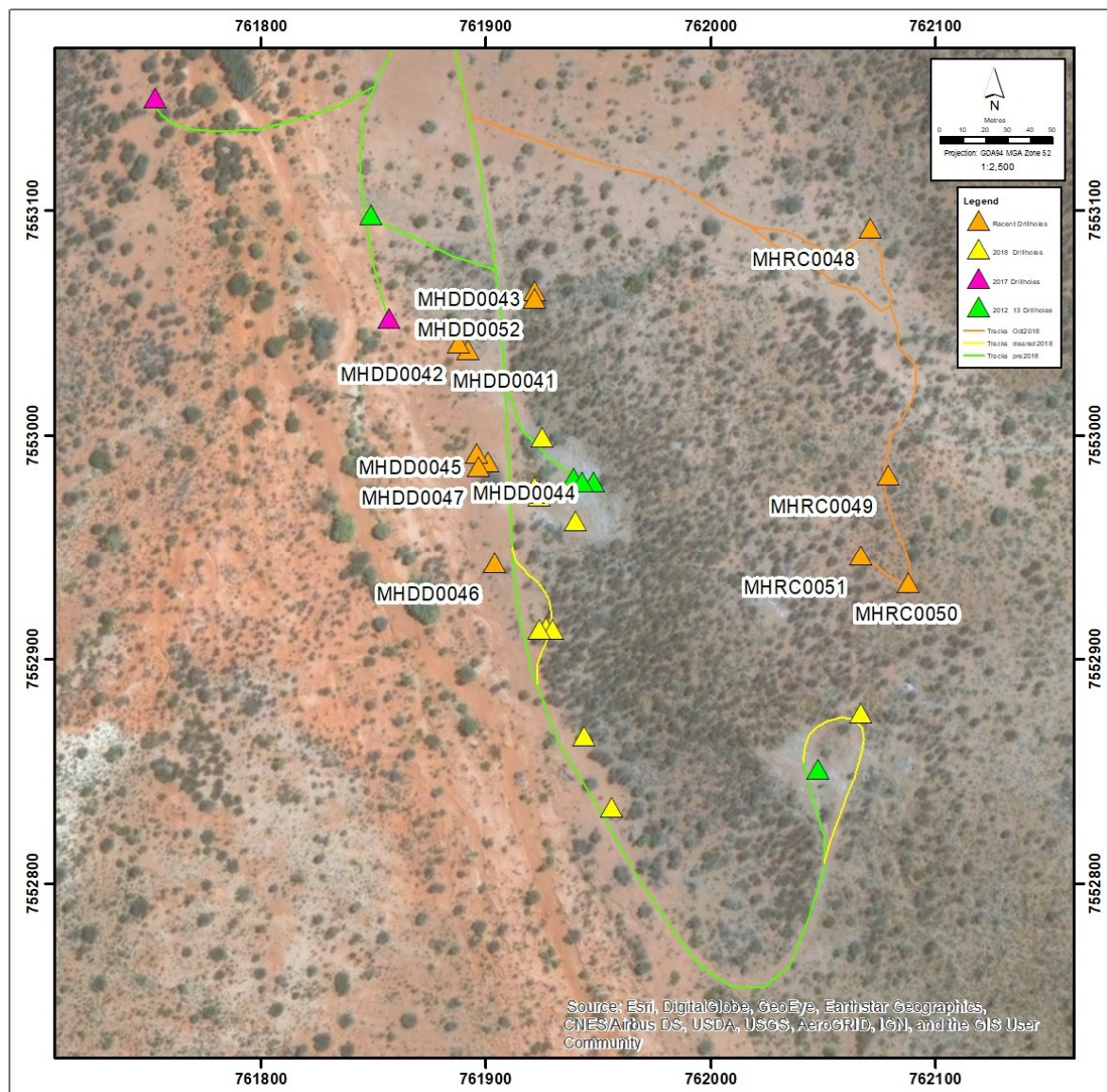


Figure 3: Location of drillholes and cleared track at Target EM1 – Phase 2 drilling (Oct-Dec 2018).

Exploration Activities Completed to 14 December 2018

Mining Interests (i.e. titles)	EL27892	EL28694	EL29219
Number of holes drilled	59	-	-
Maximum depth of holes	679m	-	-
Number of drill pads cleared (L: 20 x W: 15m)	47	-	-
Number of sumps cleared (Length: 3 x Width: 2 x Depth: 1.5m)	35	-	-
Length of line / track cleared (km: XX x W: 2.5 m)	9.11km	-	-
Camp area/s cleared (30m x 30m)	2	-	-
Total area disturbed (hectares)	4.25	-	-
Total area rehabilitated (hectares)	1.40	-	-
Total area yet to be rehabilitated (hectares)	2.85	-	-

3.2 PROPOSED ACTIVITIES IN 2019

Forty one additional holes are planned at Mount Hardy, all at EM Target #1.

Most holes will be drilled with an RC collar and diamond tail, to a depth of up to 800m. Depending on results not all planned holes may be drilled. Up to 11 holes may be drilled RC only.

Drillhole locations are shown in Figure 3 and Table 7 along with the expected disturbance generated from the programme (Table 8). Access tracks have been designed to cause minimal impact to the surroundings. Access to the western side of the watercourse will be on an existing track and all holes have been designed to ensure they are places greater than 25m from the watercourse.

Table 7: Proposed Drillhole Locations

Planned Hole	Easting	Northing	Planned Hole	Easting	Northing
S02	762104	7552972	S29	761882	7552968
S04	762037	7552818	D01	761930	7553160
S05	762094	7553023	D02	761912	7553119
PDH015	762075	7552895	D04	761810	7552952
PDH013	762032	7552873	D05	761866	7553161
S08	762054	7552992	D06	761846	7553123
S09	762038	7552952	D07	761875	7553017
S10	762021	7552912	D08	761780	7553010
S12	761988	7552832	D09	761809	7553232
S13	762046	7553042	D10	761809	7553185
S15	761975	7552883	D12	761775	7553104
S18	761999	7553013	D13	761758	7553064
S19	761967	7552933	D14	761810	7553279
S20	761943	7552850	D16	761728	7553217
S21	761966	7553010	D17	761736	7553167
S22	761989	7553066	D18	761702	7553088
S23	761928	7552880	D19	761698	7553324
S25	761910	7552956	D20	761712	7553271
S26	761932	7553089	D21	761695	7553231
S27	761915	7553048	D22	761678	7553191
S28	761898	7553008			

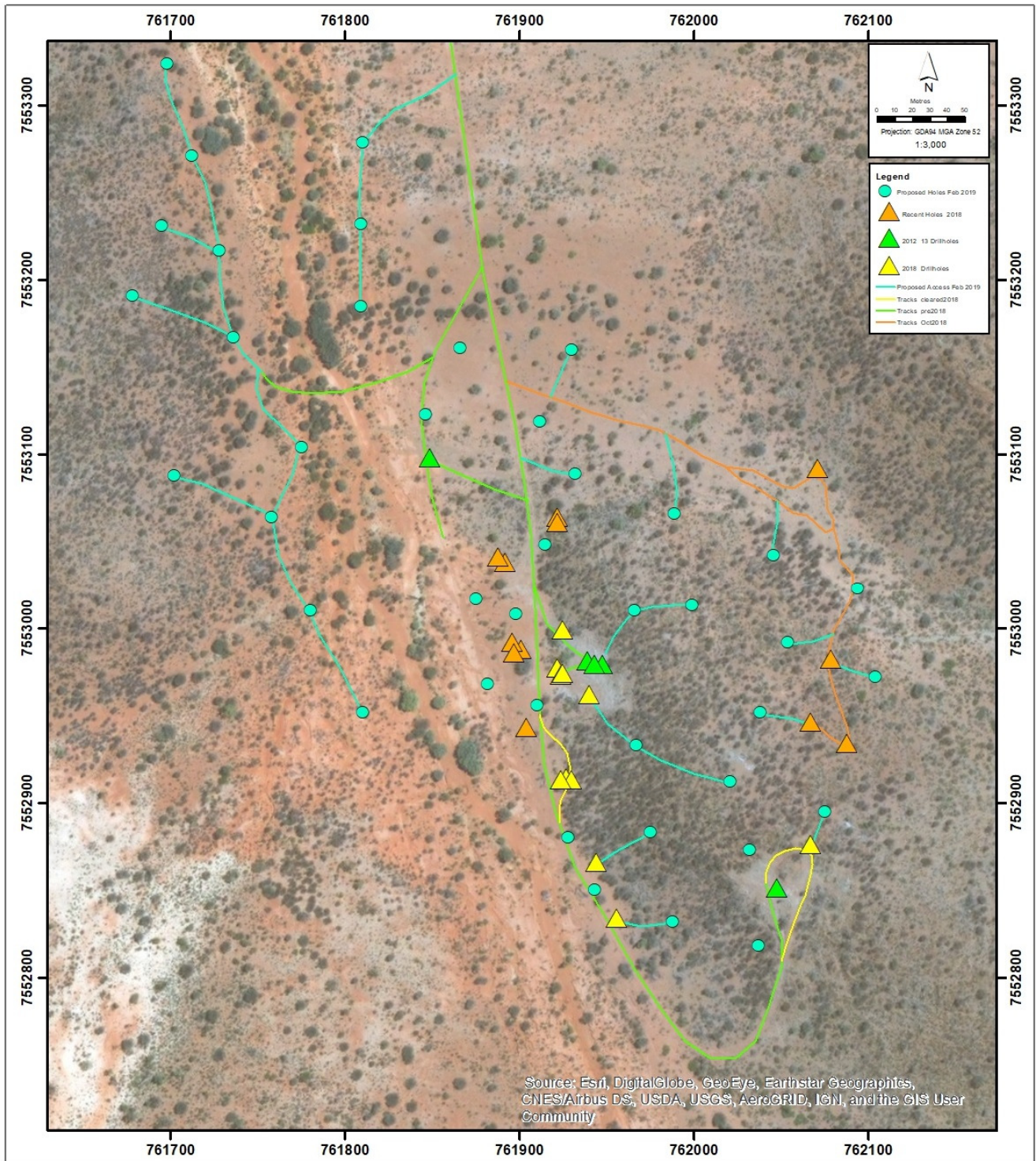


Figure 4: Site of proposed drillholes and access tracks.

Table 8: Disturbance for planned programme.

Target EM1 – Proposed Programme February 2019				
Disturbance	Area	Number	Total (m ²)	Total (Ha)
Pads	20m x 15m	41	12,300	1.23
Sumps	3m x 2m	30	180	0.018
Tracks	1198m x 2.5m	NA	2,995	0.2995
		TOTAL	4,785 m²	1.548 Ha

Mining Interests (i.e. titles)	EL27892	EL28694	EL29219
What time of the year will exploration occur?	Feb – May 2019	-	-
How long is exploration expected to occur?	12 weeks	-	-
Type of drilling (i.e. RAB, RC, Diamond, aircore)	RC/Diamond	-	-
Is drilling likely to encounter radioactive material?	No	-	-
Number of proposed drill holes	(up to) 41	-	-
Maximum depth of holes	800m	-	-
No. of drill pads (Length: 20m x Width: 15 m)	(up to) 41	-	-
Is drilling likely to encounter groundwater? (Y, N, unsure)	Unsure	-	-
Number of sumps (metres)Length: 3 Width: 2 x Depth: 1	30	-	-
Length of line/track clearing (Km: x Width 2.5 m)	1198m	-	-
Camp (Length: 30 x Width: 30 m)	2 (existing)	-	-
Will topsoil be removed for rehabilitation purposes?	Yes	-	-
Disturbance this program on title (ha) if known	1.548	-	-
Previous disturbance yet to be rehabilitated on title (ha) if known	2.85	-	-
Total area disturbed (hectares)	4.398	-	-

4.0 CURRENT PROJECT SITE CONDITIONS

4.1 LOCAL AND REGIONAL GEOLOGY

The rocks of interest to recent investigation are believed to be part of the Reynolds Range Group and the Lander Rock Beds. The latter comprises muscovite-chlorite-quartz schist, biotite-muscoviteandalusite-quartz schist, cordierite-andalusite-K feldspar-biotite-muscovite-quartz granofels and migmatitic cordierite-garnet-sillimanite-biotite gneiss. The precursor lithologies and ages are interpreted to be analogous to the Mt Charles beds and Warramunga Formation targets sequences in the Tanami Block.

Mineralisation over the Mount Hardy areas is associated with the quartz and pegmatite veins. Historical drilling proved that primary sulphides (chalcopyrite and pyrite) occur at depth and form thin stringers and clots in the veins and more rarely, in the country rock. No massive concentrations of primary sulphides have been interested at Mount Hardy.

Above the water table the chalcopyrite has been oxidized to the carbonates malachite and azurite. In the vicinity of the open cut at Mount Hardy the copper carbonates have been proved to persist for at least 50 feet below the present floor level, and to have impregnated the gneisses up to a distance of 15 feet from the veins.

4.2 HYDROLOGY

The Ngadarunga Hills which trend in a northwest direction run through the centre of the exploration licence. Drainage on the eastern side the hills drain into Keridi Creek which heads in a northerly direction and drains into the Tanami Desert approximately 17 kilometres from the project. Drainage on the western side of the Ngadarunga Hills drain into Atlee Creek which runs in a northwest direction and also drains into the Tanami Desert approximately 45 kilometres northwest of the project area.

Ginty's water bore (located at the corner of the access track to site) is the only water source within the authorisation and is used for stock watering. Approval was granted by Mount Doreen to use water from Gintys Bore for previous diamond drilling.

During the 2017 drilling programme, as requested by the Landholder an additional potential waterbore was drilled at 758625mE and 7557957mN (RN19501 – original numbering was RN40191). While water was encountered the flow rate was minimal and not viable as a stock water bore.

During the April 2018 drilling programme an additional bore was drilled along Gap Creek at the Landholders request (RN19682, 761750mE, 7553151mN). The hole has been cased with 6" PVC, has a steel cemented collar and will be a successful stock bore providing good quality water a 1-2 L/s as required. This bore was used as the water source for recent drilling and will continue to be used for drilling at target EM1.

4.3 FLORA AND FAUNA

The project tenement sits within the Burt Plains Bioregion which is dominated by earthy, alluvial soils. The bioregion is broadly characterised by plains of Acacia shrubland, tussock and hammock grassland, and Acacia and Eucalyptus woodlands, NRETAS (2009).

The broad habitat types within the tenement area may include:

- Low open Eucalypt woodland with grass understorey;
- Tall sparse Mulga shrub-land with low sparse shrub-land understorey;
- Spinifex hummock grassland with Acacia tall sparse shrub-land overstorey; and
- Ephemeral creek systems.

The Territory is rich in wildlife. Documentation of the Territory's biodiversity is relatively recent, although Aboriginal Territorians have long held a profound knowledge of their environments. The bird and mammal fauna is now close to comprehensively described, but new species of fish, frogs, reptiles, invertebrates and plants continue to be discovered. Our knowledge of invertebrates is particularly vague.

Animal scats from the Euro (*Marcopus robustus*) and Red Kangaroo have been observed in the exploration area along with sightings of the House Mouse, Long-nosed Dragon (*Amphibolurus longirostris*), Gecko, Zebra finch, Willie-wagtail, White-plumed Honeyeater and Magpie-lark. Feral animals including cats, wild dogs, camels and cattle are known to be present.

4.3.1 Weeds and Introduced Flora

A declared weed is a plant or species of plant which has been identified for control, eradication, or prevention of entry in all or part of the Territory under the Northern Territory Weeds Management Act 2001 (the Act).

A weed may be declared as:

- Class A To be eradicated
- Class B Growth and spread to be controlled
- Class C Not to be introduced to the Territory

All Class A and Class B weeds are also considered to be Class C weeds.

Weeds have the potential to be introduced and spread via vehicle and stock movements and the stripping of topsoil. The locations of significant infestation of weeds and introduced flora species will be marked on a handheld GPS unit, including species present, and an estimate of the density and extent of any infestations and reported to the Weed Management Branch. TRM environmental policies require that exploration is conducted in a manner such that the spread of weeds is minimised driving around affected areas and washing down vehicles leaving areas where weeds have been observed.

Rubber Bush (*Calotropis procera*) has been located along Gap Creek. It is declared a weed (Class B & C) and its presence has been reported. An eradication programme was undertaken in April/May 2017 with limited further work being undertaken during the mid-year drilling programme. The best time to treat rubber bush is October to March and communication with the Landholder has resulted in the request to cut, burn and treat with diesel in order to avoid chemical use. A programme to control the spread and eradicate the population along Gap Creek will be undertaken at the beginning of the 2019 field season.



According to the most recent available information on the NT NRM Infonet mapping tool website there are several other weed species which may be present in the Mount Hardy project area. A brief summary of these are provided in the table below with more details available in APPENDIX 5-1.

Weeds – Mount Hardy Region

Common Name	Scientific Name	Status (NT, Other)
Khaki Weed	<i>Alternanthera pungens</i>	B C
Mediterranean Turnip	<i>Brassica tournefortii</i>	
Rubber Bush	<i>Calotropis procera</i>	B C (S of 16.5 deg S)
Golden Shower	<i>Cassia fistula</i>	
Buffel Grass	<i>Cenchrus ciliaris</i>	
Mossman River Grass	<i>Cenchrus echinatus</i>	B C
Feathertop Rhodes Grass	<i>Chloris virgata</i>	
Camel Melon	<i>Citrullus lanatus</i>	
Gomphrena Weed	<i>Gomphrena celosioides</i>	
Parkinsonia	<i>Parkinsonia aculeata</i>	B C WONS*
Castor Oil Plant	<i>Ricinus communis</i>	B C
Coffee Senna	<i>Senna occidentalis</i>	B C
Athel Pine	<i>Tamarix aphylla</i>	B C WONS

Caltrop	<i>Tribulus terrestris</i>	B C
Sweet Acacia	<i>Vachellia farnesiana</i>	

* WONS – Weeds of National Significance

It should be noted that **NONE** of these species, other than Rubber Bush, have been observed in the current exploration area.

4.3.2 Introduced Fauna – Feral Animals

According to the most recent available information on the NT NRM Infonet mapping tool website a number of feral animals are present within the Mount Hardy region. Feral animals including the house mouse, cats, wild dogs, camels and cattle have been noted. The tables below outline the species identified and more information is included in APPENDIX 5-2.

Feral Animals – Mount Hardy Region

Group	Common Name	Scientific Name	Status (NT, National)*
Birds	Red-tailed Black-cockatoo	<i>Calyptorhynchus banksii samueli</i>	N
Mammals	House Mouse	<i>Mus musculus</i>	P
Mammals	Dingo/Wild Dog	<i>Canis lupus</i>	N
Mammals	Fox	<i>Vulpes vulpes</i>	P
Mammals	Cat	<i>Felis catus</i>	P
Mammals	Rabbit	<i>Oryctolagus cuniculus</i>	P
Mammals	Horse	<i>Equus caballus</i>	P
Mammals	Camel	<i>Camelus dromedarius</i>	P
Mammals	Swamp Buffalo	<i>Bubalus bubalis</i>	P
Mammals	Cattle	<i>Bos taurus</i>	P

* N – Native species with pest potential, P – Prohibited species.

4.3.3 Threatened Species

A number of threatened species are present within the Mount Hardy region according to the most recent available information on the NT NRM Infonet mapping tool website. The table below outlines the species that may be present in the region and more information is included in APPENDIX 5-3. External environmental consultants have suggested that based on the available data and the relatively low impact of the exploration that the threat of any impact on threatened species is low.

Threatened Species – Mount Hardy Region

Group	Common Name	Scientific Name	Status (NT, National)*
Flowering Plants	Dwarf Desert Spike Rush	<i>Eleocharis papillosa</i>	VU, VU
Reptiles	Great Desert Skink	<i>Liopholis kintorei</i>	VU, VU
Birds	Malleefowl	<i>Leipoa ocellata</i>	CR, VU
Birds	Grey Falcon	<i>Falco hypoleucos</i>	VU, -
Birds	Princess Parrot	<i>Polytelis alexandrae</i>	VU, VU
Mammals	Night Parrot	<i>Pezoporus occidentalis</i>	CR, EN
Mammals	Brush-tailed Mulgara	<i>Dasyercus blythi</i>	VU, VU
Mammals	Crest-tailed Mulgara	<i>Dasyercus cristicauda</i>	VU, EN
Mammals	Golden Bandicoot	<i>Isodon auratus</i>	EN, VU
Mammals	Greater Bilby	<i>Macrotis lagotis</i>	VU, VU
Mammals	Common Brushtail Possum	<i>Trichosurus vulpecula vulpecula</i>	EN, -
Mammals	Black-footed Rock-Wallaby	<i>Petrogale lateralis</i>	- , VU
Mammals	Southern Marsupial Mole	<i>Notoryctes typhlops</i>	VU, EN
Mammals	Ghost Bat	<i>Macroderme gigas</i>	- , VU
Mammals	Pale Field-rat	<i>Rattus tunneyi</i>	VU, -

* CR – Critically endangered, EN – Endangered, VU – Vulnerable.

4.4 CURRENT LAND USE

The current land use over the project area is predominantly pastoral activity (Figure 1). The tenements lay entirely within:

- NT Portion 01947, PPL1035 "Mount Doreen Station" - Braitling Nominees Pty Ltd. Matthew Braitling.

4.5 HISTORICAL, ABORIGINAL, HERITAGE SITES

The Aboriginal Areas Protection Authority (AAPA) Abstract of Records show all known Aboriginal and Heritage sites identified in the surrounding area (APPENDIX 6). Work will not take place near or around these sites / exclusion zones, none of these zones fall within areas of current exploration.

A search of maps and databases at the Department of Lands, Planning and the Environment by Dianne Bensley, Senior Heritage Officer confirmed that there are no nominated, proposed or declared heritage places located within the Mount Hardy project.

An online search of the NT Heritage Register and the Australian Heritage Database return no sites of significance with the Mount Hardy Project area.

<http://www.ntlis.nt.gov.au/heritageregister/f?p=103:300:1863315514318707>

<http://www.environment.gov.au/cgi-bin/ahdb/search.pl>

5.0 ENVIRONMENTAL MANAGEMENT SYSTEM / PLAN

TRM is committed to ensuring that environmental responsibility is incorporated as part of their normal business practice. It is the duty of all employees to exercise care in their work to ensure this commitment is achieved.

The procedures outlined in the company's Environmental Management Guidelines document (APPENDIX 7) must be followed by all staff and contractors during the course of our field activities and aim to minimise any general degradation of the surroundings that may result from carelessness or neglect. In general these guidelines express common sense practices that might be described as "good housekeeping".

Access to land for exploration and mining is usually by a lease agreement with the government and other private land users, including pastoralists and aboriginal groups. Individuals therefore have certain obligations on a personal and company basis, to protect the environment.

All work will be conducted in accordance with TRM's Environmental Management Guidelines. Environmental impacts will be minimal. All drill hole collars will be rehabilitated in accordance with DPIR documentation - Construction and Rehabilitation of Exploration Drill Sites. Drill pads will be scarified using a grader, when the sumps have dried they will be back filled and covered with stockpiled topsoil. All sample bags will be removed to TRM's Alice Springs holding yard at the end of exploration programs. Rubbish will be cleaned up and removed immediately after the hole is completed.

Access tracks and grid lines will be located and prepared to provide minimal damage to vegetation and topsoil as per DPIR documentation - Clearing and Rehabilitation of Grid Lines and Tracks Guide.

Destruction or damage of mature trees is strictly forbidden for the duration of TRM's exploration program.

5.1 ENVIRONMENTAL POLICY AND RESPONSIBILITIES

TRM has an Environmental Management Policy under which it operates (APPENDIX 8). All work will be overseen by the company's Exploration Manager who is responsible for all site inductions, site preparations, clean-up and rehabilitation operations (described above). These operations will be implemented to industry best practice standards.

5.2 STATUTORY AND NON-STATUTORY REQUIREMENTS

TRM has obligations to meet the requirements of many components of the Northern Territory legislation, which includes:

- Mining Management Act (and Regulations)
- Mineral Titles Act (and Regulations)
- Aboriginal Land Rights (NT) Act (Com)
- Aboriginal and Torres Strait Islander Heritage Protection Act (Com)
- Bushfires Act (and Regulations)
- Environmental Protection and Biodiversity Conservation Act (Com)
- Heritage Act (and Regulations)
- Northern Territory Aboriginal Sacred Sites Act (and Regulations)
- Soil Conservation and Land Utilisation Act
- Waste Management and Pollution Control Act (and Regulations)
- Water Act (and Regulations)
- Weeds Management Act
- Work Health and Safety (National Uniform Legislation) Act (and Regulations)
- Exploration Licence conditions of grant
- Authorisation conditions

Other reporting to statutory bodies as required or requested.

TRM operates under the Code of Conduct for Mineral Explorers in the Northern Territory of Australia (2002).

All TRM's field programs are provided to relevant Stake Holders before exploration commences for comment and discussion. Other agreements include contractual agreements with drilling, earthworks and other exploration associated companies as required.

5.3 INDUCTION AND TRAINING

All site personnel will be given a formal induction incorporating Occupational Health and Safety (OHS), heritage, cultural and environmental issues and issued with (PPE), hard hats, safety glasses, ear plugs, dust masks and long sleeve work shirts (as required). All personnel must wear steel capped safety boots when on-site. Before drilling commences a drill rig inspection will be carried out by the exploration geologist and drill rig safety inductions will be organised by the driller. Records of all inductions will be kept either at the Alice Springs or Perth office.

Environmental topics will be included in the site induction programme which all site personnel are required to participate in. The induction program stresses industry best practice guidelines as outlined above. All personnel are required to keep the environment as clean as possible and to maintain minimal impact on waterways, land and vegetation. Destruction or damage of mature trees is strictly forbidden during the course of TRM's exploration program.

Specific topics covered in the environmental induction:

- Dust creation on the way to site and on site must be minimized.
- Destruction or damage of mature trees is strictly forbidden
- Each drill site should show only wheel marks and a hole collar at the completion of the drill hole.
- All rubbish will be collect and brought back to the Alice Springs rubbish tip for proper disposal.
- All oil spills must be reported and contaminated soil must be collected in plastic bags and disposed of in Alice Springs.
- Water flow from drilling must be managed so that the outflow is contained in the nearby sump.
- Driving on site should utilize prepared and existing tracks and the disturbance of vegetation must be minimized.
- All contact with animals is to be avoided.
- All vehicles must be washed before entering and exiting site to minimised transporting seeds. All vehicles will be fitted with mesh to eliminate seed collecting in radiators.
- Field staff will be trained in identifying weeds using The Northern Territory Weed Identification Tool for the Burt Plains Region.

When undertaking fieldwork at Mount Hardy all TRM vehicles carry copies of the Guidelines for management of Pest Animals and Weeds in the Mount Hardy region.

5.4 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The main environmental aspects that come into force when conducting exploration (including drilling and associated clearing, vehicle movement and fuel storage) are listed in the table below. All aspects of exploration involve some risk of damage to the environment, though with the application of a number of critical controls the residual risk is significantly reduced.

An initial risk rating is applied based on each specific task without the application of any critical controls. A brief discussion of the various risks identified is given below and details of each aspect and impact along with the residual risk after application of the critical controls and the mitigation measures are provided in the table on the following page. A number of the preventative measures and critical controls listed in the table below are a result of sensible, respectful and considerate behavior along with best practice industry guidelines.

These include the careful positioning and use of tracks, campsites and drillsites and the minimization of vehicle movement on site in order to minimize the impact on flora and fauna and changes in surface water flow across

the site. Applying these measures results in a significant decrease in the risk of negative environmental impact with no additional cost or disruption to company exploration programmes.

Additional preventative measures involve the care and maintenance of vehicles and machinery to ensure good working order which will not only increase the safety and efficiency of exploration but also result in less likelihood of any contamination of the environment due to hydrocarbon leaks and spills or noise and dust pollution. Drill rig inspections are carried out and signed off by the senior geologist on site prior to drilling taking place. Drill rigs are required to be fitted with dust and noise suppressors to limit dust and noise pollution. Vehicles are also checked daily for seeds and weeds, which are removed onsite, and to ensure they are in good working order.

Vehicles and campsites are fitted out with the required equipment such that in the event of contamination from a hydrocarbon spill or from drill slurry the damage can be minimized before remediation measures are implemented. This includes spill kits, drip trays and bunded areas within a campsite for storage of large amounts of fuel.

Risk of damage to cultural and heritage sites during exploration could be significant and as such it is important that checks of the NT Heritage Register, the Australian Heritage Database and AAPA records are carried out prior to exploration being undertaken in the area.

Aspect	Impact	Risk Rating	Preventative measures (Critical Controls)	Mitigation measures
Clearing of tracks / camps / drill pads & sumps.	Damage and loss of vegetation/flora and habitat for native fauna.	High	<p>All site works / clearing will be located and prepared to provide minimal damage to vegetation. Minimize movement of fallen vegetation. Destruction or damage to mature trees is strictly forbidden.</p> <p>Use existing tracks where possible. New tracks and site works should be of minimal width and size required to complete the programme.</p> <p>Keep vehicle movement into, out of and around the site to a minimum to avoid unnecessary vegetation and habitat destruction.</p> <p>Take site photos prior to clearing and during rehabilitation restore the area as best can be to pre-cleared topography.</p>	<p>Rehabilitate all site works as quickly as possible.</p> <p>Monitor sites annually.</p>
	Erosion and redirection of surface water.	High	<p>All site works / clearing will be located and prepared to provide minimal damage to existing waterways or changes in surface water flow directions and patterns.</p> <p>Use existing tracks where possible. New tracks and site works, minimal width and size.</p> <p>Keep vehicle movement into, out of and around the site to a minimum to avoid creating wheel ruts which will result in pooling.</p> <p>Take site photos prior to clearing and during rehabilitation restore the area as best can be to pre-cleared topography.</p>	<p>Take site photos prior to clearing taking note of regions of water flow and any pooling.</p> <p>During rehabilitation restore the area as best can be to pre-cleared topography.</p> <p>Monitor sites annually for erosion and changed water flow patterns.</p>
	Pollution from dust and noise.	Medium to high	<p>Ensure water trucks are on hand during clearing to dampen the soil if necessary to prevent excessive dust production.</p> <p>Do not conduct clearing on windy days.</p>	<p>If necessary use water truck to spray excessive dust from vegetation – post clearing and post rehabilitation.</p>

			<p>Keep vehicle movement into, out of and around the site to a minimum to ensure dust and noise pollution are maintained to minimum levels.</p> <p>Ensure vehicles are well maintained and regularly serviced in order to prevent unnecessary noise pollution on site.</p>	
	Introduction of invasive weed species by machinery.	Medium	<p>Keep vehicle movement into, out of and around the site to a minimum to avoid potential spread of weeds.</p> <p>Washdown vehicles and boots (at Ginty's Bore) prior to them entering the drill sites.</p> <p>Check vehicles and machinery daily for weeds and seeds.</p>	<p>Monitor rehabilitated sites annually for weed growth and take note of any species that make occur at washdown station.</p> <p>Take appropriate action, in consultation with Station Owners, if weed growth is evident.</p>
	Damage to cultural and heritage sites.	High	<p>Contact relevant authorities for notification of significant sites to ensure they are avoided.</p> <p>Should anything that may indicate a significant site be found in already cleared areas cease work and notify authorities immediately to prevent additional damage to the area.</p>	<p>No work should be undertaken in exclusion zones and care should be taken in restricted work areas.</p> <p>Should anything that may indicate a significant site be found in already cleared areas cease work and notify authorities immediately to reduce the severity of damage to a site.</p>
Drilling	Contamination to soil, surface and ground water from hydrocarbon spills and drill slurry.	Medium to High	<p>All equipment checked daily and signed off as being in good working order prior to use onsite. Machinery should be maintained and serviced regularly in order to work quickly, efficiently and safely.</p> <p>Use trays to place under vehicles and machinery in areas of potential leaks.</p> <p>Excessive drill slurry and ground water captured in lined sump to avoid contamination of the surrounding area or the formation of gullies and puddles as a results of groundwater flow.</p>	<p>All TRM and drillers vehicles to carry spill kits.</p> <p>Isolate the source.</p> <p>Contain the spill.</p> <p>Add litter if required.</p> <p>Remove contaminated soil as quickly as possible and place in plastic bags.</p> <p>Replace with stockpiled topsoil.</p> <p>Take contaminated material offsite for disposal.</p> <p>In case of spill monitor site regularly and take necessary measures to ensure vegetation regrowth and minimal long-term effect on</p>

				surroundings. Reseeding may be required if vegetation growth not apparent within 3 years.
	Pollution from dust and noise.	Very High	Drilling rigs and support vehicles must have dust and noise suppressors. All equipment checked daily and signed off as being in good working order prior to use onsite. Machinery should be maintained and serviced regularly in order to work quickly, efficiently and safely. Stop work if excessive dust or very windy conditions.	If necessary use water truck to use during drilling and to spray excessive dust from nearby vegetation – post drilling and post rehabilitation.
	Danger to fauna from open drill holes, excessive drill cuttings and drill sumps.	Very High	Spread or tip excessive drill cutting back down drill hole and cap drill collar immediately after hole has been completed to avoid open drill holes. Clean up around drill collar and cap as soon drill rig leaves the drill pad. Remove the sump liner as soon as the sump has dried out. Fill in sump and replace topsoil.	Ensure there is access available out of sumps (ie tree branches) should fauna fall in the sump prior to it drying out. Monitor drillsites annually.
	Damage to cultural and heritage sites.	High	Contact relevant authorities for notification of significant sites to ensure they are avoided. Should anything that may indicate a significant site be found in already cleared areas cease work and notify authorities immediately to prevent additional damage to the area.	No work should be undertaken in exclusion zones and care should be taken in restricted work areas. Should anything that may indicate a significant site be found in already cleared areas cease work and notify authorities immediately to reduce the severity of damage to a site.
Campsites	Contamination to soil, surface and ground water from hydrocarbon spills and generated waste.	Medium	All equipment checked daily and signed off as being in good working order prior to use onsite. Machinery should be maintained and serviced regularly in order to work quickly, efficiently and safely. Use trays to place under vehicles and machinery in areas of potential leaks. Place all rubbish in covered skip bins.	All TRM and drillers vehicles to carry spill kits. Isolate the source. Contain the spill. Add litter if required. Remove contaminated soil as quickly as possible and place in plastic bags.

			<p>Dispose sewerage into eco pit.</p> <p>Remove all rubbish and waste to the Alice Springs rubbish tip.</p>	<p>Replace with stockpiled topsoil.</p> <p>Take contaminated material offsite for disposal.</p> <p>In case of spill monitor site regularly and take necessary measures to ensure vegetation regrowth and minimal long-term effect on surroundings. Reseeding may be required if vegetation growth not apparent within 3 years.</p> <p>In respect to a sewerage spill apply lime if required for odour, disease control and waste breakdown and follow points above.</p>
	<p>Danger to flora and fauna from contact with personnel and campsite infrastructure.</p>	<p>Medium to High</p>	<p>Induct field staff in the care and wellbeing of native animals.</p> <p>Avoid contact with native birds and animals.</p> <p>Ensure food is left well secured and place all rubbish in covered skip bins.</p> <p>Dispose sewerage into eco pit.</p> <p>Remove all rubbish and waste to the Alice Springs rubbish tip.</p>	<p>During rehabilitation restore the area as best can be to pre-cleared condition.</p> <p>Monitor site annually.</p>
<p>Fuel Storage</p>	<p>Contamination of soil, surface and ground water from hydrocarbon leaks or spills.</p>	<p>High</p>	<p>Train and induct field staff in the method of using bulk fuel and emergency shutdown procedures.</p> <p>All bulk fuels and oils will be place in bunded areas and monitored daily. The bund will have a heavy duty plastic liner to stop hydrocarbon spillage contaminating soil and ground water.</p> <p>Only hand held filling nozzles will be use and emergency stop / isolation buttons will be fitted.</p> <p>All small drums up to 20 litres will be place in heavy duty PVC trays.</p> <p>Spill kits, fire extinguishers and filling procedures will be placed near the bunds / filling station.</p>	<p>All TRM and drillers vehicles to carry spill kits.</p> <p>Isolate the source.</p> <p>Contain the spill.</p> <p>Add litter if required.</p> <p>Remove contaminated soil as quickly as possible and place in plastic bags.</p> <p>Replace with stockpiled topsoil.</p> <p>Take contaminated material offsite for disposal.</p> <p>In case of spill monitor site regularly and take necessary measures to ensure vegetation regrowth and minimal long-term effect on surroundings. Reseeding may be required if vegetation growth not apparent within 3 years.</p>

<p>Sampling</p>	<p>Pollution from sample material and sample bags.</p>	<p>High</p>	<p>Drill samples will be collected in plastic bags and will remain on-site for up to 6 months.</p> <p>Remove all plastic sample bags before they start to deteriorate.</p> <p>Sample bags to be placed in naturally clear areas rather than vegetated sites.</p> <p>Once the samples are no longer required the sample will be tipped into a pit and covered with stored topsoil and vegetation.</p> <p>All plastic sample bags will be removed from site and disposed of at the Alice Springs rubbish tip.</p>	<p>If bags begin to break down remove samples and contaminated soil as quickly as possible and place in new plastic bags and remove from site.</p> <p>Monitor site annually.</p>
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Note: It is a requirement to seal aquifers that are intersected during drilling operations and major aquifers will be sealed to prevent inter-aquifer contamination as per the guidelines set out in AA7-029 Construction and Rehabilitation of Exploration Drill Sites. Drilling will be abandoned if necessary to prevent inter-aquifer contamination.

Any water strikes encountered during drilling will be reported in future MMP's and recorded as part of the drillhole logging procedure.

5.5 ENVIRONMENTAL AUDITS, INSPECTIONS AND MONITORING

This section describes the framework and accountabilities for verifying TRM environmental performance. All environmental audits should be systematic and structured, using an established protocol.

5.5.1 Environmental Audits

Procedure

Conduct systems audits to verify whether the environmental management procedures meet the requirements of:

- TRM Environmental Policy
- Australian Minerals Industry (AMI) Code for Environmental Management
- Action Items from previous audit reports
- TRM environmental objectives

Audit process

The audit process will generally include the following steps:

- Establish and agree on timing of the audit.
- Contact audit participants.
- Develop a checklist of items to be reviewed.
- Plan the audit.
- Conduct opening meeting with audit participants.
- Conduct audit.
- Collate and present audit observations
- Prepare and issue audit report.

Audit Schedules

Internal Audits

Internal initiated audits shall be undertaken on an annual basis while exploration activities are in place. Not all aspects of the environmental management procedures need verification each year. The target is that over a two year period all procedures will be audited at least once.

An internal environmental audit focussing on identifying areas of erosion risk and rehabilitation regrowth progress on drill sites and access tracks was undertaken in October 2016 along with site monitoring inspections. Revegetation is taking place naturally.

An audit and treatment programme of the rubberbush population from Browns through to EM Target 1 will be undertaken once drilling has been completed. Site monitoring will also be completed at this time. This will be reported on in the next MMP submission.

External Audits

The Department of Primary Industry and Resources conducts site inspections on exploration projects at regular intervals. No further external parties are required to undertake audits within the Mount Hardy project at this stage due to the limited disturbance and proposed exploration. Once a report is received from the DPIR all recommendations and requirements are addressed as soon as possible and reported in the next MMP.

The most recent external audit was carried out by the DPIR on 8 November 2018, during the recent drilling programme, but the subsequent report has not yet been received. Verbal feedback was positive with minimal follow-up required. Any requirements received in the field inspection report will be dealt with early in the 2019 field season.

Audit Findings

All audit findings will be distributed to the Managing Director and once reviewed will be distributed to employees responsible for actioning any of the audit recommendations prior to the end of the field season. These findings will also be reported in the subsequent MMP, usually appended as a Rehabilitation Report.

5.5.2 Site Monitoring

TRM will ensure that any site monitoring will be managed so as to reduce any adverse environmental impact.

The purpose of this Environmental Procedure is to ensure that TRM exploration sites are monitored to accurately measure the impact our activities have on the environment. The monitoring process also provides a guide to how successful or unsuccessful rehabilitation programs have been. Photographic evidence is used in the monitoring and is included in any Environmental Monitoring Reports.

This section covers the process of site monitoring of areas of environmental impact over TRM tenements. The monitoring involves establishing monitoring sites and taking “before and after” photographs. The photographs provide a record of the company’s environmental impact and a measure of rehabilitation progress. Areas covered may include:

- *Due diligence* involves the locating and recording of environmental degradation existing on a tenement or access tracks to that tenement prior to disturbance by TRM;
- *Existing and new access tracks* must be monitored to determine the amount of impact that TRM have on the tracks for the duration of the program. The nature of the ground and how often ground condition changes will assist in determining the number of monitoring stations. Trouble spots such as bulldust areas and creek crossings are of a high monitoring priority. Photographs should be taken during your first pass of the area and a record kept of the condition in prior to TRM use.
- *Archaeological/heritage sites*: Take before and after shots of archaeological / heritage sites prior to any exploration activity that may endanger these sites. Monitor the sites, record any adverse impacts and enter into the annual environmental monitoring report.
- *Rare or endangered flora and fauna sites*: Take before and after shots of rare or endangered flora and fauna sites prior to any exploration activity that may endanger these sites. Monitor the sites, record any adverse impacts and enter into the annual environmental monitoring report.
- *Camp sites*: Take before and after shots of campsites in the camp area.
- *Hydrocarbon or hazardous substance storage facility (fuel dumps)*: Take before and after shots of fuel dumps and hazardous substance storage areas.
- *Sample sites*: Set up characteristic monitoring stations that represent the impact areas. Areas, which have the potential to become environmentally degraded are to be included in monitoring.
- *Grid lines*: If the gridding is of low environmental significance then one monitoring site is adequate to show the low environmental impact of the work. If the gridding is of high impact significance, then a representative number of monitoring stations must be set up. The size of the grid and the nature of the ground will determine the minimum number of monitoring stations. The monitoring program must be designed so that all ground types affected are represented.
- *Drill pads*: For drilling set up a representative number of monitoring stations. The recommended minimum number of monitoring stations is 25% of all disturbed sites. Extra monitoring stations will be set up for sites that could potentially become an environmental issue.

Drill site and Access Track Monitoring Stations

Monitoring Stations have been set up six sites within the project area. Before and after photographs will be taken at each monitoring station on an annual basis and submitted with each MMP. Most recent monitoring station photographs were taken in October 2017 and included in the following MMP.

Camp sites are located in cleared areas large enough to accommodate a caravan and support vehicles. All waste is removed from site and disposed of at the Alice Springs waste disposal facility. Before and after photographs will be taken at the campsite monitoring station annually and submitted with each MMP. Recent photographs of the campsite taken during the mid-year drilling programme are included in APPENDIX 4.

Site monitoring will be undertaken in conjunction with the completion of rehabilitation from the 2018 programme and clearing required for the 2019 programme and reported on in the next MMP. It is likely that Stations 2 and 3, and the tracks to these sites will be fully rehabilitated and removed from the monitoring schedule. Additional monitoring sites (5-10 sites) will be added at EM Target 1 and will include drillsites and access tracks.

Mount Hardy Project - Environmental Monitoring Stations				
Station	Easting	Northing	Tenement	Description
1	760891	7554560	27892	Browns IP Site – DD hole site
2	764143	7551374	27892	EM Target 4 – RC and DD hole site
3	764692	7550529	27892	EM Target 5 – RC hole site
4	760880	7554706	27892	Browns Prospect – Hillside site
5	761948	7552979	27892	EM Target 1 – Hillside site
6	765050	7554050	27892	EM Target 2
7	765755	7552917	27892	Campsite

5.6 ENVIRONMENTAL PERFORMANCE

5.6.1 Objectives and Targets

Principal closure objectives:

The principal closure objective at all exploration sites is the restoration of all areas of ground disturbance back to their pre-disturbance condition at completion of field activities. Site monitoring will be routinely undertaken both as an environmental record and gauge of rehabilitation effectiveness.

TRM will complete planned exploration programs at the Mount Hardy Project within the confines of relevant statutory Acts and company procedures leaving a negligible residual land, fauna and flora impact following rehabilitation activities.

The completion criteria listed below relate specifically to the site disturbance brought about by recent exploration and take into account the current site conditions.

Description	Completion Criteria	Target and Date	Comments
Drill sites to be left clean and tidy	All rubbish removed including sump liners so site is ready for rehabilitation.	Rubbish removed on completion of drilling. Sump liner removed BY completion of programme.	Drill site should be maintained whilst drilling is being undertaken. Left clean and tidy on completion of programme so site is ready for rehabilitation.
Camp Site left clean and tidy	All rubbish and campsite infrastructure removed.	On completion on drill programme.	Site should be maintained during the drill programme. Left clean and tidy on completion of programme so site is ready for rehabilitation.
Regrowth of vegetation on drill sites	For drill sites to be returned to pre-disturbance condition based on surrounding vegetation conditions.	Revegetation of 2017 drillsites by May 2020. Revegetation of 2018 drillsites by May 2021	Site revegetation should increase each year and will be monitored accordingly with photographs provided. If sites are evident with no or severely limited growth after 3 years (this will take into account years with limited rainfall) reseedling with local species will be undertaken.
Regrowth of vegetation on camp site	For drill sites to be returned to pre-disturbance condition based on surrounding vegetation conditions.	Complete revegetation by May 2021.	Site revegetation should increase each year and will be monitored accordingly with photographs provided. If sites are evident with no or severely limited growth after 3 years (this will take into account years

			with limited rainfall) reseeded with local species will be undertaken.
Regrowth of vegetation on access tracks	For access tracks to be returned to pre-disturbance condition based on surrounding vegetation conditions.	Complete revegetation and rehabilitation by May 2021.	This timeframe will increase should remediation measures be required (See below). Site revegetation should increase each year and will be monitored accordingly with photographs provided.
Erosion of tracks	Minimise erosion along access tracks	Nil erosion along access tracks. Checked and remediated annually.	Assess annually. Remediation will be undertaken if erosion is taking place and surface water runoff is causing gullies to form along tracks.

Persons responsible for achieving objectives:

Mr Kim Grey (Exploration Manager)

The overall objectives for TRM exploration sites are as follows:

- To have minimal, preferably zero impact on the environment and minimise pollution.
- To continue rehabilitation and monitoring after exploration activities.
- Maintain a healthy and safe working environment.
- Comply with legal and other requirements and to continue improvement as directed by environmental audits and the Department of Primary Industry and Resources, Mining Compliance division.
- Advance TRM's staff knowledge-awareness of Indigenous cultural and heritage values through structured programs.
- To protect sacred or significant sites as indicated by Traditional Owners or AAPA Clearance Certificates.

5.6.2 Performance Reporting

Completion of rehabilitation of the 2012/13 drillsites, and campsite was carried out in October 2015. A number of areas along the Ginty's Bore access track were remediated where water erosion was evident. Hillsides were recontoured at Browns and EM target #1 and topsoil and vegetation was respread across drillsites at EM Target #2, #4, #5 and the Mount Hardy Prospect.

This was the most significant phase of rehabilitation undertaken at the Mount Hardy project and the success in reaching objectives and targets will be measured in relation to the site conditions following this rehabilitation. Six monitoring sites have been set up across the project area to assess rehabilitation going forward. A number of these sites are on hillsides and erosion is a potential issue. Access tracks will be inspected each field season with remediation completed as required.

A field inspection was carried out by the DPIR (then DME) on 22 June 2016. The report from this inspection was received on 9 December 2016. Many of the requirements outlined in the field inspection report were addressed during a site monitoring visit in October 2016, which was reported on in the 2016 MMP.

All DPIR recommendations and requirements, along with the completed rehabilitation information on the 2017 drilling programme were addressed in a Rehabilitation Report submitted to the DPIR on 24 October 2017.

A Field inspection was completed by the DPIR on 8 November 2018 but the report has not yet been received. A rehabilitation report will be submitted in response to any requirements outlined by the DPIR.

Rehabilitation of all sites drilled during the first half of 2018 (MHDD0030-MHDD0040) has all but been completed, except that drillholes have not yet been cut and plugged below ground. Holes have been cased with 6" PVC pipe and 50mm PVC has been inserted to complete DHEM surveys. The gap between the outer and inner casings have been sealed with two part polyurethane foam and end caps placed on the inner 50mm casing. There is also minor recontouring to be undertaken at MHDD0030. Full rehabilitation will be completed early in the next field season if further access to holes is not required.

Sites drilled from October to December 2018 have been left clean, tidy and safe though full rehabilitation has not yet been completed. Drillholes have been plugged as above. Samples bags will be removed and sumps filled in early in the 2019 field season.

5.7 ENVIRONMENTAL EMERGENCY PROCEDURES AND INCIDENT REPORTING

Environmental incidents and emergencies are defined as, sudden-onset disasters or unplanned events resulting from natural, technological or human-induced factors, or a combination of these, that cause or threaten to cause severe environmental damage.

Most environmental incidents and emergencies involve the release of toxic and hazardous substances into the environment.

TRM and its controlled entities are committed to applying best practice environmental procedures at all levels. The procedures described below give an outline as to how to deal with the most likely occurring environmental emergencies along with less serious events. Serious incidents are more likely to happen during a significant exploration drilling programme when drill rigs and support vehicles are on site. Less serious incidents, such as a leakage from a dripping fuel tank etc are still possible during sampling and rehabilitation programmes as have recently been undertaken within the project area.

These procedures are not meant to be exhaustive and when dealing with the environment, local conditions should be reviewed and accounted for when making an action plan to deal with any form of pollution or environmental risk.

TRM is committed to reporting environmental incidents in accordance with Section 29 of the Mining Management Act (see section 5.7.2).

5.7.1 Spill Containment Procedure

Matter is present in the natural environment in three forms – solids, liquid and gas. Spillage is the event where by substances that do not occur in the local environment are unintentionally released into that area in any of these forms.

Containment of spillage of liquids and fluid/solid mixtures is probably the most difficult task to manage and the most common environmental incident. This is because the fluid can spread out more easily than a solid.

Hydrocarbons

Hydrocarbons come in the form of petrol and diesel fuel, oils, solvents, grease etc. Hydrocarbons readily impregnate into soils and are useless once contaminated. The following guidelines will be used for the containment of hydrocarbon spillage such as fuels, oils, solvents, grease etc:

- Isolate the source of the spill, report to your supervisor.
- Contain the spill with bunds.
- Add litter if soakage rate is slow.
- Dig up the contaminated area and seal in plastic bags, remove from site and dispose of in appropriate facility in Alice Springs.
- Rehabilitate the area under guidance of your supervisor.

Drill Slurry

Slurry release from the drilling plant should have minimal impact as the design is such that a sump will collect these flows or they will be captured within tanks if sumps are not possible. The drill slurry consists of water, added bio-degradable drill mud and drill core cuttings. The slurry is usually allowed to settle and is then recycled and/or released. The sump if used will be rehabilitated at the end of the project.

The ultimate incident involving slurry will be whereby the bund or sump is exceeded due to the leak going unnoticed for an extended period of time. The drill slurry will not contain any material that will have an adverse impact on the environment however, whenever slurry is released from the drill plant area, or the plant bund capacity is exceeded, the following procedures must be followed:

- Attempt to isolate the leak.
- Shut down the drill plant.
- Report to your supervisor. If the slurry leak exceeds the outer controls (plant drainage sump, pipe bund) then the following additional actions items are required:

- Bund the area to stop the spill spreading.
- Dig up the contaminated area and seal in plastic bags, remove from site and dispose of in appropriate facility in Alice Springs.
- Rehabilitate the area under guidance of your supervisor.

5.7.2 Incident Reporting

All environmental incidents will be recorded on a TRM Accident/Incident Report Form (APPENDIX 9) and submitted annually with the MMP. All environment incidents will also be reported to the Mining Compliance division within the Department of Primary Industry and Resources on the Notification of an environmental incident form as per section 29 of the *Mining Management Act*.

This section describes TRM's guidelines and accountabilities for all environmental related communication and reporting. Local communities unless otherwise stated generally refer to pastoralists, indigenous groups and their representatives.

The objectives of communicating environmental issues include:

- Provides access to information from local sources for TRM's employees,
- Ensures that employees are aware of, and understand, their accountabilities for environmental management,
- Facilitates internal TRM reporting,
- Enables regulatory reporting,
- Encouraging employee involvement in continuously improving environmental systems and procedures,
- Providing information on TRM's environmental performance to the broader community,
- Addresses environmental concerns of local communities.

TRM inducts its personnel to report all incidents and accidents immediately upon notice to the Exploration Manager or his delegate. A TRM Accident/Incident Report Form is filled out and sent to the Managing Director along with a Notification of an environmental incident form which is forwarded directly to the DPIR Mining Compliance Division.

New employees are briefed on TRM's environmental systems and procedures during their induction programme. The Exploration Manager will be accountable for ensuring the appropriate induction takes place.

6.0 EXPLORATION REHABILITATION

Site Rehabilitation

- Sewerage: sewerage pit backfilled with stockpiled material. Topsoil spread over backfilled pit then covered with cuttings produced from slashing the native grass and spinifex.
- Rubbish: all removed from site for disposal in an appropriate waste disposal facility.
- Site Rehabilitation: All drill holes will be plugged in accordance with DPIR documentation, then drill holes, drill pads and sumps will be covered with topsoil.
- Access tracks will be rehabilitated by using a small dozer and where necessary a mini track mounted excavator, subject to Landholder requests. Tracks, drill pads and sumps will be deep ripped and windrow topsoil respread at the completion of the program or during closure.
- All drillhole collars drilled capped at the completion of the drill hole and all rubbish removed. Any spillage of solutions is cleaned up immediately and disposed of as per spill containment procedures.

The table below describes the rehabilitation methods required for the drilling programme's completed within the Mount Hardy project area. A rehabilitation checklist for the Mount Hardy project is included in Appendix 10.

Site monitoring and remediation (as required – see details in Table below) will be undertaken annually during the course of exploration within the project area and continue until rehabilitation requirements have been satisfied as per DPIR criteria.

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring Techniques
Drill holes	Collars cut and plugged with plastic cone >40cm below ground level & mounded with topsoil (also see below).	Drill collars are temporarily capped with a plastic cone at the completion of the hole. The cone is then used to plug the drill collar during rehab. Holes to be rehabbed within 6 months.	All holes safe prior to end of programme and site returned to pre-disturbance condition based on surrounding conditions.	Monitoring stations set up at specified sites and photographs and inspections undertaken annually. Currently three drillsites are monitoring stations. Inspection will specifically target drill hole erosion and subsidence. Remediation will be undertaken if drillhole subsidence or erosion is noted during site monitoring and inspections.
Drill pads	Rubbish collected and removed. Recontoured and respread windrows. Pre-disturbance topography restored. Previously cleared vegetation is spread across the site.	On completion of drill hole. In conjunction with drill hole rehabilitation – within 6 months of programme completion.	Site to return to pre-disturbance condition based on surrounding conditions.	Monitoring stations set up at a number of sites, photographs and inspections undertaken annually. Currently three drillsites are monitoring stations. This will include inspection for weeds, erosion and native vegetation growth. Remediation will be undertaken if erosion is taking place across the drill pad area or if surface water flow has results in gullies forming.

				<p>If sites are evident with no or severely limited growth after 3 years (this will take into account years with limited rainfall) reseeding with local species will be undertaken.</p> <p>Weeds will be removed from drill sites.</p>
Sumps	<p>Remove plastic liner and back fill, cover with stockpiled topsoil and recreate pre-disturbance topography.</p>	<p>When sumps are dry or at the end of the drilling program. Monitored daily while drill programme is being completed.</p>	<p>Site to return to pre-disturbance condition based on surrounding conditions.</p>	<p>Monitoring stations set up at each site and photographs and inspections undertaken annually. Currently three drillsites are monitoring stations.</p> <p>This will include inspection for weeds, erosion and native vegetation growth.</p> <p>Remediation will be undertaken if erosion is taking place across the sump area or if surface water flow has results in gullies forming.</p> <p>If sump areas are evident with no or severely limited growth after 3 years (this will take into account years with limited rainfall) reseeding with local species will be undertaken.</p> <p>Weeds will be removed from sump areas.</p>
Tracks/Gridlines	<p>Windrows and piles of dirt from initial track creation respread.</p> <p>Any areas of erosion remediated.</p> <p>Allowed to revegetate but not fully rehabilitated in order to allow continued access to drillholes.</p> <p>Ripping of tracks if required.</p>	<p>Recontour windrows and dirt piles and conduct erosion remediation in conjunction with drillhole rehabilitation.</p> <p>Ripping may take place (if necessary) when tracks are no longer required or at closure. They may be left open at the request of the Landholders and if so will be officially signed over.</p>	<p>Tracks will be made safe and may remain open for Landholder use if requested.</p> <p>If not to remain open, site to return to pre-disturbance condition based on surrounding conditions.</p>	<p>Inspected for safety and erosion.</p> <p>Monitoring stations set up at two sites and photographs and inspections undertaken annually. An additional two monitoring sites will be added from tracked cleared during this programme.</p> <p>Remediation will be undertaken if erosion is taking place along the tracks or if surface water flow has results in gullies forming.</p> <p>Weeds will be removed from tracks and gridlines.</p> <p>Responsibility handed over to Landowners at closure should they request use of the tracks.</p>
Camp sites	<p>All rubbish collected and removed.</p> <p>Recontoured and respread windrows.</p>	<p>In conjunction with drillhole rehabilitation.</p>	<p>Site to return to pre-disturbance condition based on surrounding conditions.</p>	<p>Monitoring stations set up at campsite and photographs and inspections undertaken annually.</p>

	<p>Pre-disturbance topography restored. Previously cleared vegetation is spread across the site.</p>		<p>Remediation will be undertaken if erosion is taking place across the sump area or if surface water flow has results in gullies forming.</p> <p>If sump areas are evident with no or severely limited growth after 3 years (this will take into account years with limited rainfall) reseeded with local species will be undertaken.</p> <p>Weeds will be removed from sump areas.</p>
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Clarification of drill collar capping and plugging.



Capped at completion of hole. Dug out/cut/plugged during rehab. After rehabilitation.

6.1 Exploration Rehabilitation Register

The exploration rehabilitation registers for the Mount Hardy Project are included as Appendix 11.

6.2 Costing of Closure Activities

The cost of closure activities for the current programme has been calculated as per the Department Security Calculation Spreadsheet – *Exploration Operations Security Calculation Tool* which is included as Appendix 12.

The summary table is included below. Currently the DPIR hold \$28,129 security against Authorisation 0923-01.

AF7-014	last review: September 2012
M & E Security Calculation Tool Exploration Operations "Todd River Metals Pty Ltd"	

Security Calculation Summary

Details			
Contact Name	Kim Grey	Authorisation #	0923-01
Project	Mount Hardy	Date	14/01/2019
MMP	Mount Hardy Project Exploration Operations MMP		

Calculation Trigger			
New Authorisation	MMP Renewal/amendment	Audit Finding	Client Request
	✘		

Domains	Calculated Cost
Site Infrastructure	\$0.00
Exploration	\$11,956.00
Post Closure Management	\$382.50
Sub-Total - All Domains	\$12,338.50
CONTINGENCY @15%	\$1,850.78
TOTAL COST	\$14,189.28
10% Discount	\$1,419
Amended amount	\$12,770
1% levy	\$128

7.0 APPENDICES

Appendices have been included as separate documents.