

Barkly Operations Pty Ltd
 Final Report - Geophysics Funding Agreement 2021 Between
 Barkly Operations Pty Ltd and
 Northern Territory of Australia

**Final Report - Geophysics Funding Agreement 2021 Between
 Barkly Operations Pty Ltd and
 Northern Territory of Australia
 31 May 2021**

TENEMENTS:	EL32297, EL32298, EL32301, EL32308, EL32309
HOLDER:	Barkly Operations Pty Ltd
OPERATOR:	Barkly Operations Pty Ltd Suite 1/2 Richardson Street West Perth WA 6005
REPORT TITLE	Final Report - Geophysics Funding Agreement 2021 Between Barkly Operations Pty Ltd and Northern Territory of Australia 31 May 2021
REPORTING PERIOD	18 December 2021 to 7 June 2022
AUTHOR:	R Simmons
REPORT DATE:	June 2022
DISTRIBUTION:	Middle Island Resource Ltd (1) NT Gov (1)
NT GOV REFERENCE:	
MAP SHEET:	SE5315, ALROY, 1:250,000
TARGET COMMODITY	Cu, Au
KEYWORDS:	Co-funded, aeromagnetic survey
LOCATION:	Barkly Tablelands
MGA ZONE:	53
MGA CO-ORDINATES:	608 000E / 7850 000 N

Table of Contents

1	INTRODUCTION	1
2	REGIONAL CONTEXT	2
3	PREVIOUS EXPLORATION	4
4	EXPLORATION CONCEPT	4
5	DETAILS OF THE COLLABORATIVE PROGRAM	6
6	RESULTS AND INTERPRETATIONS	7
7	CONCLUSION	7
8	REFERENCES	9

Table of Figures

Figure 1	Survey Location	1
Figure 2	Interpreted Basement Geology, East Tennant Region (Clark et al, 2021) Legend-Appendix 1.....	3
Figure 3	Historical Drill Hole Locations and drill depths.....	5
Figure 4	Co-funded Survey Coverage on EFTF RTP Aeromagnetic Image	7
Figure 5	Barkly West - Total Magnetic Intensity	8
Figure 6	Barkly East - Total Magnetic Intensity.....	8

List of Tables

Table 1	Tenement Details – co-funded aeromagnetic survey.....	2
Table 2	Survey Specifications	6

List of Appendices

- Appendix 1 – Geological Legend, East Tennant Basement Interpretation
- Appendix 2 – Barkly Project, Survey carried out on behalf of Middle Island Resources Limited (Reference Number: 1273)20 June 2022
 - Data Files

ABSTRACT

In May 2021 co-funding through the Geophysics and Drilling Collaborations Program was awarded to Barkly Operations Pty Ltd for detailed aeromagnetic and radiometric capture. The survey was designed to cover EL32297, EL32298, EL32301, EL32308 and EL32309 (GR559). MagSpec Airborne Surveys Pty Ltd was contracted to fly the survey. Production started on 18th December 2021 and ended on 7th June 2022, with a hiatus over February-March 2022 for the wet season.

The Project is located approximately 200km east of Tennant Creek, straddling the Barkly and Tablelands highways. The area can be accessed from Tennant Creek via the Stuart Highway north to Three Ways, thence east, via the sealed Barkly Highway, to Barkly Homestead.

Barkly Operations Pty Ltd, (wholly-owned subsidiary of Middle Island Resources Limited) is the operator. The exploration target is primarily Tier 1 IOCG deposits hosted within the Proterozoic basement. The model is largely predicated on the existence of deposits of similar affinity within the Warramunga Province to the west and Mt Isa Block to the east.

The surface geology of the project area constitutes limestones and clastic sediments of the Georgina Basin. Initial data derived from the recently completed NDI basement diamond coring program has confirmed the basement in the project area is dominated by prospective Proterozoic rocks.

Previous exploration for base metals is extremely limited, other than the extensive work recently completed under Government Exploring for the Future (EFTF) initiative, which investigated the basement geology and architecture.

Raw data processing and image generation has been completed. Initial review of images has confirmed the survey achieved its objectives and will provide the platform required for future targeting. The Barkly Project GR559 remains highly prospective for significant IOCG or Sedex style deposits. Interpretation and modelling of the co-funded aeromagnetics will guide follow up ground gravity surveys and drill targeting.

Acknowledgement and Warranty

1. *Subject to 2, the tenure holder acknowledges that this report, including the material, information and data incorporated in it, has been made under the direction or control of the Northern Territory (the State) within the meaning of section 176 of the Copyright Act 1968 (Cwth).*

2. *To the extent that copyright in any material included in this Report is not owned by the State, the tenure holder warrants that it has the full legal right and authority to grant, and does hereby grant, to the Territory, subject to any confidentiality obligation undertaken by the Territory, the right to do (including to authorise any other person to do) any act in the copyright, including to:*
 - *use;*
 - *reproduce;*
 - *publish; and*
 - *Communicate in electronic form to the public, such material, including any data and information included in the material.*

3. *Without limiting the scope of 1 and 2 above, the tenure holder warrants that all authorisations and consents have been obtained for all acts referred to in 1 and 2 above, to ensure that the doing of any of the acts is not unauthorised within the meaning of Section 29(6) of the Copyright Act (Cwth).*

Declaration

To the best of our knowledge, this document conforms to the format outline for an annual report, as shown by the Northern Territory Geological Survey – Minerals and Energy Division website.

1 INTRODUCTION

The Project is located approximately 200km east of Tennant Creek, straddling the Barkly and Tablelands highways (Figure 1).

The area can be accessed from Tennant Creek via the Stuart Highway north to Three Ways, thence east, via the sealed Barkly Highway, to Barkly Homestead. Access within the project area is north via the sealed Tablelands Highway to Dalmore Downs and Alroy Downs stations, and thence via station tracks.

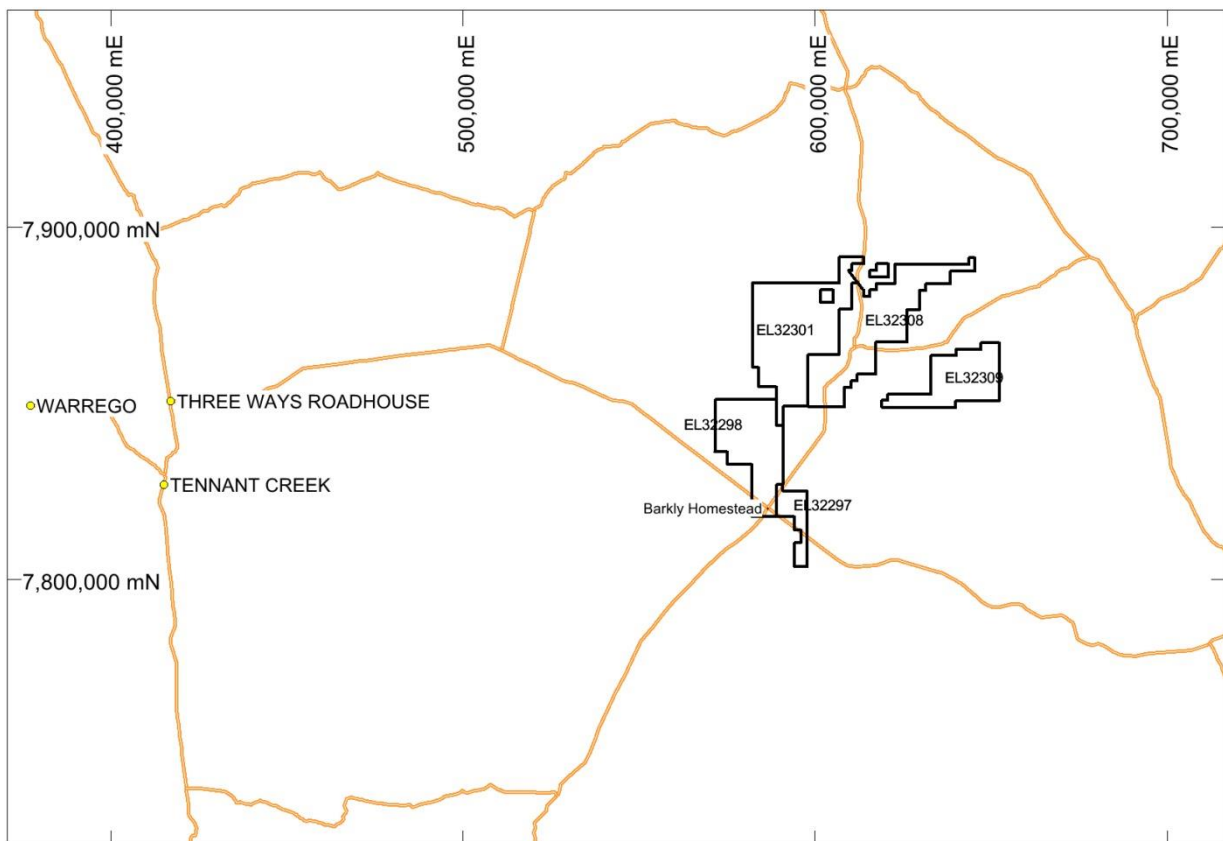


Figure 1 Survey Location

The detailed aeromagnetics co-funding agreement covers the original combined reporting group GR559 which comprises five exploration licences (Table 1) covering an aggregate area of approximately 2,320 km². The tenure is held by Barkly Operations Pty Ltd (BOPL), a wholly-owned subsidiary of Middle Island Resources Limited (ASX: MDI).

Exploration licence 32680 was added to the group following grant in October 2021 and is not part of the co-funding agreement.

Table 1 Tenement Details – co-funded aeromagnetic survey

Tenement	Area (km ²)	Area (blocks)	Grant Date	Expiry Date
EL32297	110.9	35	18/12/2020	17/12/2026
EL32298	443.3	137	18/12/2020	17/12/2026
EL32301	740.7	230	18/12/2020	17/12/2026
EL32308	685.5	212	18/12/2020	17/12/2026
EL32309	343.4	106	18/12/2020	17/12/2026

2 REGIONAL CONTEXT

The Barkly tenure lies wholly within the Georgina Basin. The surface geology of the project area solely constitutes limestones and clastic sediments of the Georgina Basin variably covered by transported material. Outcrop is limited, with much of the basement geology concealed beneath Tertiary and Quaternary superficial deposits consisting of loose blocks of carbonate rocks and pebbles of chert and pisolitic ironstone gravel. Soils are generally shallow lithosols, but fine grained alluvial soils occur in the valleys and surrounding plains.

Interpretation by Geoscience Australia shows that basement in the East Tennant region represents the eastern continuation of the Warramunga Province (Clark et al, 2021). East Tennant is underlain by a widespread succession of clastic metapelitic rocks that bear many lithological and geochronological similarities to the Warramunga Formation. The interpretation also shows significant regional faults and shear zones and abundant intrusive rocks at East Tennant (Figure 2).

Work recently completed under Government Exploring for the Future (EFTF) program and the National Drilling Initiative (NDI) which are investigating the basement geology and architecture has identified an interpreted fault-bounded ridge within the basement, extending beneath the Georgina Basin between Tennant Creek and Mt Isa. This East Tennant Ridge is defined by gravity and magnetic anomalies, as possible proxies for haematite and magnetite alteration respectively. MT data also suggest high fluid and heat flows extending along structures marginal to the ridge, which increases the potential for major deposits.

In December 2020, MDI identified two secondary copper occurrences hosted by silcrete and calcrete situated some 50km apart, adjacent to the Barkly Highway. The more significant of these occurrences, the “Crosswinds” prospect, lies within MDI’s EL32297 (Figures 2 and 3). Mineralisation variously comprises malachite, chrysocolla and tennerite, with spot pXRF assays returning up to 76.2% Cu. Formal assays derived from composite chip sampling returned an interval of 130m at 0.76% Cu. As no primary copper occurrences are known or anticipated within the Georgina Basin itself, these occurrences are interpreted to represent leakage of secondary copper up growth faults that extend from the basement, through the Georgina Basin, encouragingly suggesting a possible primary source within the Proterozoic basement rocks beneath.

3 PREVIOUS EXPLORATION

Previous exploration within the project area for base metals has been extremely limited, other than the extensive work recently completed under Government Exploring for the Future (EFTF) initiative. EFTF is investigating the basement geology and architecture. MinEx CRC drill holes occur close to the project licences (Figures 2 and 3).

Exploration for phosphate within basal units of the Georgina Basin has been quite extensive. While this is of little immediate relevance in the search for basement-hosted base metal accumulations, it may provide information on the depth to basement in some instances.

4 EXPLORATION CONCEPT

The target of exploration in the Barkly area is primarily Tier 1 IOCG deposits hosted within the Proterozoic basement. The model is largely predicated on the existence of deposits of similar affinity within the Warramunga Province to the west and Mt Isa Block to the east. Northern portions of the program area, where the basement appears to comprise possible elements of the South Nicholson Basin may also be prospective for Sedex deposits.

The NDI diamond drill holes, as well as subsequent exploration drilling by Inca Gold Ltd (ICG), has confirmed the basement prospectivity and indicate the widespread presence of intense haematite alteration.

Barkly Operations Pty Ltd
 Final Report - Geophysics Funding Agreement 2021 Between
 Barkly Operations Pty Ltd and
 Northern Territory of Australia

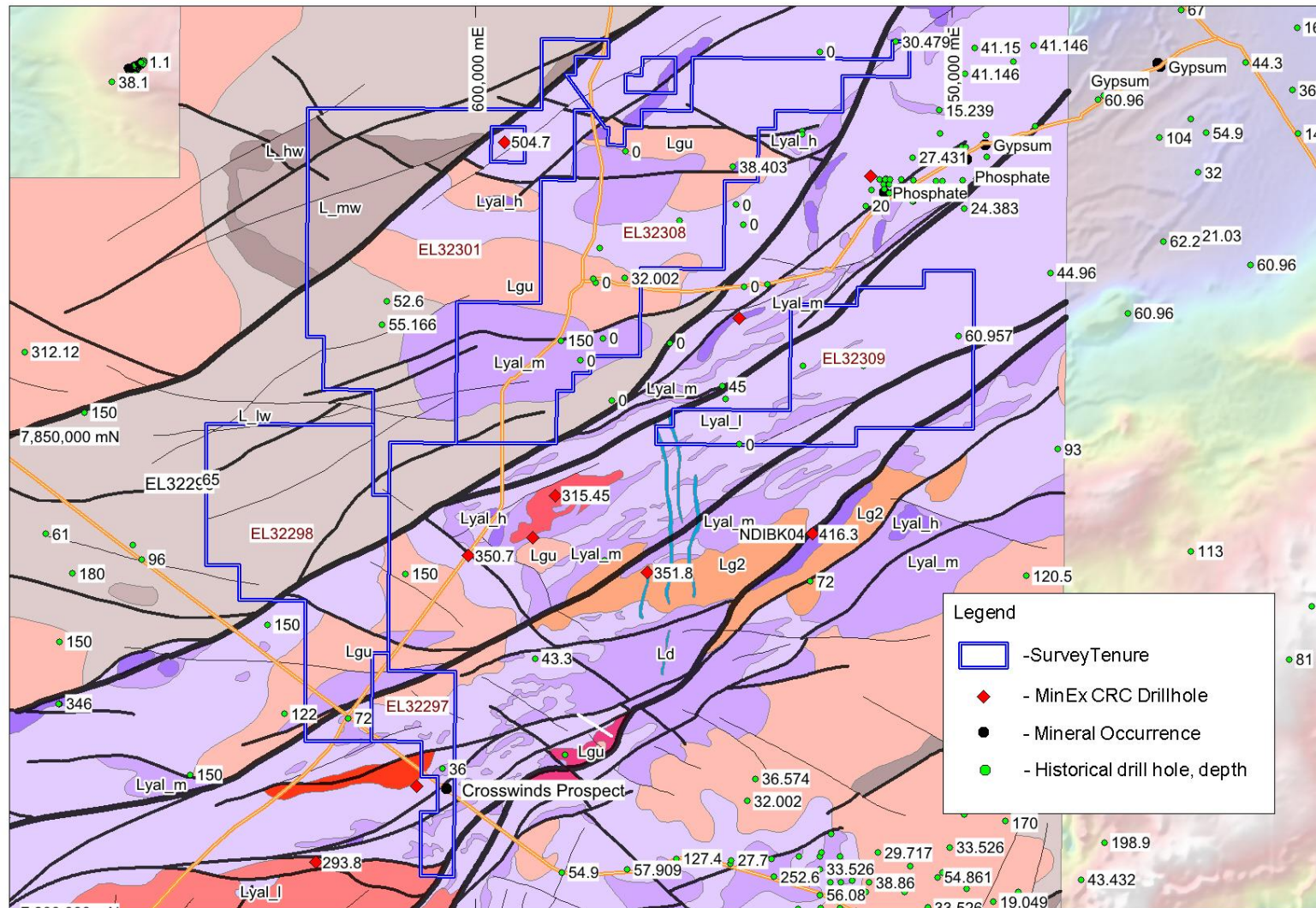


Figure 3 Historical Drill Hole Locations and drill depths

5 DETAILS OF THE COLLABORATIVE PROGRAM

In May 2021 co-funding through the Geophysics and Drilling Collaborations Program was awarded to Barkly Operations Pty Ltd (BOPL) for detailed aeromagnetic and radiometric capture. The “Geophysics Funding Agreement between BOPL and Northern Territory of Australia” was executed on 4th August 2021.

The survey was designed to cover EL32297, EL32298, EL32301, EL32308 and EL32309 (GR559). MagSpec Airborne Surveys Pty Ltd (MagSpec) was contracted to fly the survey. Specifications are summarised in Table 2. A detailed report by Magspec is included in Appendix 2.

Table 2 Survey Specifications

Area Name	Traverse Line spacing (m)	Traverse Line Direction (deg)	Tie Line Spacing (m)	Tie Line Direction (deg)	Sensor Height* (m)	Total Line Kilometres
Barkly West	100	000-180	1,000	090-270	30	27,092

The survey was delayed by MagSpec on several occasions and production ultimately started on 18/12/2021, prior to pausing on 23/12/2021. The co-funding agreement was approved for the renewed timetable on 30/11/2021.

On 12/1/2022 production re-started, subsequent to the group reporting date. Severe weather events however compromised the available flight times and data integrity and the survey was placed on hold in late January pending improved conditions. Work recommenced on the 21/4/2022.

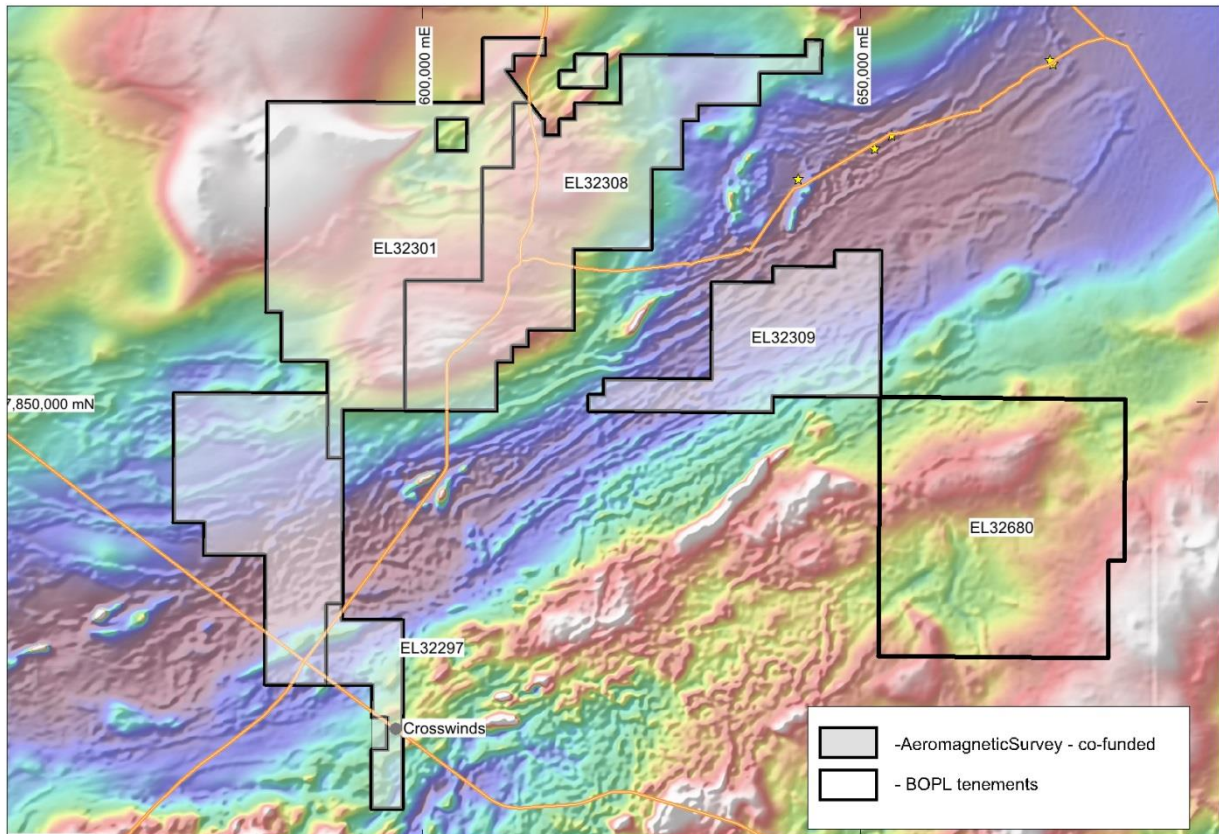


Figure 4 Co-funded Survey Coverage on EFTF RTP Aeromagnetic Image

6 RESULTS AND INTERPRETATIONS

Raw data processing and image generation has been completed. Initial review of images (Figures 5 and 6) has confirmed the survey achieved its objectives and will provide the platform required for future targeting. Given the recent completion date interpretation of the new data has yet to commence however significant detail is apparent on the images. Subsequent inversion modelling of the magnetic data, particularly when modelled in conjunction with other EFTF and MDI datasets, should provide a pseudo-3D model of the basement architecture to allow the definition and prioritization of specific IOCG targets for subsequent ground gravity, IP and drill testing.

7 CONCLUSION

The Barkly Project GR559 remains highly prospective for significant IOCG or Sedex style deposits. Interpretation and modelling of the co-funded aeromagnetics will guide follow up ground gravity surveys and drill targeting. Exploration to date at the Crosswinds Prospect has defined a priority target. Ground gravity and IP surveys have been completed and drill holes designed and permitted.

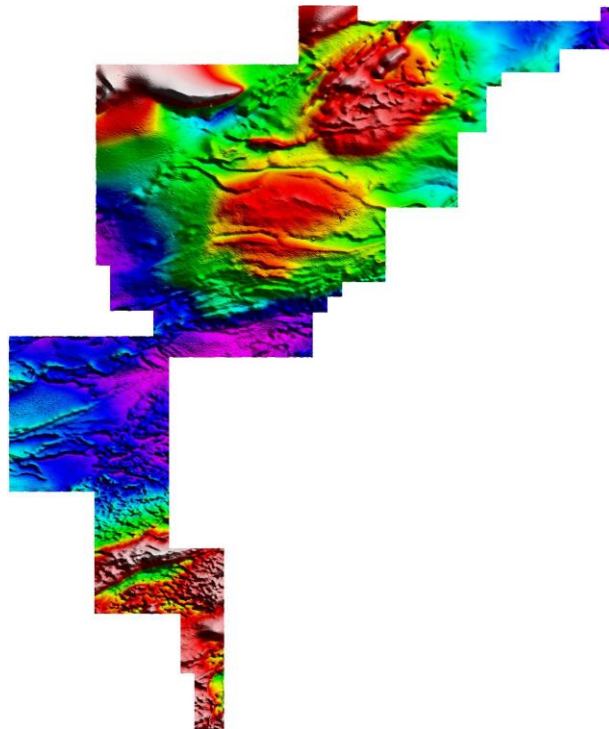


Figure 5 Barkly West - Total Magnetic Intensity

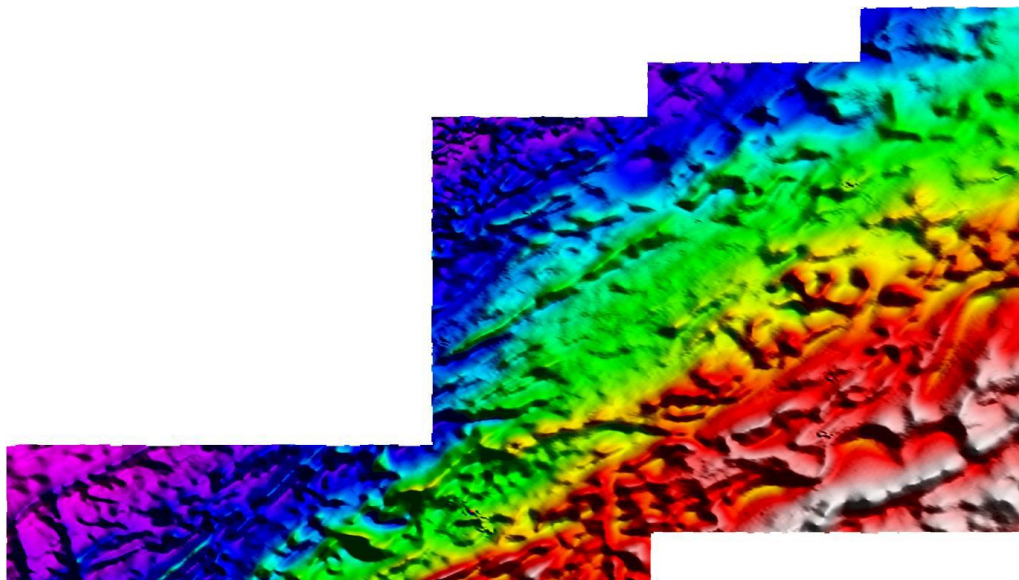


Figure 6 Barkly East - Total Magnetic Intensity

8 REFERENCES

Clark, A., Highet, L., Schofield, A., Doublier, M., 2021. Solid Geology of the East Tennant region:
Digital spatial data. Geoscience Australia: Canberra.

<http://www.ga.gov.au>

NT Geoscience

Data Package (Digital Information Package 008)

Appendix 1

Geological Legend, East Tennant Basement Interpretation (Clark et al, 2021)

Cenozoic	Cz
Quaternary	Q
Mesozoic	Mz
Cretaceous	K
Jurassic	J
Triassic	R
Paleozoic	Pz
Permian	P
Carboniferous	C
Devonian	D
Silurian	S
Ordovician	O
Cambrian	E
Proterozoic	-P
Neoproterozoic	N
Mesoproterozoic	M
Paleoproterozoic	L
Archean	A

CODE	DESCRIPTION	EXAMPLES
IGNEOUS		
f	felsic extrusive / high level intrusive	rhyolite, dacite, ignimbrite, pyroclastic rocks
g	felsic to intermediate intrusive	granite, granodiorite, tonalite, monzonite, diorite, syenite
a	intermediate extrusive / high level intrusive	andesite, trachyte, latite, pyroclastic rocks
b	mafic extrusive / high level intrusive	basalt, scoria, shoshonite, pyroclastic rocks
d	mafic intrusive	gabbro, dolerite, norite
u	ultramafic rocks undivided (intrusive & extrusive)	komatiite, high Mg basalt, pyroxenite, dunite, wehrlite
v	felsic & mafic volcanics	
i	felsic & mafic intrusives	
k	alkaline ultrabasic rock	kimberlite, lamprophyre, carbonatite
SEDIMENTARY		
s	siliciclastic/undifferentiated sedimentary rock	shale, siltstone, sandstone, conglomerate, mudstone
j	volcanogenic sedimentary rock	epiclastic sediments and breccias, greywacke, arkose
l	carbonate sedimentary rock	limestone, marl, dolomite
c	non-carbonate chemical sedimentary rock	chert, evaporite, phosphorite, BIF
o	organic-rich sedimentary rock	coal, oil shale
MIXED SEDIMENTARY & IGNEOUS		
w	Volcanics rock & sedimentary rock	
METAMORPHIC		

Barkly Operations Pty Ltd
 Final Report - Geophysics Funding Agreement 2021 Between
 Barkly Operations Pty Ltd and
 Northern Territory of Australia

y	low-medium grade meta clastic sediment	slate, phyllite, schist, quartzite
t	low-medium grade metabasite	mafic schist, greenstone, amphibolite
r	low-medium grade metafelsite	rhyolitic schist, meta-andesite
m	calc-silicate and marble	meta carbonates and calcareous sediments
n	high grade metamorphic rock	gneiss, granulite, migmatite
p	high-P metamorphic rock	eclogite, blueschist
h	contact metamorphic rock	hornfels, spotted slate
e	metamorphosed ultramafic rocks	serpentinite, talc schist, chlorite schist (Yes feldspars), tremolite schist, ultramafic amphibolite
OTHER		
q	vein	quartz vein, carbonate vein
x	complex, undivided	melange, complexly mixed rock types such as metamorphic and intrusive rocks
z	fault / shear rock	mylonite, fault breccia, cataclasite, gouge

Appendix 2

Report

1273_Barkly_Report PDF

Barkly Project, Survey carried out on behalf of Middle Island Resources Limited (Reference Number: 1273) 20 June 2022

List of Data Files

Data Contents

+---IMAGES

- | 127301_Barkly_West_DEM.tif
- | 127301_Barkly_West_Ternary.tif
- | 127301_Barkly_West_TMI-1VD.tif
- | 127301_Barkly_West_TMI-Grey.tif
- | 127301_Barkly_West_TMI.tif
- | 127301_Barkly_West_Total_Count.tif
- | 127302_Barkly_East_DEM.tif
- | 127302_Barkly_East_Ternary.tif
- | 127302_Barkly_East_TMI-1VD.tif
- | 127302_Barkly_East_TMI-Grey.tif
- | 127302_Barkly_East_TMI.tif
- | 127302_Barkly_East_Total_Count.tif

+---MAG

- | +---DATA
- | | +---ASCII
- | | | 127301_Barkly_West_Magnetics_DEM.DAT
- | | | 127301_Barkly_West_Magnetics_DEM.DFN
- | | | 127302_Barkly_East_Magnetics_DEM.DAT
- | | | 127302_Barkly_East_Magnetics_DEM.DFN

| | \---GEO_SOFT

- | | 127301_Barkly_West_Magnetics_DEM.gdb
- | | 127302_Barkly_East_Magnetics_DEM.gdb

| \---GRIDS

- | 127301_Barkly_West_DEM
- | 127301_Barkly_West_DEM.ers
- | 127301_Barkly_West_TMI
- | 127301_Barkly_West_TMI-1VD
- | 127301_Barkly_West_TMI-1VD.ers
- | 127301_Barkly_West_TMI.ers
- | 127302_Barkly_East_DEM
- | 127302_Barkly_East_DEM.ers
- | 127302_Barkly_East_TMI
- | 127302_Barkly_East_TMI-1VD
- | 127302_Barkly_East_TMI-1VD.ers
- | 127302_Barkly_East_TMI.ers


```
\---SPEC
+---DATA
| +---ASCII
| | 127301_Barkly_West_Radiometrics.DAT
| | 127301_Barkly_West_Radiometrics.DFN
| | 127302_Barkly_East_Radiometrics.DAT
| | 127302_Barkly_East_Radiometrics.DFN

| \---GEOSOFT
| 127301_Barkly_West_Radiometrics.gdb
| 127302_Barkly_East_Radiometrics.gdb

\---GRIDS
127301_Barkly_West_Dose_Rate
127301_Barkly_West_Dose_Rate.ers
127301_Barkly_West_Potassium
127301_Barkly_West_Potassium.ers
127301_Barkly_West_Potassium_Percent
127301_Barkly_West_Potassium_Percent.ers
127301_Barkly_West_Thorium
127301_Barkly_West_Thorium.ers
127301_Barkly_West_Thorium_PPM
127301_Barkly_West_Thorium_PPM.ers
127301_Barkly_West_Total_Count
127301_Barkly_West_Total_Count.ers
127301_Barkly_West_Uranium
127301_Barkly_West_Uranium.ers
127301_Barkly_West_Uranium_PPM
127301_Barkly_West_Uranium_PPM.ers
127302_Barkly_East_Dose_Rate
127302_Barkly_East_Dose_Rate.ers
127302_Barkly_East_Potassium
127302_Barkly_East_Potassium.ers
127302_Barkly_East_Potassium_Percent
127302_Barkly_East_Potassium_Percent.ers
127302_Barkly_East_Thorium
127302_Barkly_East_Thorium.ers
127302_Barkly_East_Thorium_PPM
127302_Barkly_East_Thorium_PPM.ers
127302_Barkly_East_Total_Count
127302_Barkly_East_Total_Count.ers
127302_Barkly_East_Uranium
127302_Barkly_East_Uranium.ers
127302_Barkly_East_Uranium_PPM
127302_Barkly_East_Uranium_PPM.ers
```