NI 43-101 Technical Report
Pilbara Gold Projects
Western Australia

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Pilbara Gold Group

Table of Contents

List of Figures

List of Tables

1.0 SUMMARY

This report has been prepared by Xplore Resources Pty Ltd ("Xplore Resources") of Brisbane, Queensland, Australia for Graphite Energy Corp Ltd ("Graphite Energy Corp") [formerly Graphite Energy Corp] which has obtained four gold and gold/base metal project areas (seven tenements in all) in the Pilbara region of northern Western Australia (Figure 1.1 and Table 1.1).

Graphite Energy Corp engaged Xplore Resources to validate all the data provided by the vendors of the four project areas as well as thoroughly interrogate all available open file, government and private exploration and research data relevant to each project area.

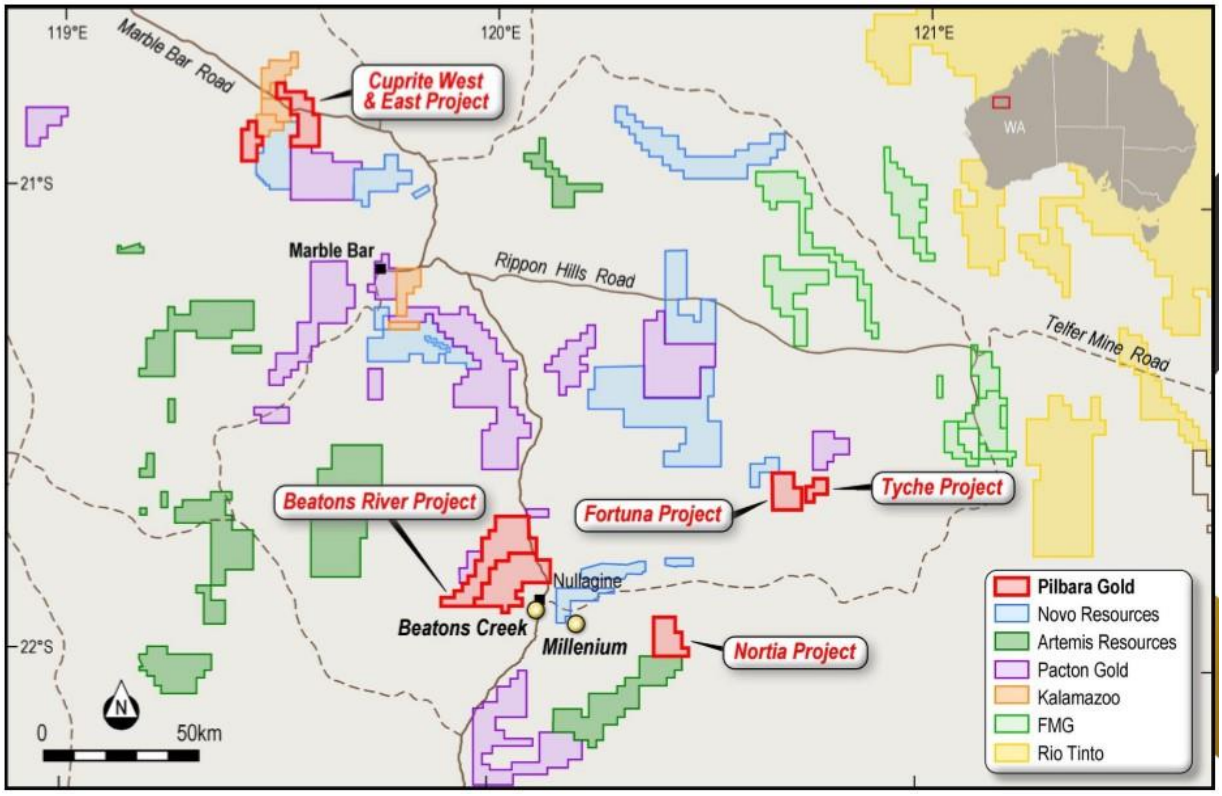


Figure 1.1: Location of Graphite Energy Corp Pilbara tenements also showing the tenements of major competitors in the same region

Tenement Nos.	Project Name	Date Applied	Date Granted	Expiry Date	Area (Blocks)	Area (Hectares-approx.)	Tenement Ownership
E46/1277	Nortia	17/07/2018	10/3/2020	9/3/2025	19	5,510	Pilbara Gold Group Pty Ltd
E46/1278	Fortuna	17/07/2018	6/7/2020	5/7/2025	18	5,202	Pilbara Gold Group Pty Ltd
E45/5304	Tyche	17/07/2018	5/3/2020	4/3/2025	6	1,734	Pilbara Gold Group Pty Ltd
E46/1215	Beatons River	18/10/2017	29/10/2018	28/10/2023	49	14,161	Great Sandy Pty Ltd
E46/1280	Beatons River	20/07/2017	28/07/2020	27/10/2025	56	16,184	Mineral Edge Pty Ltd
E45/4918	Cuprite East	1/5/2017	27/072020	26/07/2025	24	6,936	Great Sandy Pty Ltd
E45/5028	Cuprite West	3/10/2017	26/07/2020	26/07/2025	10	2,890	Great Sandy Pty Ltd

Table 1.1: Tenement Schedule for Pilbara Tenements

The four Project Areas located in the Pilbara region of northern Western Australia are:

1) **Beatons River Project Area** – consisting of two, granted Exploration Licences (E46/1215 and E46/1280);
2) **Cuprite East and West Project Area** – consisting of two, granted Exploration Licenses (E45/4918 and E45/5028);
3) **Fortuna and Tyche Project Area** – consisting of two, granted Exploration Licenses (E46/1278 and E45/5304); and
4) **Nortia Project Area** – consisting of one granted Exploration Licence (E46/1277).

The Pilbara is a large, thinly populated area in the north of Western Australia that has a population of about 65,000 (Australian Bureau of Statistics) and includes some of Earth's oldest rock formations. It's well known for its oil, natural gas and iron ore deposits which contribute significantly to Australia's economy.

The region covers an area of 507,896km^2 (193,826mi^2) (including offshore islands), roughly the combined land area of the US States of California and Indiana.

Major gold companies active in the Pilbara include Novo Resources Corp, International Prospect Ventures, Artemis Resources, Pacton Gold, De Grey Mining Limited, Millennium Minerals Limited, Calidus Resources Limited and Kairos Minerals.

The most significant, recent gold discoveries in the Pilbara are of the conglomerate hosted gold deposit style which has been compared in part to the Witwatersrand Conglomerate Gold Deposit of South Africa.

1.1 GEOLOGY

1.1.1 BEATONS RIVER PROJECT GEOLOGY

The Beatons River Project Area (E46/1215 and E46/1280) is located in the East Pilbara granite–greenstone terrain of the Early to Late Archaean Pilbara Craton of north-western Western Australia.

The sub-basins formed on the older granite–greenstone basement during the initial stages of Late Archaean continental rifting and formation of the Late Archaean–Paleoproterozoic Hamersley Basin (Figure 7.7.4 on page 71).

The Beatons River tenure is centred on an area containing extensive and relatively complete lower Fortescue Group successions, in comparison to other parts of the north Pilbara Craton.

Although up to 50 million years. older, the 2.77–2.63 Ga Fortescue Group is commonly compared to the Ventersdorp Supergroup of the Witwatersrand Basin in South Africa, which is similar in both composition and tectono-stratigraphic setting (Figure 7.7.3 on page 69); Nelson et al., 1992, 1999; Martin et al., 1998; Thorne and Trendall, 2001).

From oldest to youngest these sequences are:

- George Creek Group (3.24–3.05 Ga);
- Cleaverville Formation (3.02 Ga);
- De Grey Group (2.99–2.94 Ga); and
- Hamersley Basin succession (Mt Bruce Supergroup) (2.78–2.3 Ga). The Mt Bruce Supergroup consists of the Fortescue and overlying Hamersley groups.

The Mosquito creek formation which correlates with the De Grey group is interpreted based on Geophysical data to extend for at least 20km beneath the Fortescue Group cover and hosts a number of small to moderate sized disseminated, vein- and shear-hosted mesothermal Au deposits, interpreted to have formed at c. 2.90 Ga (Huston et al., 2002a).

Gold eroded from these deposits during the Late Archaean has long been considered a likely source for auriferous placer deposits hosted in the Fortescue Group near Nullagine (Maitland, 1905; Finucane, 1935; Noldart and Wyatt, 1962; Hickman, 1983; Thorne and Trendall, 2001).

Part of the Hammersley Basin succession is the late Archaean (2.77–2.63 Ga) Fortescue Group, a sequence of mafic and felsic volcanics and sedimentary rocks up to 6.5km thick (Thorne and Trendall, 2001; Blake, 1993, 2001) and is exposed over a wide area in the Pilbara Craton.

1.1.2 CUPRITE EAST AND WEST PROJECT GEOLOGY

The Cuprite East (E45/4918) and West (E45/5028) Project Area is located in the East Pilbara Granite-Greenstone Terrane which comprises the eastern portion of the Archaean Pilbara Craton (Figure 1.1 on page 9).

The East Pilbara Granite-Greenstone Terrane comprises groups of volcanic and sedimentary rocks (greenstones) deposited between c. 3515 and 3240 Ma, in addition to younger, dominantly sedimentary, greenstone successions and numerous suites of granitoid rocks varying in composition from trondhjemite through to monzogranite that were emplaced between c. 3576 and 2850 Ma.

The terrane is characterised by large ovoid granitoid complexes flanked by curvi-planar belts of commonly steeply dipping greenstones. The volcanic and sedimentary rocks form strongly deformed greenstone belts between large, oval-shaped, multicomponent granitic complexes.

The Warralong greenstone belt is triangular in shape with its apex pointing to the northeast. According to Van Kranendonk (2004) the Warralong greenstone belt contains rocks of the c. 3515–3500 Ma Coonterunah Group, the c. 3490–3310 Ma Warrawoona Group, the c. 3255–3235 Ma Sulphur Springs Group and undated rocks of the <3235 to 2940 Ma Gorge Creek Group.

The Warralong greenstone belt has a long and complicated structural history. Sedimentary facing is very rarely consistent from area to area suggesting that a large portion of the greenstone sequence is overturned.

Near the western margin of the belt adjacent to the granite, a strong mylonitic fabric is developed with a steep stretching lineation presumably related to intrusion of the granite (Van Kranendonk, 2004).

The Fortescue Group unconformably overlies the older rocks and comprises predominantly basaltic sequences with minor coarse clastic rocks. The ovoid shaped Carlindi, Muccan and Mount Edgar granitoid complexes bound the greenstone belts.

1.1.3 FORTUNA AND TYCHE PROJECT GEOLOGY

The geology of the Fortuna (E46/1278) and Tyche (E45/5304) Project Area is composed centrally of the Hardey and Kylena Formations of the Fortescue Group, the Elsie Creek Tonalite to the north, the Maddina formation to the east and the Mosquito Creek Formation to the southeast (Figure 7.11 on page 86).

The Fortescue Group, in which Fortuna and Tyche are located, have seven formations dating from 2775 Ma to 2630 Ma. In order of age from oldest to youngest they are:

- Bellary Formation and Mt Roe Basalt – subaerial basaltic lavas, sub-aqueous pillow lavas and water lain volcaniclastic and siliciclastic rocks;
- Hardey Formation – unconformably overlying the Mt Roe Basalt composed primarily of fine to coarse grained sandstones and pebble to cobble conglomerates up to an estimated thickness of 3km and deposited in a continental to shallow marine environment that are host to historic gold resources around Nullagine and current discoveries by Novo resources;
- Kylena and Maddina Formations – subaerial basaltic flows;
- Tumbiana Formation – sedimentary and volcaniclastic rocks; and
- Jeerinah Formation – argillaceous in the north and abundant basaltic lava and volcaniclastic rocks in the south.

A few sparse historic gold workings exist in the Elsie Creek Tonalite to the north composed of strongly foliated metatonalite with local sills of monzogranite and orthogneiss xenoliths. To the SE is the 30km by 65km ENE trending belt of the Mosquito Formation, a succession of psammitic to pelitic metaturbidites existing in a regional syncline.

Within the regional syncline are numerous sub-inclinal folds striking ENE with crossing dextral north-south faults. Gold is hosted in the 20km long striking Blue Spec zone associated with antimony and five kilometres to the south in quartz stockworks in banded schists.

The Tyche and Fortuna projects are comprised of the Hardey and Kylena Formations, two of the seven formations of the Fortescue Group. The Tyche Tenement area is approximately 90% Hardey Formation whereas the nearby Fortuna Tenement area is about 20% Hardey in the north of the tenure.

1.1.4 NORTIA PROJECT GEOLOGY

The local project geology for Nortia (E46/1277) has been primarily adapted from the Nullagine 1:100,000 geological sheet (GSWA, 2020). The Nortia project is located south of the Mosquito Creek gold mining area.

The oldest rocks in the tenement are the c. 3199 to 3178 Ma Golden Eagle Orthogneiss and the Bonney Downs Granite, both of which form part of Kurrana Granitoid Complex.

The Golden Eagle Orthogneiss is a strongly deformed, layered orthogneiss consisting of foliated protoliths of biotite-bearing monzogranite, granodiorite and tonalite interlayered with lenses of amphibolite, ultramafic schist and quartz–mica schist (Chhabra, 2018).

The Bonney Downs Granite intrudes the Golden Eagle Orthogneiss and is a weakly foliated, fine to medium-grained, sparsely porphyritic biotite monzogranite, which locally has abundant xenoliths of granitic gneiss. The presence of chlorite, epidote, sericite, titanite and fluorite indicate hydrothermal alteration.

The De Grey Group overlie the older rocks and dated between 2926-2905 Ma. The Coondamar Formation is included in the De Grey Group and consists of mafic, ultramafic and chloritic rocks and interlayered metasedimentary rocks.

The Coondamar Formation is located at the base of the Mosquito Creek Basin in the southern central and north-eastern parts of Nullagine 100,000 sheet area and is probably a correlative of unassigned rocks to the north of the Mosquito Creek Formation. The Coondamar Formation is at least 1km thick.

The Mosquito Creek Formation outcrops in an easterly trending rectangular region approximately 60km long and 30km wide north of the Nortia Project, where it is faulted against the Coondamar Formation.

The formation is intruded and contact metamorphosed by a series of north-westerly trending c. 1800 Ma quartz syenite to quartz monzodiorite bodies of the Bridget Suite, the north-north-easterly trending c. 2772 Ma Black Range Dolerite Suite and various unassigned dolerite dykes. The total thickness of the Mosquito Creek Formation is unknown.

Rocks of the formation are cleaved and tightly folded and consist of interbedded conglomerate and coarse-grained sandstone, with interbedded sandstone, siltstone and shale displaying graded bedding. The formation is faulted against the Coondamar Formation north of Nortia and is unconformably overlain by the Fortescue Group in the southwest.

The formation is intruded and contact metamorphosed by a series of north-westerly trending c. 1800 Ma quartz syenite to quartz monzodiorite bodies of the Bridget Suite, the north-north easterly trending c. 2772 Ma Black Range.

The Nortia tenement lies south of the east-northeast trending Kuuana Shear Zone, which is the boundary between the prospective Mosquito Creek Formation of the De Grey Group and the Golden Eagle Orthogneiss of the Kurrana Terrane (Mwyn Exploration Pty Ltd, 2014).

In the southern part of the tenement, basalts and andesites of the Kylena Formation overlie Kurrana Granitoid Complex rocks and schist and amphibolite belonging to the Coondamar Formation. The local geology trends east-west, with numerous faults transecting the area and several dolerite dykes. A major north-south fault is exposed east of the tenement.

It offsets the Archean and Proterozoic rocks and have a number of associated splays which general trend northwest. It is frequently silicified and infilled with quartz and chalcedony.

Copper-lead-zinc-silver mineralisation is sometimes associated with the siliceous infilling (Hansen, 1993).

There are no known mineral occurrences within the tenement. The nearest mineral occurrences are the Coondoon and Sandy Creek copper-lead-zinc-silver prospects located about 1-1.2km east of the Nortia tenement.

These occurrences are associated with north and northwest trending regional faults. A small beryl occurrence hosted in pegmatite at the 20 Mine Creek mine is located about 3.6km west of the Nortia tenement.

The Mosquito Creek Formation is economically significant and hosts a large number of gold deposits, north and northwest of the Nortia tenement. The deposits are located in shear zones known as the Blue Spec Fault Zone, the Middle Creek Fault and a smaller proportion of deposits on the Sandy Creek Fault.

The Project is considered prospective for a number of commodities including gold.

1.2 CONCLUSIONS

1.2.1 BEATONS RIVER PROJECT AREA

Detailed mapping, rock chip, soil and stream sediment sampling were undertaken in 2008 across the Beatons Creek Gold Project and also within the historical BC Iron Limited tenement E46/524 an area which now is covered by E46/1215 (Merhi 2009). Mapping was completed by Shango Solutions (Handley 2009, independent consultants).

Mapping of the Beatons Creek Gold Project resulted in a stratigraphic subdivision of the Beatons Creek Member. The stratigraphic subdivision was also used to map the Beatons Creek Member which outcrops within E46/1215.

Therefore, there is a direct correlation between the units in the mine stratigraphy and outcropping Beatons Creek Member within E46/1215.

A combination of stream sediment and rock chip sampling and mapping identifies horizons of economic interest such as sub-unit BC6, which contains the previously mined historical units A and B from the Beatons Creek Deposit.

The western portion of the Beaton's Creek Formation within E46/1215 is characterised by an approximate 50m thick conglomerate succession comprising lower small cobble (SC) to large cobble (LC) conglomerates overlain by very large pebble (VLP) to SC conglomerates.

Mineralisation increases upwards in the succession and is best developed in two laterally extensive cobble horizons containing scattered boulders. The lower cobble boulder horizons are potentially the stratigraphic equivalents of the A and B Horizons at the Beatons Creek Project tenure.

A review by Tim Blake (2019) of E46/1215 clearly defined two prospective and extensive unconformities within E46/1215. These gold prospective unconformities appear to be poorly tested by previous explorers.

Further exploration is now required to assess the unconformities by detailed mapping, rock chip sampling and most importantly, soil sampling. The target will be auriferous conglomerates that may have developed along the unconformities.

Pacton's Impact 5 tenement is located approximately 17km northwest of Novo's Beatons Creek project and lies on the western edge of the Hardey formation plateau and is contiguous with the Beatons River Project's E46/1280. Pacton has stated that they have established a stratigraphic equivalency between the exposed Impact 5 western plateau edge and the productive stratigraphy at Beatons Creek (Pacton, 2020).

Moreover, the Hardey formation within the Impact 5 tenement is intensely fractured with steep dipping faults and multiple networks of low displacement shears that collectively form a pervasive fracture network. The initial Impact 5 exploration program will consist of surface prospecting along the Hardey plateau's western edge and along dissected drainages.

A specific 70m thick stratigraphic interval will be investigated on the basis that it is interpreted to correlate with the Beatons Creek gold-bearing stratigraphy. Additionally, the intense fracture network will be sampled on surface, in drainages and along the western Hardey plateau edge (Pacton, 2020).

Previous mapping and geochemical sampling within the southern margins of E46/1215 have delineated an area with elevated gold and prospective outcropping conglomerate units with a direct correlation to the mineralised conglomerate units within the Beaton's Creek Gold Project. Historical diamond exploration sampling has also shown the presence of visual gold within the tenure area.

The source of this alluvial gold is yet to be explained.

1.2.2 CUPRITE EAST AND WEST PROJECT AREA

The Cuprite East and West Project covers a structurally complex area with a long history of deformation. The area contains numerous zones of alteration that are often restricted and structurally controlled.

Silica-fuchsite, silica-pyrite and propylitic alteration observed in the area is mostly structurally controlled and is indicative of potentially mineralising fluids (Crossing, 2007). Carbonate alteration of ultramafics and to a lesser extent mafics is widespread and appears to have no relationship with mineralisation.

Most of the known mineralisation in the area is structurally controlled and occurs in two main settings (Crossing, 2007):

- Mineralisation associated with large NE-SW to NNE-SSW trending structures sub-parallel to regional stratigraphy and the granite margins (prospects: Chevy, Dom's Hill, Singer, Anomaly 32, Anglia prospects); and
- Mineralisation associated with large NW-SE trending structures (prospects: Granites, NE Zone, Fordor, Phaeton).

The potential for the Cuprite Project to contain structurally controlled mineralisation is significant. As such the focus should be on the:

(i) shear zones similar to the Chery-Dom's Hill area; and
(i) the granite contact at or close to the Granites prospect.

These prospects are in areas of high strain and would be expected to be relatively attenuated and elongated, plunging along the axis of folding. In a high strain regime, there may be down-plunge potential and potential for repetition of similar deposits within the same structural environment (Crossing, 2007).

Similar structural and lithological settings in the project area are found elsewhere in the Pilbara region to control or influence gold mineralisation. These include:

- Terrane scale faults / shears of various orientations (NE, NW, ESE);
- Faults or shears along granite margins;
- A range of lithologies including the Warrawoona Group; and
- Strong competency contrasts between ductile mafic-ultramafic schists and unstrained mafic-ultramafic bodies and coarse epiclastic sediments.

The Cuprite area has a similar geological setting to known VMS deposits in the Pilbara region. The similarities according to Crossing (2007) include:

- Volcanics range from ultramafics to rhyolitic;
- Basalts are marine;
- Hydrothermal cherts are common;
- Intraformational granites occur as potential heat source; and
- Potential caprocks include thick sediments and unaltered basalts.

Crossing (2007), also states that an VMS deposit that do occur in the higher strain areas would be strongly attenuated and likely dislocated from the associated footwall alteration.

Some komatiite flows and high magnesium basalts near Farrell are potential for komatiite hosted nickel sulphide mineralisation, such as Bamboo Creek (Archer, 2006). The komatiite flows are associated with Ni-Cu anomalies and outcropping nickel gossans at the nearby Farrell Well Nickel prospect.

Pilbara Gold Group was initially attracted to the district primarily because of its gold potential. This culminated in a number of tenements being applied for, including E45/4918 and E45/5208, which make up the Cuprite Project.

Since the late 1960s, there has been 3,603 surface geochemical samples collected from Cuprite East tenement and 1,514 surface geochemical samples collected from the Cuprite West tenement (GeoVIEW.WA, 2020).

Apart from the surface geochemical sampling, historical exploration included airborne and ground magnetic and EM surveys, geological mapping, petrological studies and RAB, RC and diamond core drilling.

It is concluded that there is adequate geological and geochemical evidence to rate the Cuprite tenements as prospective for gold and possibly VMS and komatiite hosted nickel mineralisation.

1.2.3 FORTUNA AND TYCHE PROJECT AREA

Tyche is underlain by two stratigraphic units of the Fortescue Group, the Hardey and Kylena Formations notably, the Hardy Formation is ubiquitous within the tenure, it has been mapped on the GSWA 1:100,00 map sheets across >90% of the project area.

However, this review has shown that the bulk of the Hardy Formation within the tenure is the Bamboo Creek Member (quartz-feldspar porphyry), therefore, the focus of the exploration has shifted to vein hosted and/or structurally shear hosted gold mineralisation.

The Kylena Formation, which overlays the Hardey Formation, sits on the eastern edges of the project and has been known to host elevated gold in quartz veins within basalt in the project region. Historical exploration reports have noted in the field (Malay, 1973) that:

"*Gold in quartz-sulphide and carbonate veins cutting the Kylena Basalt of the Fortescue Group. Two quartz veins cutting the basal part of the gently dipping Kylena Formation on Historical E45/1499 were located. These veins contain some carbonate bands and minor secondary copper and lead minerals. Maximum gold assay was 1.4g/t Au".*

"Detrital gold in the Hardy Sandstone at the base of the Fortescue Group. Prospecting work has located gold in two locations shedding from the Hardy Sandstone. At one of these locations' quartz pebbles weathering from a conglomerate were found to be gold bearing. At another locality soil derived from sandstone and conglomerate assayed up to 2g/t Au. This is comparable to other gold mineralisation at Beatons Creek at Nullagine".

"Gold in tuffaceous rocks and interflow sediments and limestone within the Kylena Formation. Samples of silicified cherty sediments associated with thin limestone units occurring as interflow bands within the Kylena Basalts contain anomalous gold values up to 0.4 ppm. Close to one of these areas a small area of pyritic tuffaceous material assayed up to 4.8 ppm Au".

The report also notes, "*minor gold associated with quartz veining in the Fortescue Group rocks. Quartz veins cutting the Fortescue Group occur in a variety of settings and forms. Some minor gold and silver values are associated with some of these veins."*

The Fortuna project has similar geology to Tyche and is underlain by the same two stratigraphic units of the Fortescue Group: Hardey and Kylena Formations. The Hardy Formation is present across 22% (~12km²) of the tenure and is mainly the Bamboo Creek Member as well.

The tenure contains three fault zones mapped (GSWA) as well as photo lineaments that have the potential to be structural controls for shear zones that may contain breccias and quartz veining related to the faulting.

1.2.4 NORTIA PROJECT AREA

The Pilbara Gold Group was attracted to the district because of its structure/shear hosted gold potential. This culminated in a number of tenements being applied for, including E46/1277, which make up the Cuprite Project.

The Nortia Project is located in the East Pilbara Granite-Greenstone Terrane, which comprises the eastern portion of the Archaean Pilbara Craton. The tenement area is under explored compared with other areas elsewhere in the East Pilbara and in particular with the Mosquito Creek area that is located immediately north.

Historical exploration in the immediate area of Nortia had focused on several NNW and N trending faults that are exposed approximately 1-1.3km east of Nortia, along Coondama Creek. The faults and associated splays contain zones of silicification that are infilled with quartz and chalcedony and copper-lead-zinc-silver mineralisation.

Geological mapping at a regional scale shows there are a series of similar faults in the Nortia tenement that be suitable hosts for gold and base metals mineralisation. Historically, these faults appear to have not been systematically explored and warrant further investigations including surface geochemical sampling and geological mapping.

The Nortia Project may also be potential for pegmatite-related lithium, tantalum, niobium, tin and tungsten mineralisation, with high tantalum and tin surface geochemical values being recorded near a lepidolite bearing pegmatite in the far western corner of the tenement.

It is concluded that there is adequate geological evidence to rate the Nortia tenement as prospective for gold, base metals and possibly pegmatite related mineralisation. Further exploration aimed at targeting the main fault zones within the project area is recommended.

1.3 RECOMMENDATIONS

1.3.1 BEATONS RIVER PROJECT AREA

The review of the available data suggests that the Beatons River Project tenure (E46/1215 and E46/1280) area is prospective for gold mineralisation.

In order to confirm the resource potential of the gold mineralisation, there are several key recommendations that should be adhered to:

1. A database should be constructed to host all boreholes and geochemical samples from within tenure and peer deposits, with as much data encoded into the database from a variety of sources (ASX reports, core shed data, open file/publicly available reports etc.).

2. A thorough review of earlier ASX announcements with cataloguing of all notable results from previous tenement holders should be added to the database.

3. All publicly available geophysical data (open file and purchased) over the tenure should be reviewed to identify any exploration targets/focus areas within the tenure as this desktop study has primarily focussed on gold, however other significant mineralisation has been noted within and near tenure.

4. All geophysical data should be reviewed and interpreted by a specialist consultant, familiar with the mineralisation style and local area.

5. Once the geophysical data should be reviewed and interpreted, further geophysical surveys should be considered to provide additional target information on the subsurface.

6. The near tenure drill core located in the Perth GSWA repository should be reviewed for lithology, key mineralisation target units as well as review the hy-logger scanner results of identified drillholes.

7. A site visit with the purpose of:

a. Reconnaissance across the entire project for conglomerate outcrop;

b. Investigation for outcrop over the areas of anomalous stream and rock chip geochemistry; and

c. Surface sampling of any conglomerate, subcrop or float: rock chip, soil etc;

8. Potential follow up with Aircore or RC drilling across anomalous corridors.

9. Potential follow up with Aircore, RC or Diamond core drilling when completing a more detailed assessment of anomalous drilling results and

10. In depth mapping of surface and drilling sampling results based on mineralisation targets.

1.3.2 CUPRITE EAST AND WEST PROJECT AREA

The review of all the available data suggests that the Cuprite East and West are prospective for gold, VMS and komatiite hosted nickel mineralisation and warrant further work.

In order to confirm the project's potential mineralisation and subsequent mineral resources, there are several key recommendations:

1. Historical, company, geochemical sampling and drilling data should be verified against original assay data sheets/drill hole logs to confirm accuracy.

2. The adjusted geochemical data can be normalised or levelled using specialty software to take into account different analytical methods, digestion, sampling method, sieve size, etc.

3. An understanding of deposit ore controls and deposit characteristics such as metal zonation, mineralisation and alteration paragenesis and geochemical and geophysical signatures may help vector exploration.

4. Update earlier structural studies to identify important structural features that control mineralisation. Ideally performed by a specialist familiar with the mineralisation style and local geology.

5. The geochemical data base should be examined to determine if there are suitable pathfinder elements that may locate new anomalies and help vector towards mineralisation.

6. Publicly available geophysical data (EM and magnetic/radiometric) covering the project area should be reviewed in combination with the new structural information and normalised surface geochemistry to identify new target areas that may warrant further examination.

7. Geological reconnaissance of the project, along with ground investigations of target areas including detailed geological mapping and sampling.

8. Follow-up of priority areas with ground geophysical surveys such as magnetics, IP or EM, could be beneficial, with the results interpreted by a specialist familiar with the style of mineralisation being targeted and the local geological environment and

9. Ranking of potential areas are with the most promising, to be tested with appropriate explorations methods such as surface sampling, costeans, aircore drilling, RC drilling and/or diamond drilling.

1.3.3 FORTUNA AND TYCHE PROJECT AREA

The review of the current available data suggests the Tyche-Fortuna tenure (E46/1278 & E45/5304) area is prospective for gold mineralisation. In order to confirm the resource potential of the gold mineralisation, there are several key recommendations that should be adhered to:

1. A database should be constructed to host all boreholes and geochemical samples from within tenure and peer deposits, with as much data encoded into the database from a variety of sources (ASX reports, core shed data, open file/publicly available reports etc.).

2. A thorough review of earlier ASX announcements with cataloguing of all notable results from previous tenement holders should be added to the database.

3. All publicly available geophysical data (open file and purchased) over the tenure should be reviewed to identify any exploration targets/focus areas within the tenure as this desktop study has primarily focussed on gold, however other significant mineralisation has been noted within and near tenure.

4. All geophysical data should be reviewed and interpreted by a specialist consultant, familiar with the mineralisation style and local area.

5. Once the geophysical data should be reviewed and interpreted, further geophysical surveys should be considered to provide additional target information on the subsurface.

6. The near tenure drill core located in the Perth GSWA repository should be reviewed for lithology, key mineralisation target units as well as review the hy-logger scanner results.

7. A site visit with the purpose of:
    a. Reconnaissance across the entire project for conglomerate outcrop;
    b. Investigation for outcrop over the areas of anomalous stream and rock chip geochemistry; and
    c. Surface sampling of any conglomerate, subcrop or float: rock chip, soil etc.

8. Potential follow up with Air-core, RAB or RC drilling across anomalous corridors.

9. Potential follow up with Air-core, RAB and RC or Diamond core drilling when completing a more detailed assessment of anomalous drilling result; and

10. In depth mapping of surface and drilling sampling results based on mineralisation targets;

1.3.4 NORTIA PROJECT AREA

The review of the available data suggests the Nortia Project is prospective for gold, base metals and possibly pegmatite-related mineralisation and therefore warrants further work.
In order to confirm the project's potential mineralisation and subsequent mineral resources, there are several key recommendations that are listed below:

1. A review of historical company reports to capture and digitise data that is not reported by GeoVIEW.WA.

2. Undertake a geological review of Nortia's exploration potential, including identification of target areas for follow-up investigations. The review to ideally be undertaken by an experienced geologist familiar with the local geology and should include a field visit and visit and rock chip sampling.

3. Geological reconnaissance of the project, along with ground investigations of target areas including detailed geological mapping, rock chip and soil sampling.

4. Follow-up of priority areas with ground geophysical surveys such as magnetics, IP or even EM, could be beneficial, with the geophysical results interpreted by a specialist familiar with the style of mineralisation being targeted and the local geological environment; and

5. Ranking of potential areas are with the most promising, to be tested with appropriate explorations methods such as surface sampling, costeans, aircore drilling, RC drilling and/or diamond drilling.

2.0 INTRODUCTION

This report has been prepared by Xplore Resources Pty Ltd ("Xplore Resources") of Brisbane, Queensland, Australia for Graphite Energy Corp which has obtained four gold and gold/base metal project areas (seven tenements in all) in the Pilbara region of northern Western Australia.

Graphite Energy Corp engaged Xplore Resources to validate all the data provided by the vendors of the four project areas as well as thoroughly interrogate all available open file, government and private exploration and research data relevant to each project area.

The primary author of this report is Mr Matthew F. Stephens, BAppSc, FAIG who is a Professional Geologist with 37 years' experience in metalliferous evaluations, exploration, development and mining operations, including work done on conglomerate (palaeoplacer) gold deposits in Queensland and Archean gold deposits in Western Australia.

As a consequence of COVID-19 pandemic, Xplore Resources managed to engage a Western Australian based Geologist, whom can act as a Qualified Person to complete site visit under the instructions and guidelines set out by the lead author.

In August 2020, Bryan Bourke, Resource Consultant Geologist and Nicholas Hoad, Field Assistant, carried out a five-day field reconnaissance of seven (7) tenements located in the East Pilbara region of Western Australia. An excerpt from their report is reproduced in Section 16.0 OTHER RELEVANT DATA AND INFORMATION, starting on page 148

Mr Bryan Bourke BSc (Earth Sciences and Economics), MAIG, is an experienced Professional Geologist with over 35 years' experience in metalliferous exploration experience, ranging from greenfields projects, the development of mineral projects, and mining operations. The professional experience in the minerals industry includes projects located within the Pilbara region of WA, which includes over 20 years in the many types of Archaean gold deposits located throughout the Yilgarn Province of WA.

3.0 RELIANCE ON OTHER EXPERTS

Xplore Resources has completed this report based on the reliance upon data and information provided by the Pilbara Gold Group Pty Ltd, Mineral Edge Pty Ltd and Great Sandy Pty Ltd as well as open file data from the Western Australian Government's WAMEX (Western Australian Minerals Exploration) system and publicly available government and private research relevant to each of the project areas.

All sources of data and information were validated in as much detail as possible.

In addition, given that the Beatons River tenements are adjacent to Novo's Beatons Creek tenure and that the lithologies that host mineralisation continue into the Beatons River tenure, referrals/excerpts were taken from Novo's publicly available information, including their three NI 43 -101 reports on Beatons Creek dated 2103, 2015 and 2019.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 BEATONS RIVER PROJECT PROPERTY DESCRIPTION AND LOCATION

The centre of the Beatons River project area is 19km to the north-west of the town of Nullagine (population approx. 1700, 2016 Census) along the gravel Marble Bar Road.

Primary access to Nullagine is by road and is located 1,364km north-northeast of Perth, 296km from Port Hedland and 170km from the mining town of Newman (Figure 4.1 on page 24***)***. A Frequent air services connect the town with Port Hedland and Marble Bar.

The project area is near and to the west of the privately-owned Newman to Port Hedland railroad used to transport iron ore. Access within the area is mainly by poor-quality pastoral and mining tracks. The Great Sandy Desert, in the eastern part of the area, is crossed by one company road.

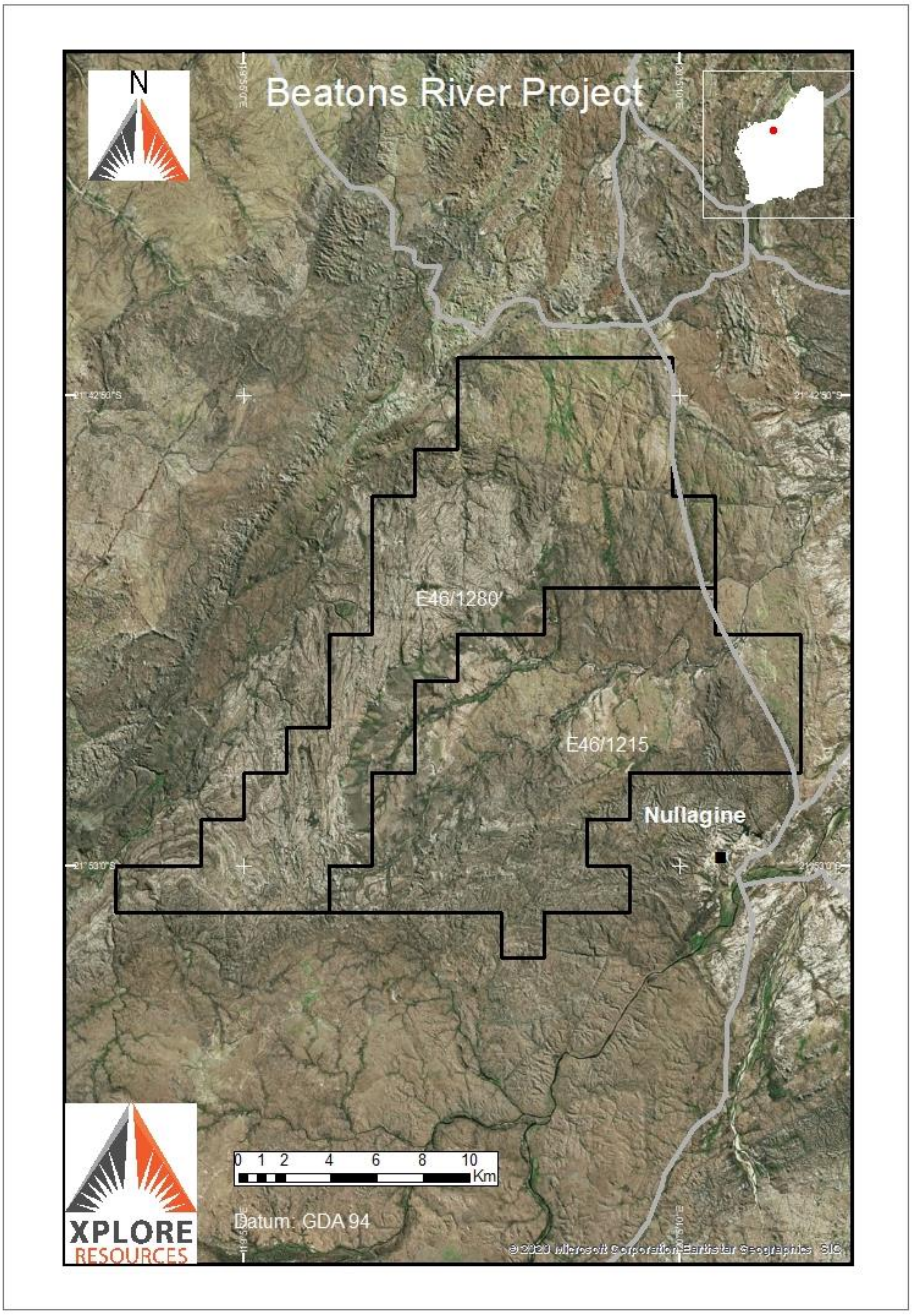


Figure 4.1: Beatons River Project Area Tenements

Four-wheel-drive vehicles are essential for most tracks. Existing infrastructure in Nullagine (e.g. airstrips, medical centres, shops, accommodation, etc.) is enough to support an early-stage exploration program.

The Beatons River Project comprises two contiguous granted tenements E46/1215 and E/461280. Great Sandy Pty. Ltd. applied for exploration licence E46/1215 covering 49 blocks for an area of approximately 137km^2 on 18th of October 2017 and the tenement was granted on 29th of October 2018 for a term of 5 years.

Mineral Edge Pty. Ltd. applied for E46/1280 on the 20th 0f July 2020 covering 56 blocks for an area of 178km^2 and was granted 29th July 2020.

WESTERN AUSTRALIA Mining Act 1978 Sec. 58; Reg. 64	FORM 21 - ATTACHMENT 1	
EXPLORATION LICENCE NO. 46/1215		
THIS SECTION MUST BE COMPLETED IN FULL FOR ALL EXPLORATION LICENCE APPLICATIONS		
LOCALITY: Nullagine		
BLOCK IDENTIFIER (All three sections must be completed)		
1:1,000,000 PLAN NAME	**PRIMARY NUMBER**	**GRATICULAR SECTION**
HAMERSLEY RANGE	1584	z
HAMERSLEY RANGE	1656	ejkopstu
OAKOVER RIVER	1513	nopqrstuvwxyz
OAKOVER RIVER	1514	lqrsvwx
OAKOVER RIVER	1585	abcdefghjlmnqrstw
OAKOVER RIVER	1586	abc
	TOTAL BLOCKS:	**49**

Figure 4.2: Beatons River tenure (E46/1215) application blocks, all blocks were granted (Government of Western Australia, 2020a)

WESTERN AUSTRALIA Mining Act 1978 Sec. 58; Reg. 64	FORM 21 - ATTACHMENT 1	
EXPLORATION LICENCE NO. 46/1280		
THIS SECTION MUST BE COMPLETED IN FULL FOR ALL EXPLORATION LICENCE APPLICATIONS		
LOCALITY: NORTH NULLAGINE		
BLOCK IDENTIFIER (All three sections must be completed)		
1:1,000,000 PLAN NAME	**PRIMARY NUMBER**	**GRATICULAR SECTION**
HAMERSLEY RANGE	1512	z
HAMERSLEY RANGE	1584	dejkopstuxy
HAMERSLEY RANGE	1655	pstu
HAMERSLEY RANGE	1656	bcdfghlmnqr
OAKOVER RIVER	1441	lmnopqrstuvwxyz
OAKOVER RIVER	1513	abcdefghjklm
OAKOVER RIVER	1514	af
	TOTAL BLOCKS:	**56**

Figure 4.3: Beatons River tenure (E46/1280) application blocks, all blocks were granted (Government of Western Australia, 2020a)

4.2 CUPRITE PROJECT PROPERTY DESCRIPTION AND LOCATION

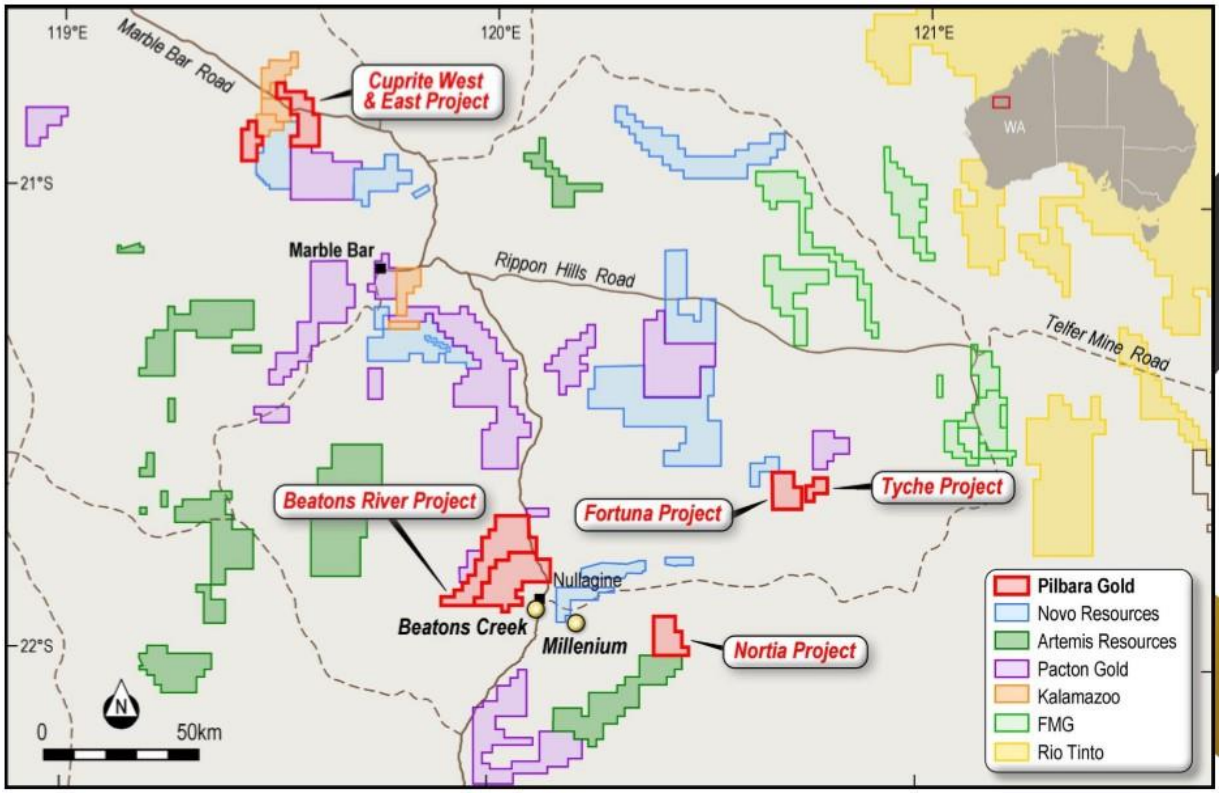


Figure 4.4: Location of Graphite Energy Corp Pilbara tenements also showing the tenements of major competitors in the same region

Tenement Nos.	Project Name	Date Applied	Date Granted	Expiry Date	Area (Blocks)	Area (Hectares-approx.)	Tenement Ownership
E46/1277	Nortia	17/07/2018	10/3/2020	9/3/2025	19	5,510	Pilbara Gold Group Pty Ltd
E46/1278	Fortuna	17/07/2018	6/7/2020	5/7/2025	18	5,202	Pilbara Gold Group Pty Ltd
E45/5304	Tyche	17/07/2018	5/3/2020	4/3/2025	6	1,734	Pilbara Gold Group Pty Ltd
E46/1215	Beatons River	18/10/2017	29/10/2018	28/10/2023	49	14,161	Great Sandy Pty Ltd
E46/1280	Beatons River	20/07/2017	28/07/2020	27/10/2025	56	16,184	Mineral Edge Pty Ltd
E45/4918	Cuprite East	1/5/2017	27/072020	26/07/2025	24	6,936	Great Sandy Pty Ltd
E45/5028	Cuprite West	3/10/2017	26/07/2020	26/07/2025	10	2,890	Great Sandy Pty Ltd

The Cuprite Project is centred 108km east-southeast of the town of Port Headland and 48km northwest of the town of Marble Bar (Figure 4.4). Marble Bar, with a popular of 634 in the 2016 (Australian Bureau of Statistics, 2016) is situated on the sealed Port Headland-Marble Road. The nearest railway is the Port Headland- Goldsworthy line, 40km to the north of the project area.

The Cuprite Project is accessible by the sealed Port Headland to Marble Bar Road that transects the project area. Access within the area is by several intermittently maintained pastoral and mining tracks that join with the Marble Bar Road.

Intervening areas can be accessed by 4WD cross-country travelling or on foot in the more rugged parts of the project area.

All tracks identified in the project area are based on the national dataset (Geoscience Australia, 2019) and their location should be considered as approximate (Figure 4.5 on page 28).

There are few landholders in the area, with Cuprite West being located on Perpetual Lease (PL) N049939-108 and PL N049544-07 and Cuprite East located on PL N049539-108 (GeoVIEW.WA, 2020).

Port Headland is the second largest town in the Pilbara region of WA and is a major mining services hub with regular flights to Perth and Marble Bar. Field supplies, fuel and accommodation are available at Marble Bar, which also has a medical centre that is staffed by a Senior Registered Nurse.

The land within and surrounding the Cuprite Project has been classified as “Grazing Native Vegetation” by the Australian Government’s Department of Agriculture, Water and the Environment (ABARES). These are areas of land that are often unused or used primarily for stock grazing.Figure 4.6 on page 29

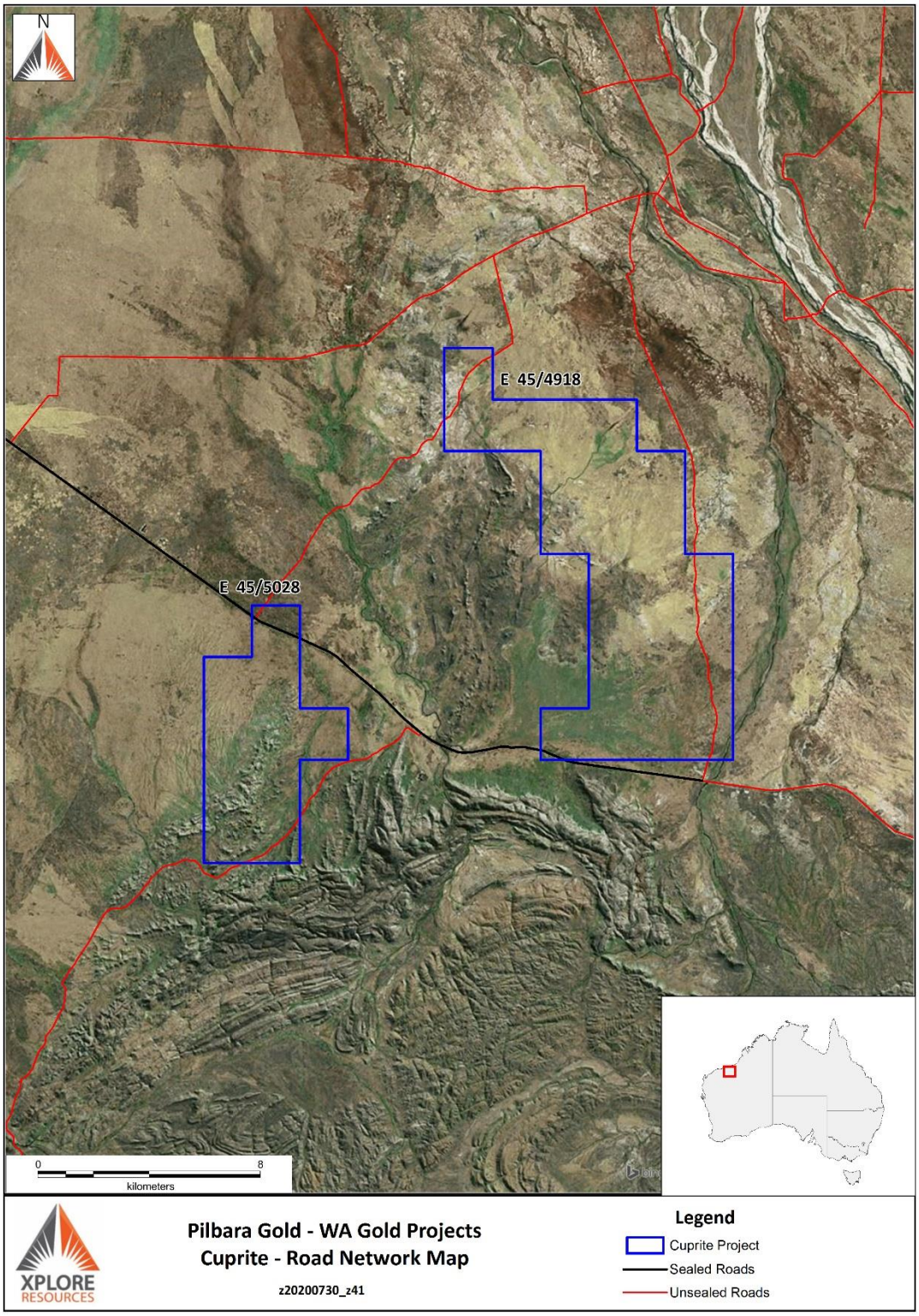


Figure 4.5: Location of Cuprite East and West Project Area

Warralong Station, about 7km north of Cuprite East is the nearest extant settlement that runs cattle (Van Kranendonk, 2010). The Cuprite East and West Project Area consists of two granted exploration licences E45/4918 (Cuprite East) and E45/5028 (Cuprite West) and is centred about 48km NW of the town of Marble Bar, in northern WA.

Great Sandy Pty Ltd applied for the Cuprite East and Cuprite West tenements on 1 May 2017 and 3 October 2017 respectively (Figure 4.6). The Cuprite East tenement comprises 24 blocks and covers an area of 53.91km^2, while the Cuprite West tenement comprises 10 blocks and covers an area of 28.93km^2.

Both exploration licences were granted on 27 July 2020 for five years (GeoVIEW.WA, 2020). The primary purpose of the tenure is to secure ground that is prospective for gold and base metals mineralisation within known mineralised Archean ultramafic rocks.

WESTERN AUSTRALIA Mining Act 1978 Sec. 58; Reg. 64	**FORM 21 - ATTACHMENT 1**	
EXPLORATION LICENCE NO. 45/4918		
THIS SECTION MUST BE COMPLETED IN FULL FOR ALL EXPLORATION LICENCE APPLICATIONS		
LOCALITY: Reserve Well		
BLOCK IDENTIFIER (All three sections must be completed)		
1:1,000,000 PLAN NAME	**PRIMARY NUMBER**	**GRATICULAR SECTION**
HAMERSLEY RANGE	643	mrstuyz
HAMERSLEY RANGE	644	v
HAMERSLEY RANGE	715	dekpuyz
HAMERSLEY RANGE	716	afglmqrvw
TOTAL BLOCKS:		**24**

WESTERN AUSTRALIA Mining Act 1978 Sec. 58; Reg. 64	**FORM 21 - ATTACHMENT 1**	
EXPLORATION LICENCE NO. 45/5028		
THIS SECTION MUST BE COMPLETED IN FULL FOR ALL EXPLORATION LICENCE APPLICATIONS		
LOCALITY: Gorge Creek		
BLOCK IDENTIFIER (All three sections must be completed)		
1:1,000,000 PLAN NAME	**PRIMARY NUMBER**	**GRATICULAR SECTION**
HAMERSLEY RANGE	714	nrswxy
HAMERSLEY RANGE	786	bcgh
TOTAL BLOCKS:		**10**

Figure 4.6: Cuprite West (E45/5028) Application Blocks

4.3 FORTUNA AND TYCHE PROJECT PROPERTY DESCRIPTION AND LOCATION

The Tyche (E45/5304) and Fortuna (E46/1278) project areas are approximately 118km east-south-east of Marble Bar and 75km east-northeast of Nullagine.

The town of Nullagine has population of approximately 1,700 (Australian Bureau of Statistics, 2016) and lies on the Marble Bar Road which connects Great Northern Highway from north to south.

Marble Bar Road connects to the Great Northern Highway in Newman, approximately 45km south of Nullagine, which connects the North Region of WA to Perth (Figure 4.7).

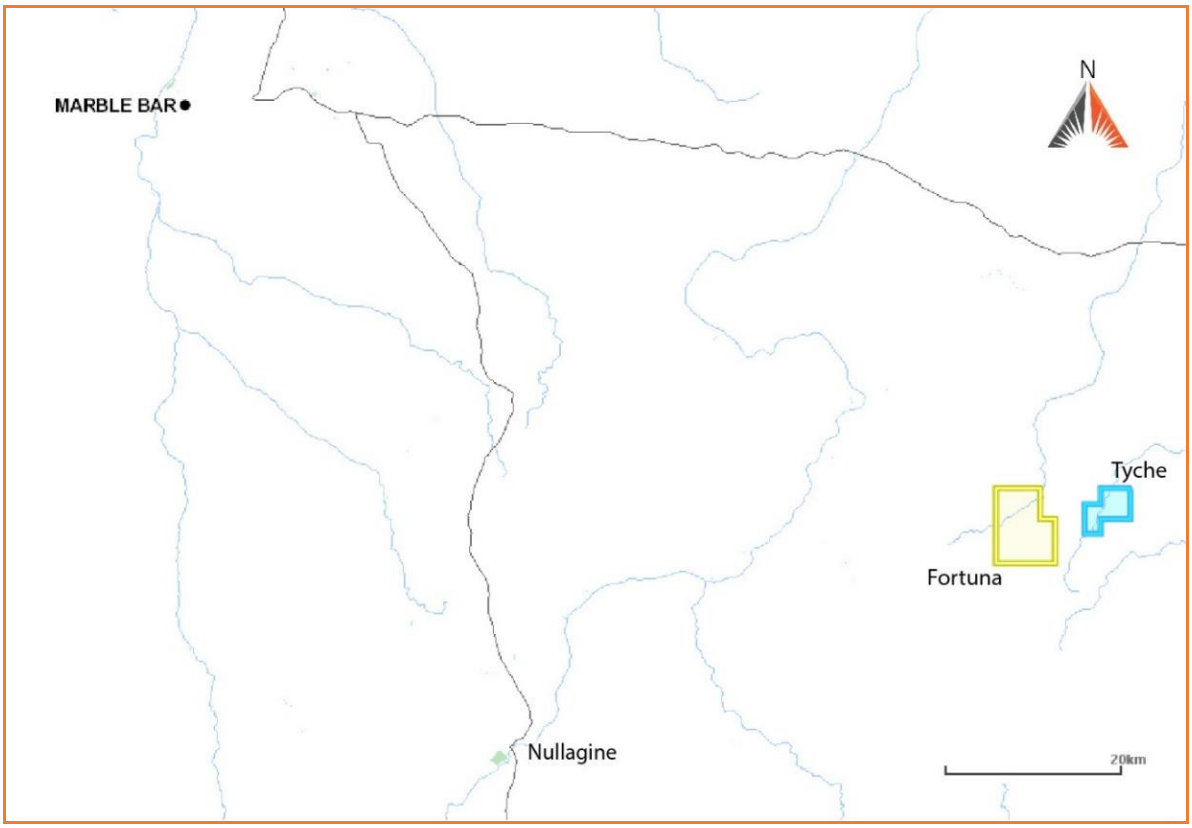


Figure 4.7: Locality of the Tyche-Fortuna Project

4.4 NORTIA PROJECT PROPERTY DESCRIPTION AND LOCATION

The Nortia tenure (E46/1277) is located approximately 30km south-east of the town of Nullagine and approximately 110km south-south-east of Marble Bar (Figure 4.8 on page 31). Nullagine, with a population of approximately 1,701 (Australian Bureau of Statistics, 2016), is on the Marble Bar Road which connects Great Northern Highway from north to south.

Marble Bar Road connects to the Great Northern Highway in Newman, approximately 45km south of Nullagine, which connects the North Region of WA to Perth.

The Nortia tenure (E46/1277) is accessible from Nullagine via Skull Spring Road which crosses nearby of the south-west of the tenement. Skull Road doesn't cut off the tenement area but it's accessable via unsealed roads from the tenement.

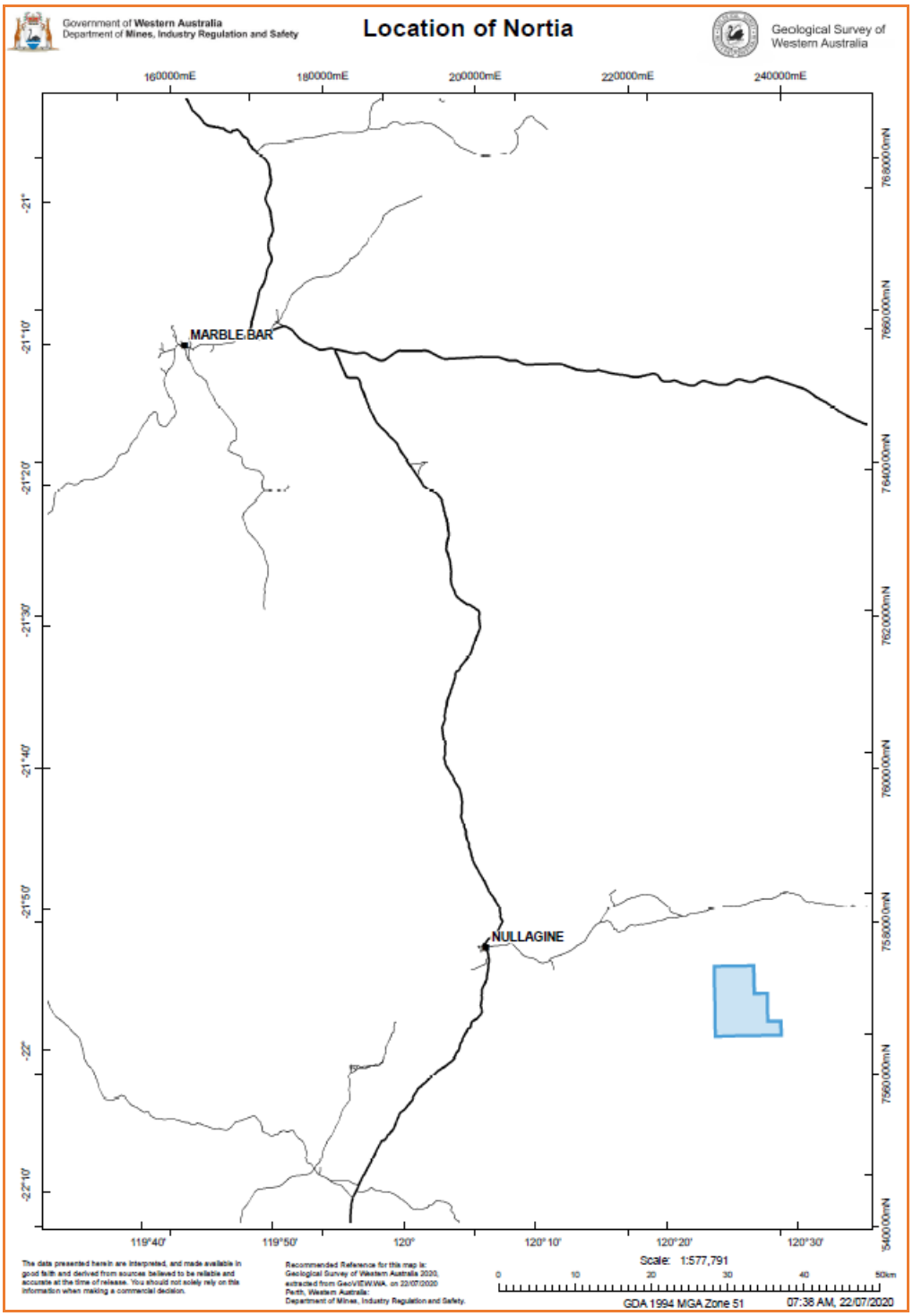


Figure 4.8: Nortia Tenement Location (Government of Western Australia, 2020)

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, SITE TOPOGRAPHY, ELEVATION AND VEGETATION, INFRASTRUCTURE & PHYSIOGRAPHY

5.1 BEATONS RIVER PROJECT AREA

The centre of Beatons River Project is located 19km NW of the town of Nullagine, in the eastern Pilbara region of Northern Western Australia.

The Beatons River Project comprises two contiguous granted tenements E46/1215 and E/461280. Great Sandy Pty. Ltd. applied for exploration licence E46/1215 covering 49 blocks for an area of approximately 137km^2 on 18th of October 2017 and the tenement was granted on 29th of October 2018 for a term of 5 years.

Mineral Edge Pty. Ltd. applied for E46/1280 on the 20th 0f July 2020 covering 56 blocks for an area of 178km^2 and was granted 29th July 2020.

The East Pilbara region has a hot desert climate (Köppen BWh) characterized by very high summer temperatures and large daytime temperature variations (>13.2°C) throughout the year. December and January are the hottest months with average maximum temperatures above 40°C and record highs over 48°C.

The mean maximum temperatures range from 27°C to 42°C and the mean minimum temperatures from 12.2°C to 26.5°C. The data above was collected from the Marble Bar Station which has been actively working since 2000 (Bureau of Metrology 2020, Figure 5.1 on page 33).

The nearest station to the project tenements is the Nullagine Station which was active between 1897 and 2004. According to the data from Nullagine Station, the mean rainfall for the area is 325.7mm per year and occurring over 33.1 days.

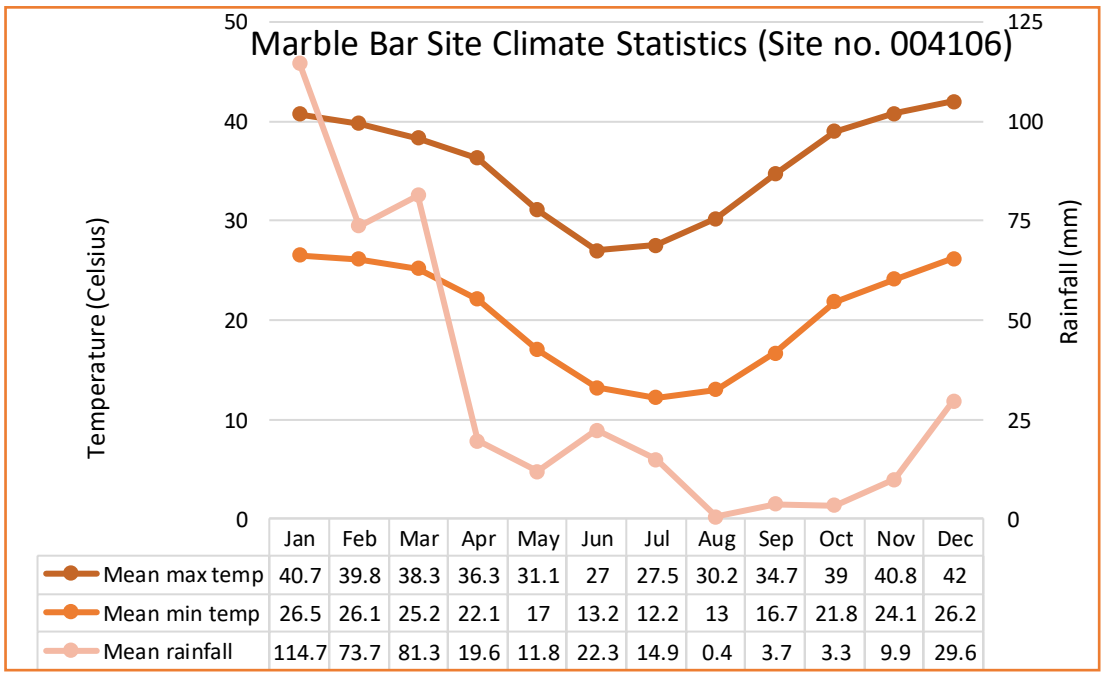
The mean maximum temperatures range from 24°C to 39.7°C and the mean minimum temperatures from 7.5°C to 24.2°C. The graph below (Bureau of Metrology 2020 Figure 5.2 on page 33) represents the data collected between 1897-2004 in Nullagine Station.

The East Pilbara region is influenced by both northern (tropical cyclone) and southern (temperate) rainfall systems, which bring rains in the summer and winter months, respectively. However, rainfall in the region is generally light and infrequent.

Nullagine has a mean annual rainfall of 392mm, mostly falling between January and March. Little rain usually falls between July and November, with September and October the driest months. Except for a few isolated pools, creeks are generally dry throughout most of the year, but can rise rapidly and flood large areas after heavy rains (predominantly during the summer months).

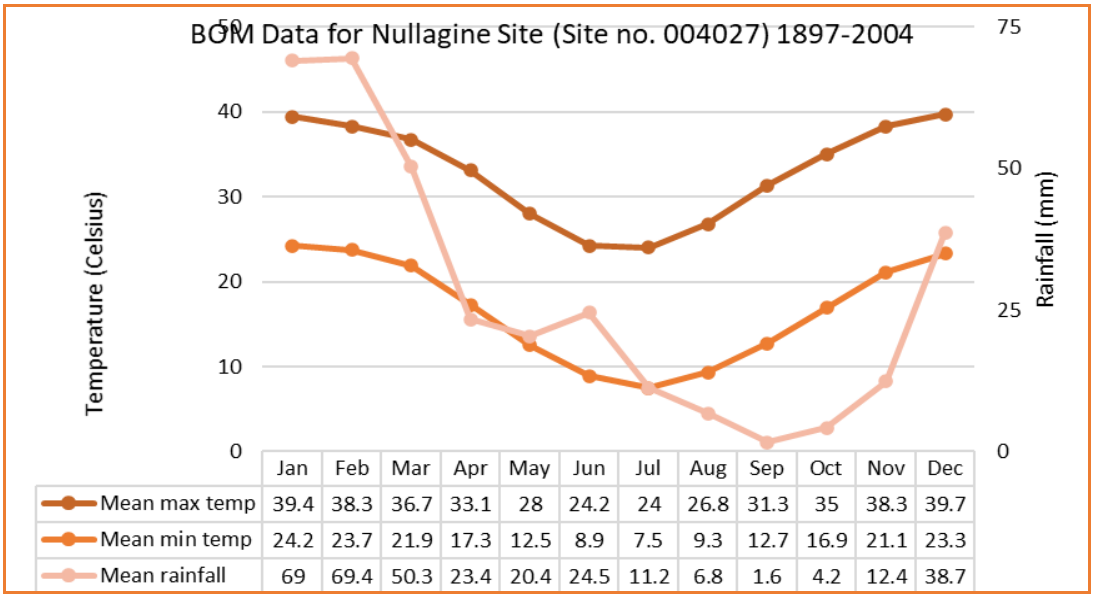
Because a high proportion of the rainfall can be from a small number of large storms, flooding near major river and creek systems is not unusual. The Nullagine River is subject to flooding and the town of Nullagine is in a Floodplain Management Area. Considering the remote nature of the project area, field work is generally conducted between late autumn and early spring (April–September), when temperatures and the likelihood of heavy rains are both lowest.

The East Pilbara region has an arid climate, rugged topography and complex geomorphology. The geologic setting of this area results in an alternating terrain, ranging from an irregular landscape of high relief, to steep, uneven, boulder-strewn hill slopes, transitioning into smooth intervening, flat-bottomed valleys (Thorne and Trendall, 2001).



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean max temp	40.7	39.8	38.3	36.3	31.1	27	27.5	30.2	34.7	39	40.8	42
Mean min temp	26.5	26.1	25.2	22.1	17	13.2	12.2	13	16.7	21.8	24.1	26.2
Mean rainfall	114.7	73.7	81.3	19.6	11.8	22.3	14.9	0.4	3.7	3.3	9.9	29.6

Figure 5.1: Graph of the data from Marble Bar Station (Bureau of Meteorology, 2020a)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean max temp	39.4	38.3	36.7	33.1	28	24.2	24	26.8	31.3	35	38.3	39.7
Mean min temp	24.2	23.7	21.9	17.3	12.5	8.9	7.5	9.3	12.7	16.9	21.1	23.3
Mean rainfall	69	69.4	50.3	23.4	20.4	24.5	11.2	6.8	1.6	4.2	12.4	38.7

Figure 5.2: Graph of the data from Nullagine Station (Bureau of Meteorology, 2020b)

There are a few minor unsealed roads and 4WD tracks in the project area, but vehicular access is generally poor and hampered by the rugged topography. Elevations range from ± 150m to 440m (Figure 5.6 on page 36) above sea-level in the Beatons River project area.

Away from the few major rivers with permanent surface pools or shallow groundwater, vegetation is relatively sparse.

The project area is lightly vegetated, with a ubiquitous ground cover of Spinifex grass and scattered shrubs of Hakea, Acacia and Grevillia. Larger trees, including Eucalyptus and Melaleuca species are confined to the immediate vicinity of drainage lines (Thorne and Trendall, 2001).

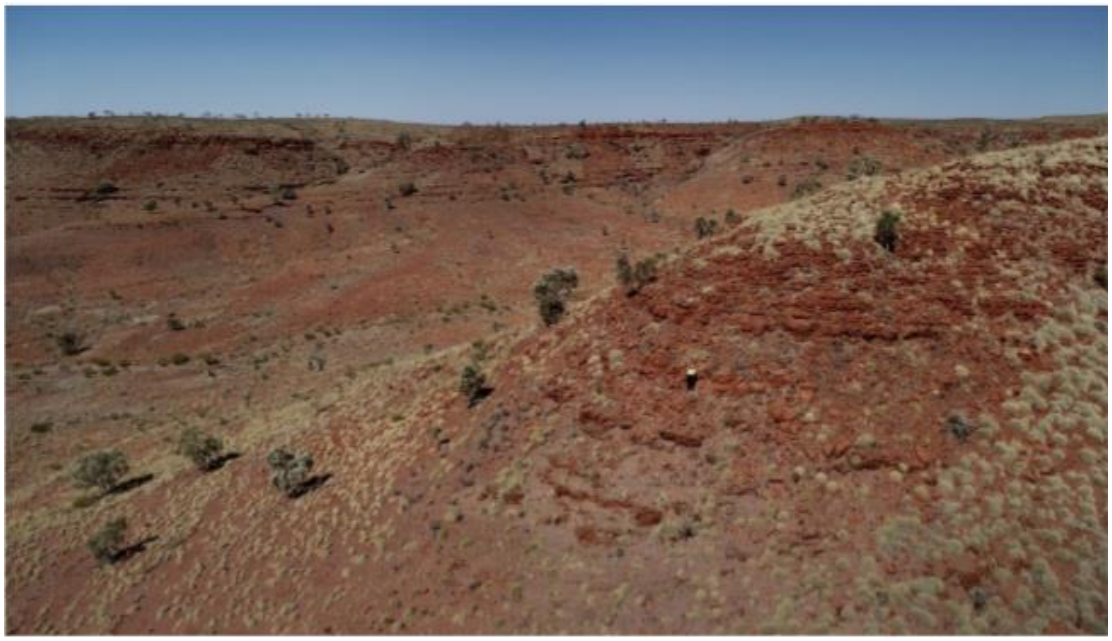


Figure 5.3: Typical landscape of Beatons River Tenure (Richardson 2020)

Figure 5.4: Looking NW along the NE trending ridge through E46/1280 from E46/1215 (Richardson 2020)

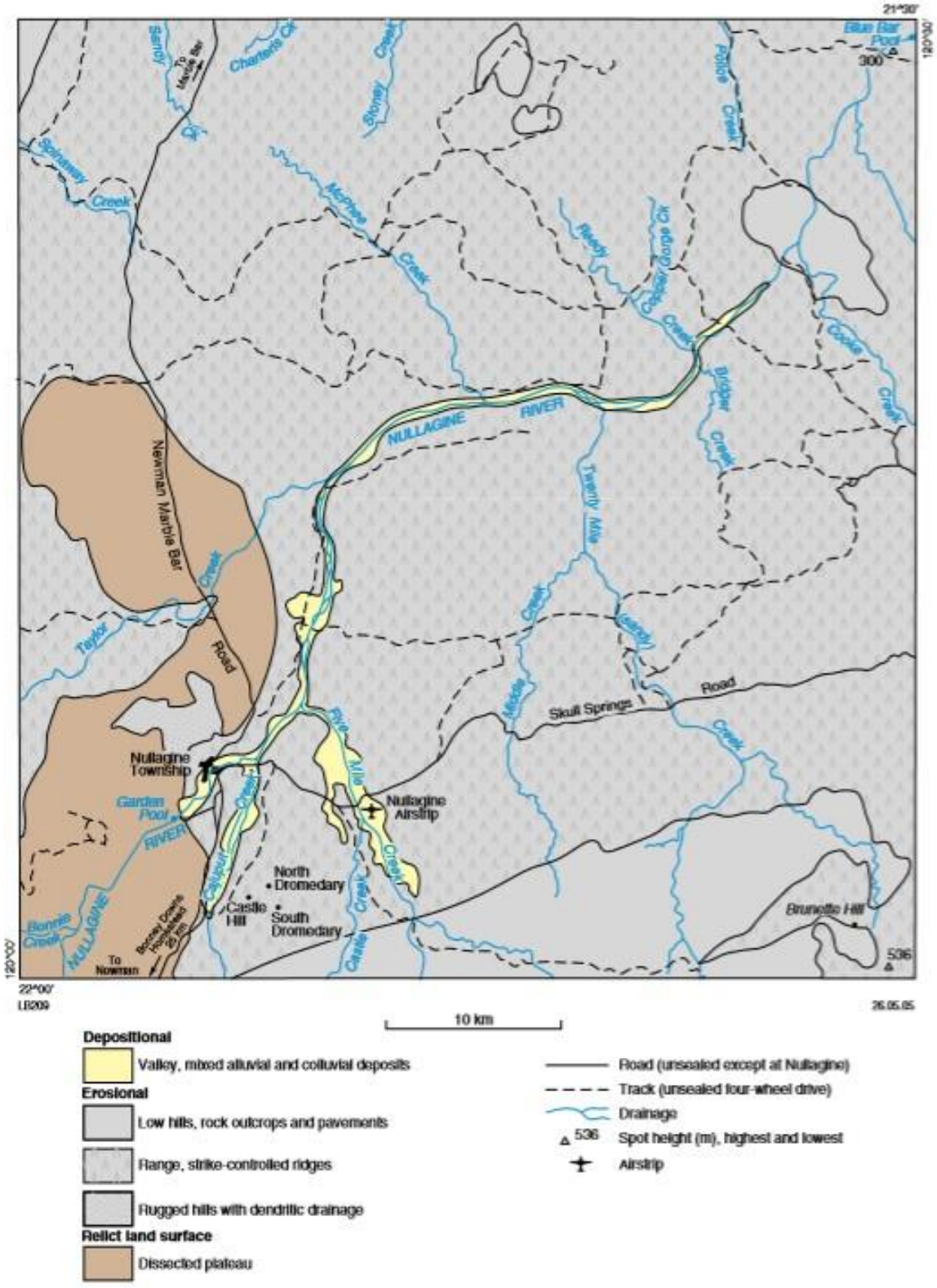


Figure 5.5: Physiography of the Nullagine Region (Source GSWA 2005)

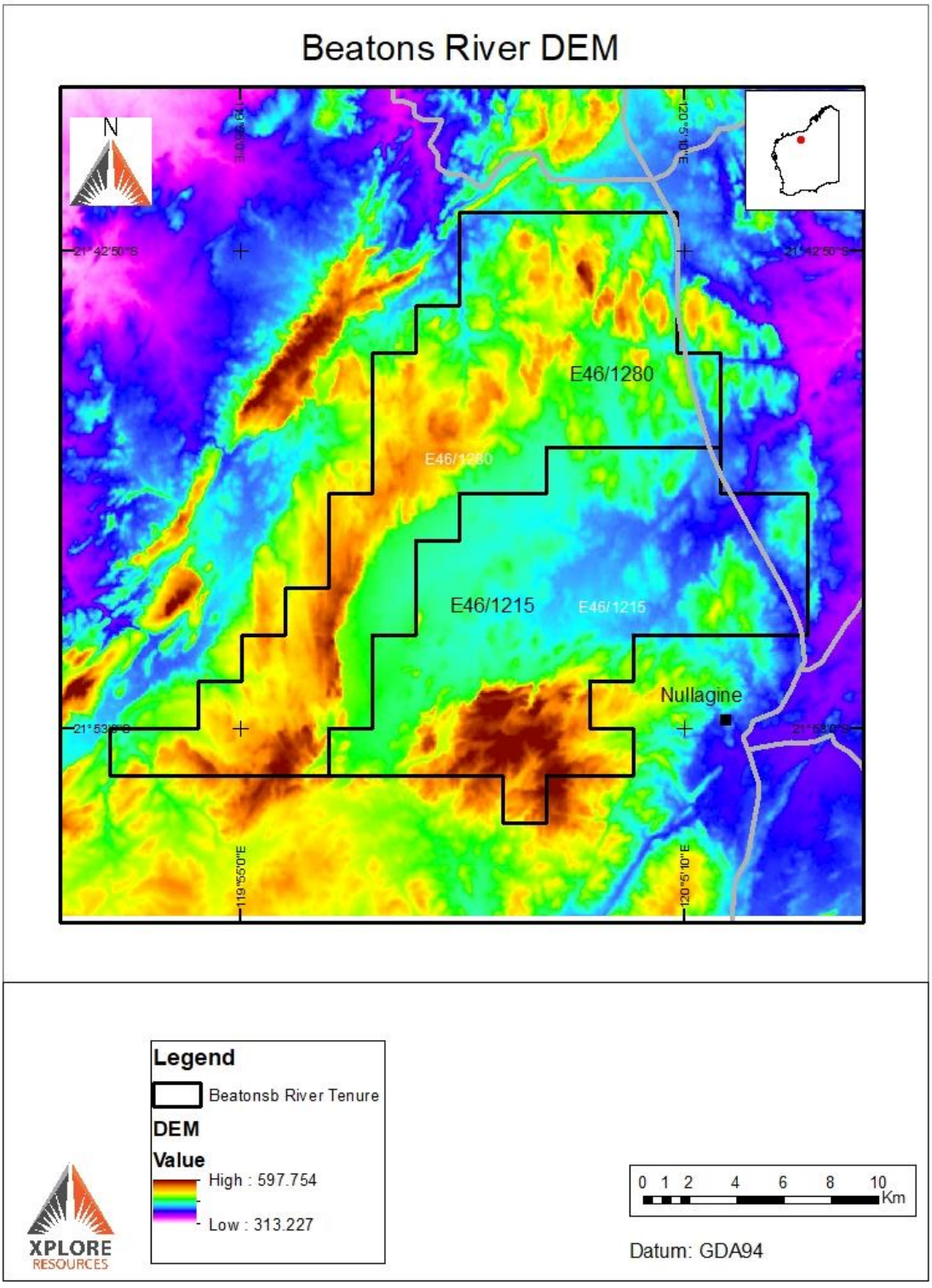


Figure 5.6: DEM of the Beatons River Project (Geoscience Australia ELVIS, 2020)

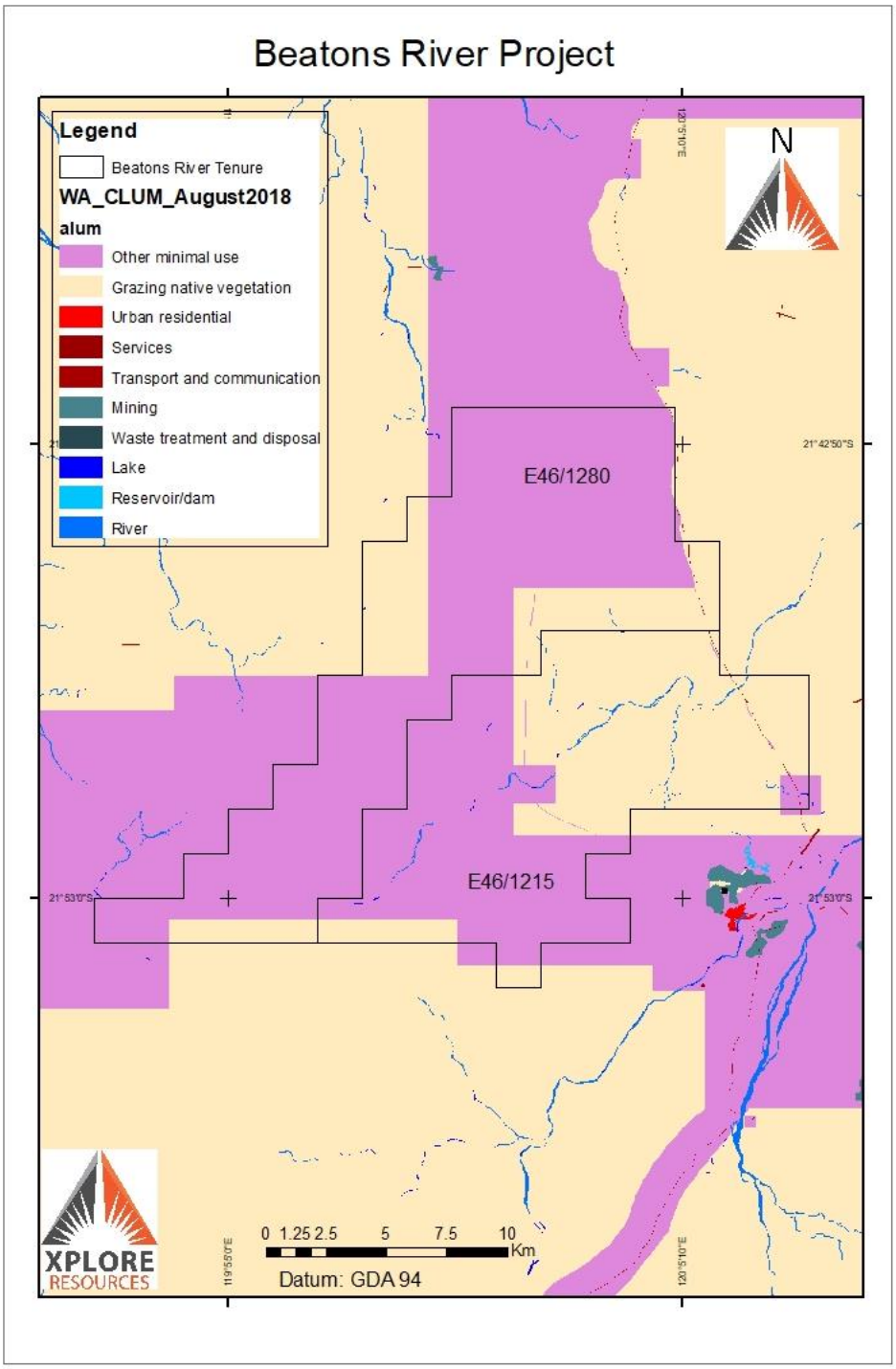


Figure 5.7: Beatons River Tenure Land use map (Department of Agriculture and Water Resources, 2018)

Most of the area has been classified as either 'minimal use' or 'grazing native vegetation' by the Australian Government's Department of Agriculture and Water Resources. These are areas of land that are largely unused or for stock grazing. Figure 5.7 shows the designated land use in the project area.

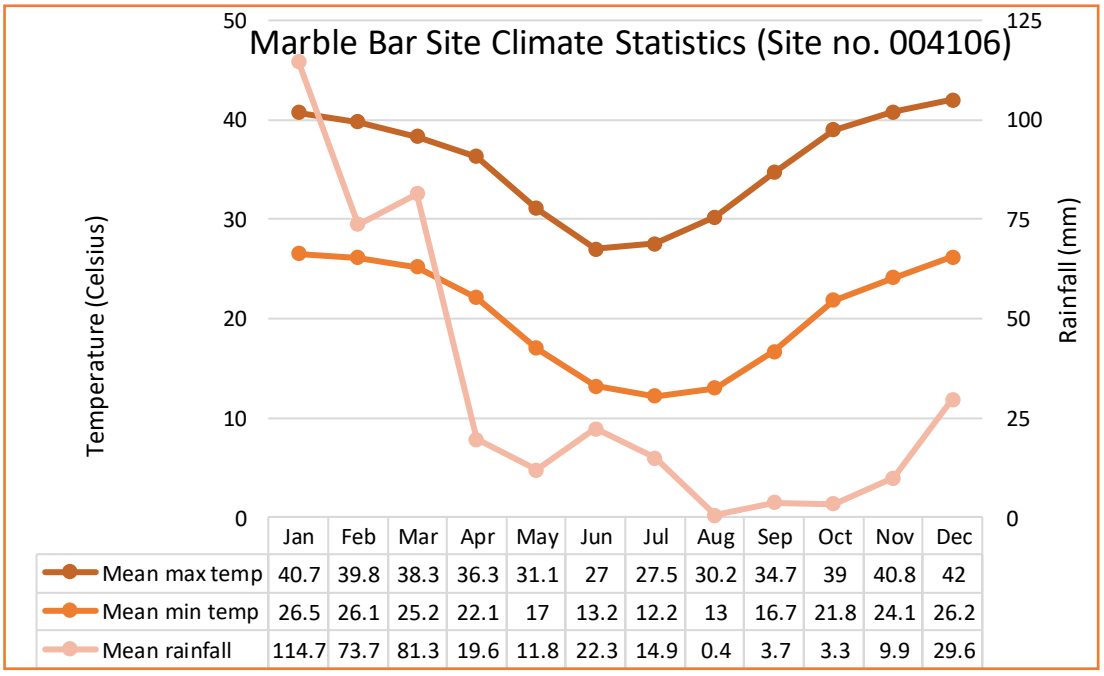
5.2 CUPRITE EAST AND WEST PROJECT AREA

The Cuprite Project, which comprises two granted exploration licences (E45/4198 and E45/5028) in Western Australia (WA), centred about 108km east-southeast (ENE) of the town of Port Headlands and 48km northwest (NW) of the town of Marble Bar (Figure 4.5 on page 28).

The Cuprite area is characterised as having a hot desert climate with sweltering summers and warm winters. Since 2000, rainfall and temperature data have been collected from the nearest Weather Station at Marble Bar.

The mean maximum temperatures at Marble Bar range from 27°C to 42°C and the mean minimum temperatures from 12.2°C to 26.5°C (Figure 5.8) **.** The town set a world record of most consecutive days of 100 °F (37.8 °C) or above, during a period of 160 days from 31 October 1923 to 7 April 1924. (Bureau of Meteorology, 2020)

Most of the annual rainfall occurs in the summer and the mean rainfall for the area is 392.7mm per year and occurring over 43.3 days. Rainfall is erratic, with little precipitation during the winter months of May and June, but the area is subject to floods during cyclone and thunderstorm activity between December and March (Van Kranendonk, 2010).



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean max temp	40.7	39.8	38.3	36.3	31.1	27	27.5	30.2	34.7	39	40.8	42
Mean min temp	26.5	26.1	25.2	22.1	17	13.2	12.2	13	16.7	21.8	24.1	26.2
Mean rainfall	114.7	73.7	81.3	19.6	11.8	22.3	14.9	0.4	3.7	3.3	9.9	29.6

Figure 5.8: Graph of the data from Marble Bar station (Bureau of Meteorology, 2020)

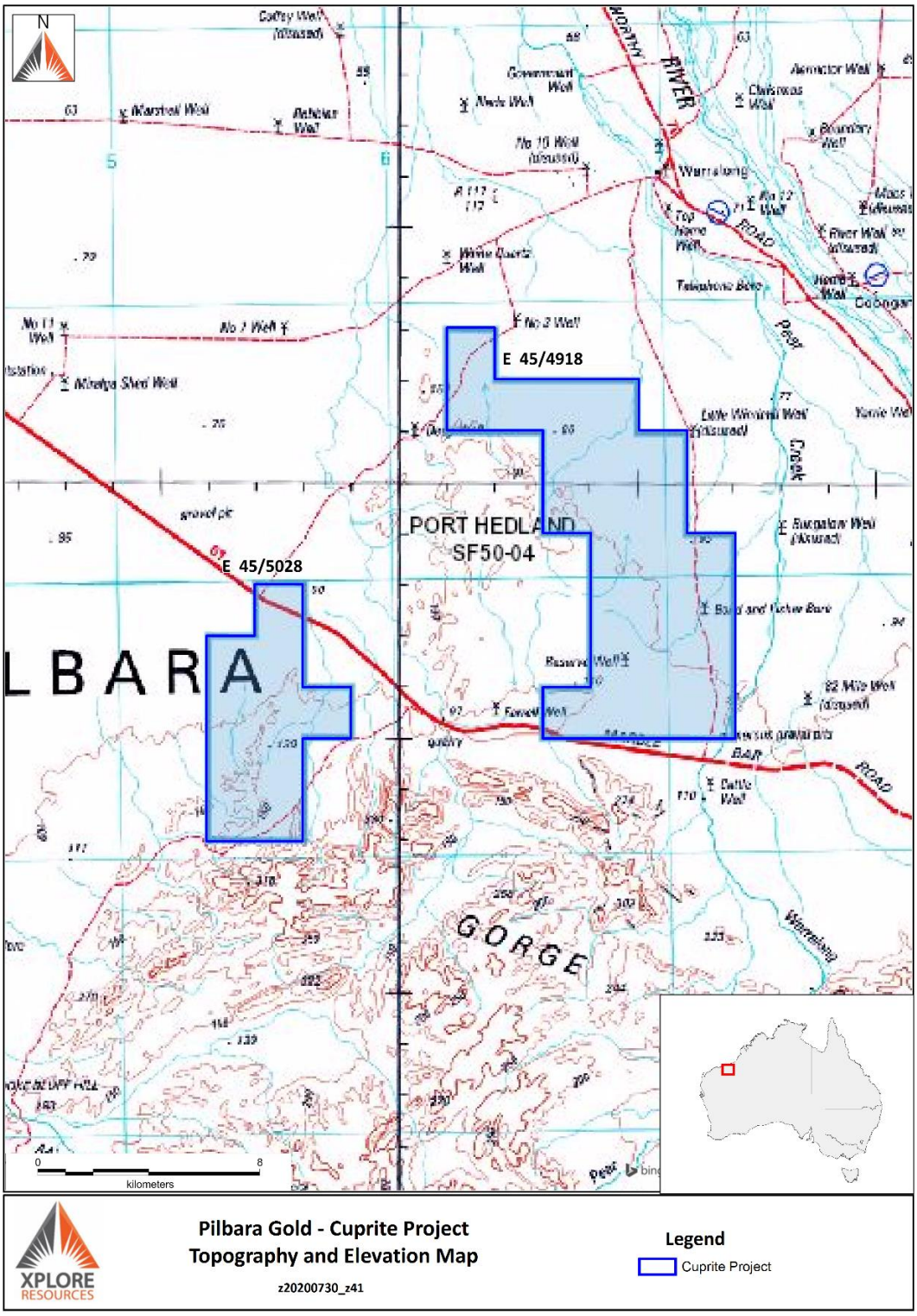


Figure 5.9: Cuprite East and West Topography and Elevation

The East Pilbara region in some areas has a rugged topography and complex geomorphology. The geological setting has resulted in an alternating terrain, ranging from an irregular landscape of high relief, to steep, uneven, boulder-strewn hill slopes, transitioning into smooth intervening, flat-bottomed valleys.

Within the project area, elevation ranges from about 80m to 150m above sea level. The lowest elevations are in the north-eastern part of the project, near Little Windmill Well (disused) and the highest elevations are near the south-western part of the project. The Cuprite Project lies immediately north of the Gorge Range, where elevations can reach over 360m above sea level (Figure 5.9 on page 39).

Away from major rivers, vegetation is sparse, with the project area being lightly vegetated with ground cover including mainly spinifex grass and scattered shrubs. Larger trees, such as Eucalyptus and Melaleuca are common along drainage depressions and areas of rock outcrop are often covered with small shrubs, grasses, mulga, stunted eucalypts and fig trees (Van Kranendonk, 2010).

The Cuprite Project is accessible by the sealed Port Headland to Marble Bar Road that transects the project area. Access within the area is by several intermittently maintained pastoral and mining tracks that join with the Marble Bar Road.

Intervening areas can be accessed by 4WD cross-country travelling or on foot in the more rugged parts of the project area. All tracks identified in the project area are based on the national dataset (Geoscience Australia, 2019) and their location should be considered as approximate (Figure 5.10 on page 41).

There are few landholders in the area, with Cuprite West being located on Perpetual Lease (PL) N049939-108 and PL N049544-07 and Cuprite East located on PL N049539-108 (GeoVIEW.WA, 2020).

Port Headland is the second largest town in the Pilbara region of WA and is a major mining services hub with regular flights to Perth and Marble Bar. Field supplies, fuel and accommodation are available at Marble Bar which also has a medical centre that is staffed by a Senior Registered Nurse.

The land within and surrounding the Cuprite Project has been classified as “Grazing Native Vegetation” by the Australian Government’s Department of Agriculture, Water and the Environment (ABARES).

These are areas of land that are often unused or used primarily for stock grazing.Figure 5.10 on page 411 Figure 5.3 on page 34shows the land use in the project area (ABARES, 2020).

Warralong Station, about 7km north of Cuprite East is the nearest extant settlement that runs cattle (Van Kranendonk, 2010).

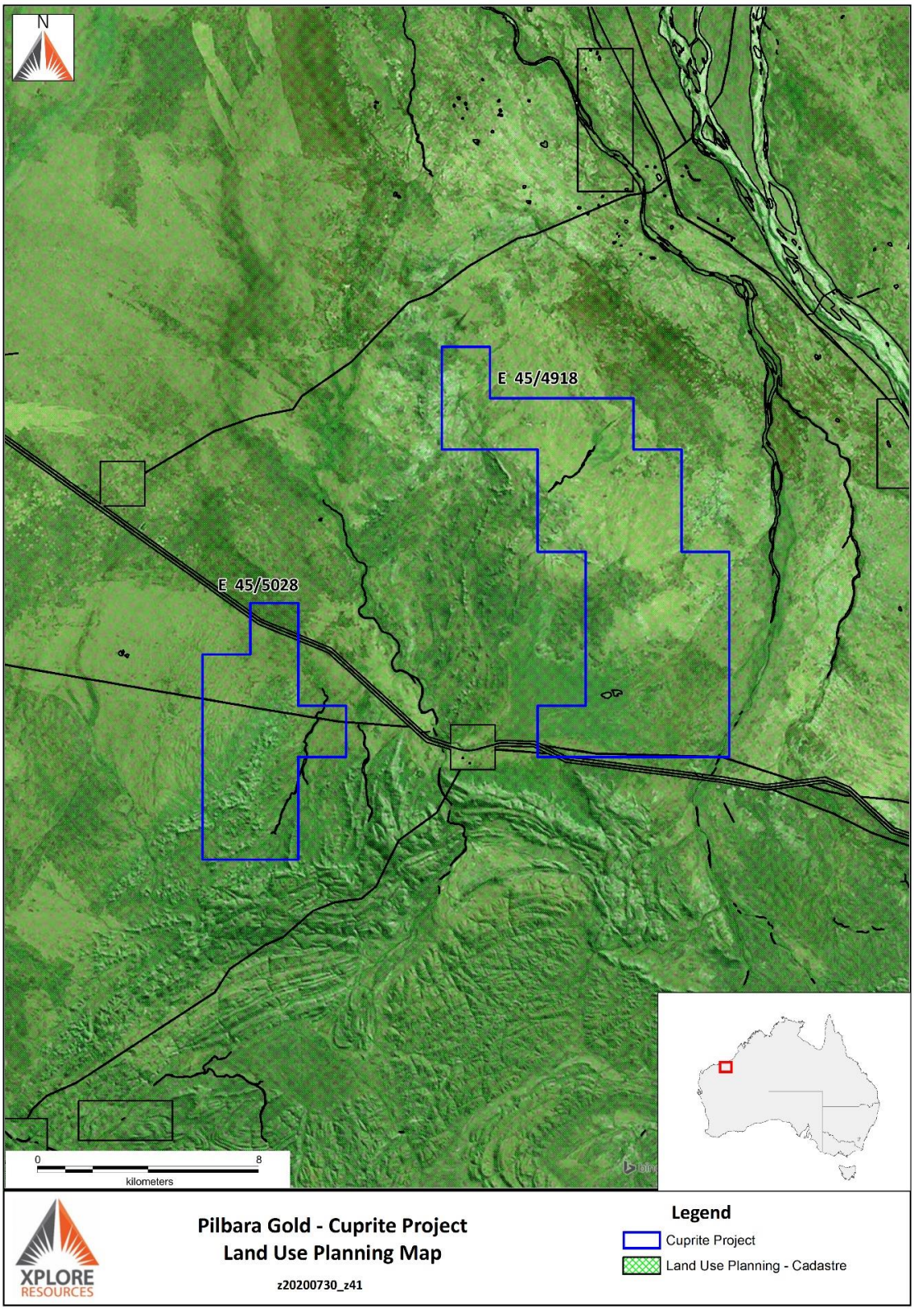


Figure 5.10: Cuprite East and West Project Area Land Use Map

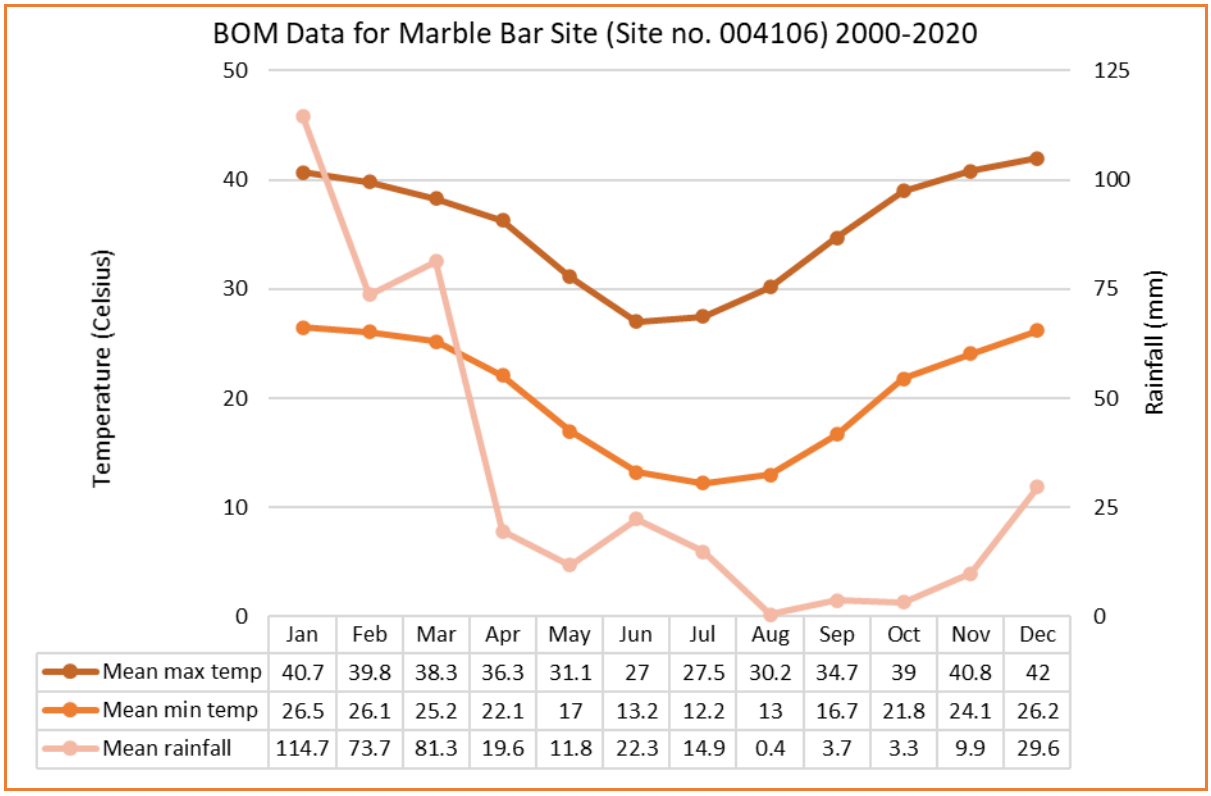
5.3 FORTUNA AND TYCHE PROJECT AREA

The Fortuna and Tyche tenements are located approximately 120km southeast of Marble Bar and approximately 75km northeast of Nullagine. Nearest active station is in Marble Bar. The station in Nullagine was active until 2004.

Access to the project areas is via the unsealed Skull Springs Road then via a station tracks. Access to the tenement areas is by foot with previous exploration in the area has made use of helicopters.

Climate Marble Bar has a hot desert climate (Köppen BWh) with sweltering summers and warm winters. Most of the annual rainfall occurs in the summer. The town set a world record of most consecutive days of 100°F (37.8 °C) or above, during a period of 160 days from 31 October 1923 to 7 April 1924. The mean rainfall for the area is 392.7mm per year and occurring over 43.3 days.

The mean maximum temperatures range from 27°C to 42°C and the mean minimum temperatures from 12.2°C to 26.5°C. The data above is collected from Marble Bar Station which is actively working since 2000 (Figure 5.11).

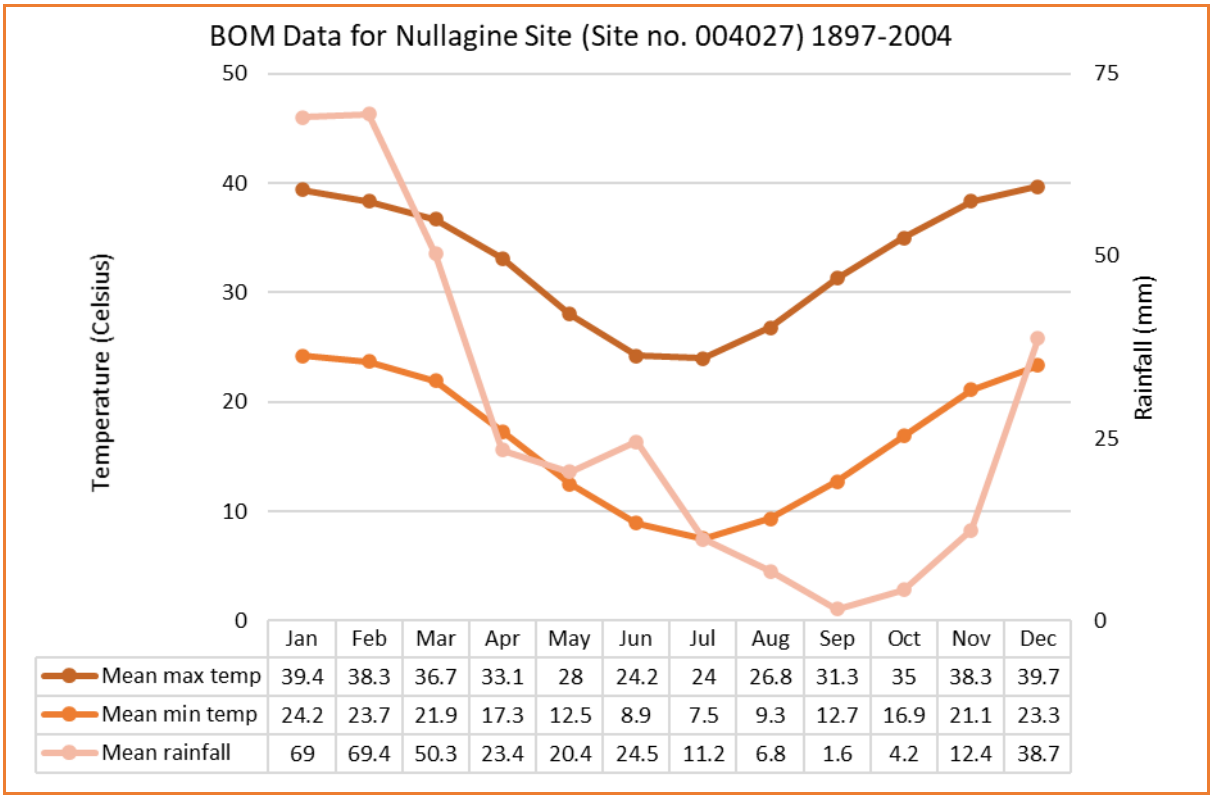


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean max temp	40.7	39.8	38.3	36.3	31.1	27	27.5	30.2	34.7	39	40.8	42
Mean min temp	26.5	26.1	25.2	22.1	17	13.2	12.2	13	16.7	21.8	24.1	26.2
Mean rainfall	114.7	73.7	81.3	19.6	11.8	22.3	14.9	0.4	3.7	3.3	9.9	29.6

Figure 5.11: Graph of the data from Marble Bar Station (Bureau of Meteorology, 2020a)

The Nullagine station was actively used between 1897 and 2004. According to the data from Nullagine Station, the mean rainfall for the area is 325.7mm per year and occurring over 33.1 days.

The mean maximum temperatures range from 24°C to 39.7°C and the mean minimum temperatures from 7.5°C to 24.2°C. Graph below represents the data collected between 1897-2004 in Nullagine (Figure 5.12 on page 43).



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean max temp	39.4	38.3	36.7	33.1	28	24.2	24	26.8	31.3	35	38.3	39.7
Mean min temp	24.2	23.7	21.9	17.3	12.5	8.9	7.5	9.3	12.7	16.9	21.1	23.3
Mean rainfall	69	69.4	50.3	23.4	20.4	24.5	11.2	6.8	1.6	4.2	12.4	38.7

Figure 5.12: Graph of the data from Nullagine Station (Bureau of Meteorology, 2020b)

The tenure area lies within the Eastern Creek 1:100,000 map sheet of the Geological Survey of Western Australia (GSWA and the following has been mostly sourced from the is resource.

The project area lies in the eastern part of the Pilbara Region (or Fortescue Botanical District) of the Eremaean Province of Beard (1990). The region is typified by extensive spinifex grassland (Triodia sp.) with scattered small trees (Eucalyptus leucoploia and E. brevifolia) and shrubs (mainly Acacia sp.). Denser vegetation is commonly found along drainage lines.

The area is undulating to hilly, with local areas of rugged rangeland with high relative relief (Figure 5.14 on page 45). The altitude above sea level ranges from a maximum of just over 500m at Mount Elsie in the northwest and in the southwest, to a minimum of about 240m in the northeast.

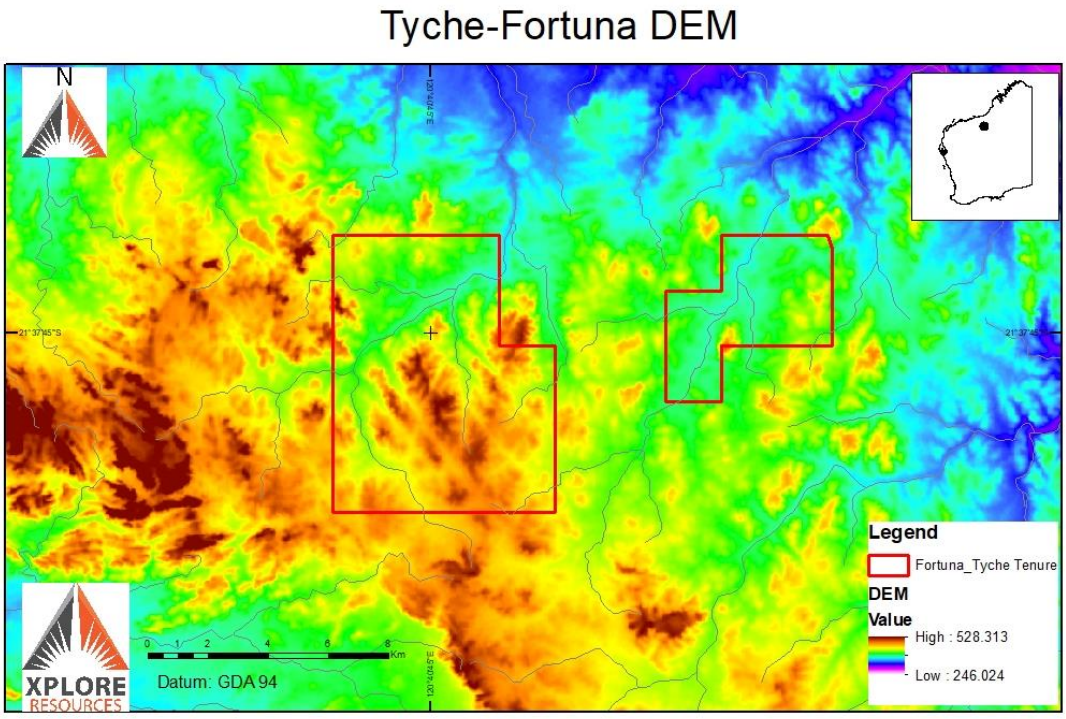


Figure 5.13: DEM of the Fortuna-Tyche Project (Geoscience Australia, ELVIS)

There are two main drainage catchments on the Eastern Creek 1:100,000 map sheet, separated by a divide that follows a line between Little River Creek and Elsie Creek in the north, along the western edge of the Fortescue Group between Mount Elsie and Hallcomes Peak and then trends westsouthwesterly to the western edge of the sheet.

East of the divide the watercourses flow into the Davis and Oakover rivers, whereas west of the divide they drain into the Nullagine River.

The physiography of region is largely controlled by the underlying geology. Areas underlain by greenstone and metamorphosed sedimentary rocks are characterized by long strike ridges of resistant rock with narrow intervening valleys.

Areas underlain by granitic rocks are typified by subdued rocky hills and are traversed by sandy creeks. In contrast, the area underlain by the Fortescue Group is best described as a dissected plateau, with scattered plateau remnants capped by deeply weathered rock that are possibly relics of an old erosional surface.

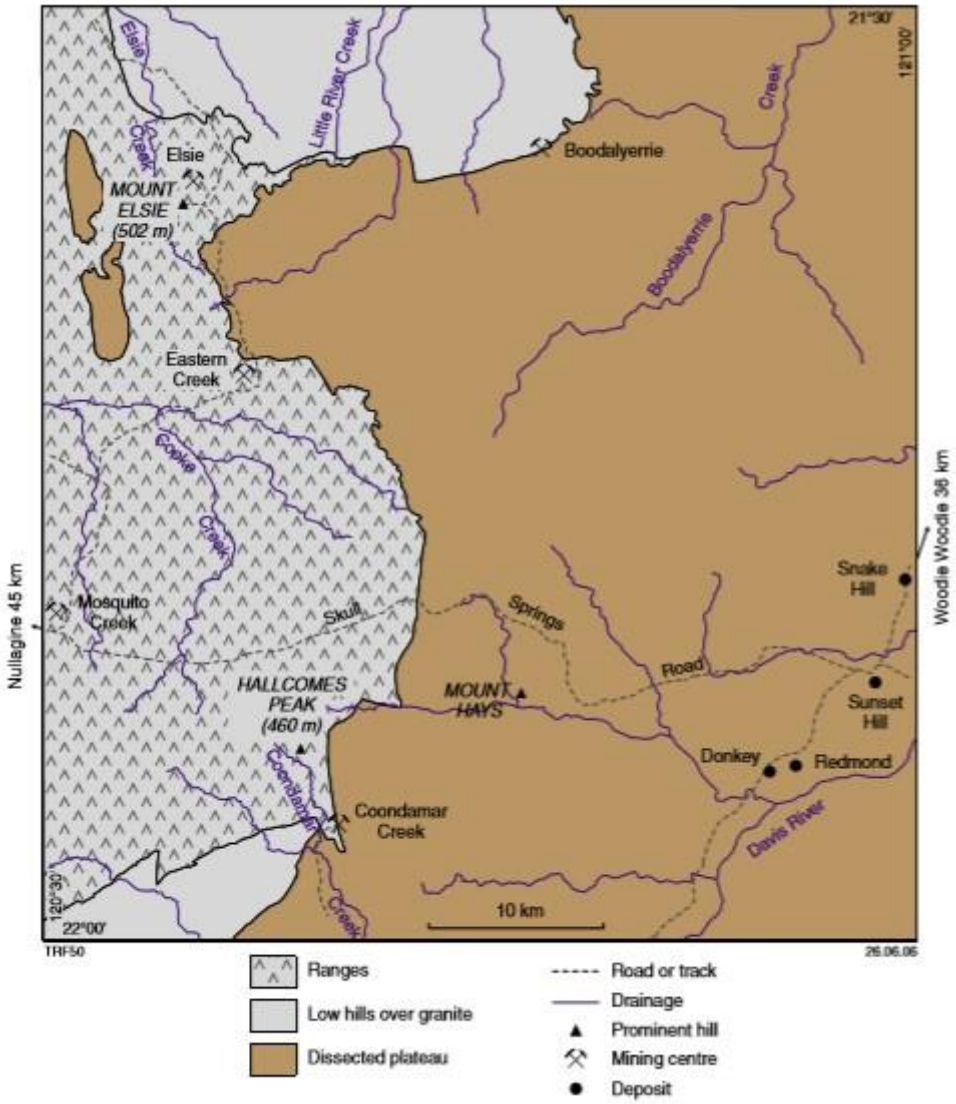


Figure 5.14: Simplified physiographic map of Eastern Creek 1:100,000 Sheet (Farrell, 2006)

The Tyche (E45/5304) and Fortuna (E46/1278) project areas are approximately 118km east-south-east of Marble Bar and 75km east-northeast of Nullagine. The town of Nullagine has population of approximately 1,700 (Australian Bureau of Statistics, 2016) and lies on the Marble Bar Road which connects Great Northern Highway from north to south. Marble Bar Road connects to the Great Northern Highway in Newman, approximately 45km south of Nullagine, which connects the North Region of WA to Perth.

The areas of both exploration licences have been classified entirely as ‘minimal use’ by the, which are areas of land that are largely unused (Figure 5.16 on page 47) (Department of Agriculture and Water Resources, 2011).

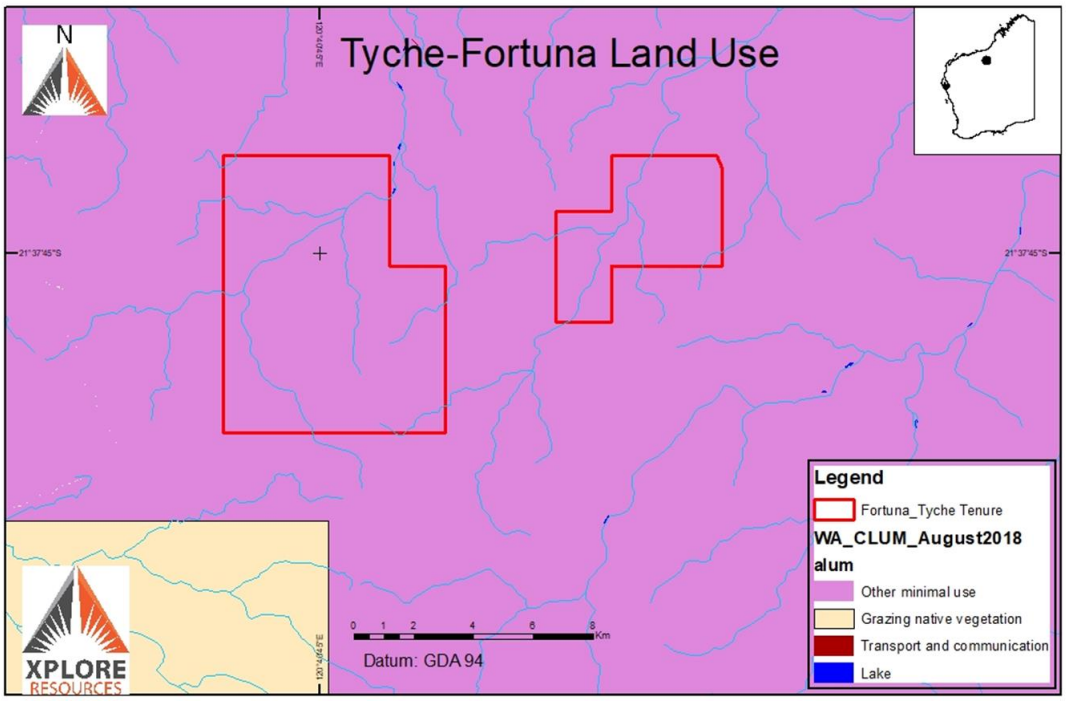


Figure 5.15: Simplified Land Use Map for Fortuna-Tyche Project Area

5.4 NORTIA PROJECT AREA

The Nortia project, consists of the granted exploration licence E45/1277, is located about 30km south-east of the town of Nullagine and approximately 110km south-south-east of Marble Bar in northern Western Australia.

Pilbara Gold Group applied for 19 graticular blocks consisting of an area of approximately 60.5km^2.

The nearest meteorology station is located in Nullagine. But this station was actively used between 1897 and 2004. Nullagine Station has been ceased in 2004. The nearest active meteorological station is Marble Bar Station.

According to the data from Marble Bar Station climate of this area is described as hot desert climate (Köppen BWh) with sweltering summers and warm winters. Most of the annual rainfall occurs in the summer.

The mean rainfall for the area is 392.7mm per year and occurring over 43.3 days. The mean maximum temperatures range from 27°C to 42°C and the mean minimum temperatures from 12.2°C to 26.5°C.

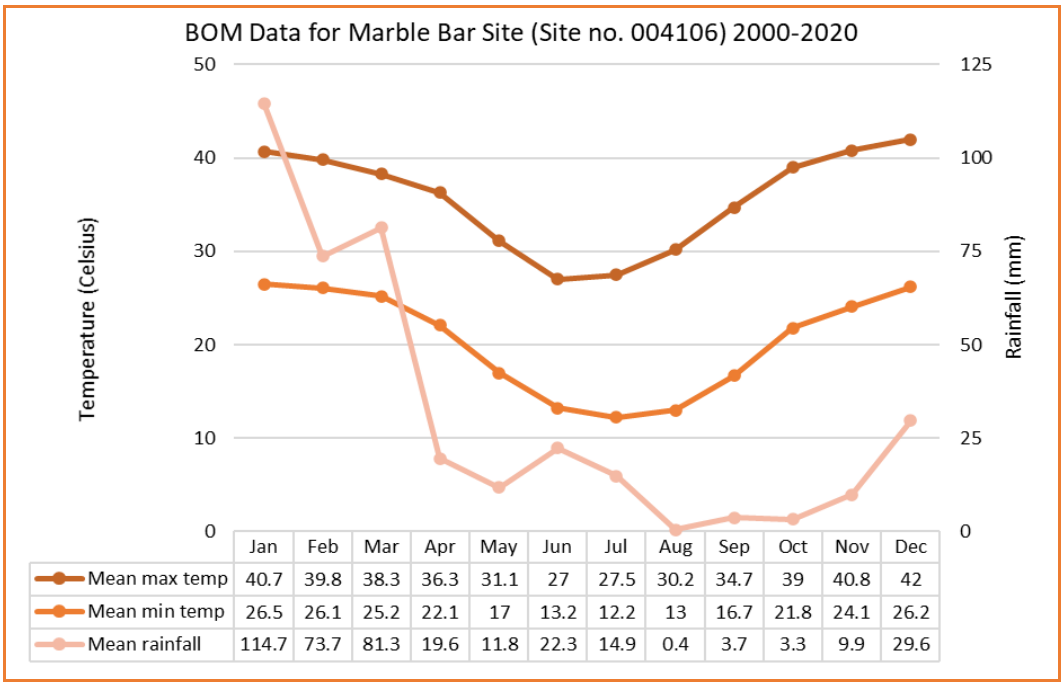


Figure 5.16: Graph of the data from Marble Bar Station (Bureau of Meteorology, 2020)

The project area ranges from approximately 450m to 650m elevation. Nortia has approximately 200m change in elevation from the north west to south east. Nortia area is located in the De Grey River Region. There are some small creeks within the tenement.

6.0 EXPLORATION HISTORY

6.1 PREVIOUS EXPLORATION IN THE BEATONS RIVER PROJECT AREA

The WA State Department of Mines, Industry Regulation and Safety geological mapping website (GEOVIEW.WA) was interrogated to obtain the available data for the project area.

Spatial data, including geology, geophysical, geochemical and historical exploration, was also sourced from the Department of Mines, Industry Regulation and Safety Data and Software Centre (Government of Western Australia, 2019c) and viewed in MapInfo Professional for spatial analysis and interpretation.

Further geological studies could expand the area of investigations and increase the volume of data available for review. Data extracted from the GEOVIEW.WA system in the project area includes:

- 144 historic tenements;
- No overlapping tenures;
- 8 exploration drill holes within the current tenures;
- 1000 unique surface geochemistry samples – historical company samples; and
- 119 historical company reports of previous exploration.

The mineral potential of the Pilbara Craton prior to the 1980s had been generally down-played by the minerals industry and as a result the region had been much less extensively explored than many other Archaean cratons throughout the world, including the Yilgarn Craton to the south (Blewett et al., 2000).

In the early years of exploration (1968–1974) uranium, rather than gold, was the primary target. The first exploration programs to target parts of the present Nullagine project area were conducted between 1968 and 1982.

The basis for these programs was interpreted similarities between pyritic conglomerates in the Fortescue Group and auriferous and/or uraniferous Archaean conglomerates in South Africa and Canada. Exploration generally involved initial airborne radiometric surveys, followed by ground radiometrics and rock chip sampling.

In some cases limited shallow drilling programs were also undertaken, the most significant of which were 14 hole diamond (total 1851m) and 11 hole diamond and percussion (total 1291m) drilling programs by Cominco and Esso, respectively, in the Nullagine sub-basin (Carter and Gee, 1988).

The deepest single drill hole in either area during this phase of exploration was a 271m diamond drill hole by Western Mining Corporation in the Shady Well Camp area in the western part of the Nullagine sub-basin (Carter and Gee, 1988).

Results of the early exploration programs suggest uranium in the Hardey Formation principally occurs as fine uraninite grains in thucholite pellets and an uriniferous phase, interpreted to be brannerite, in detrital anatase (Carter and Gee, 1988).

High uranium (> 4000 ppm U_3O_8) and gold (peak value 6 ppm Au) from surface rock chip samples were reported locally (Carter and Gee, 1988). However, assays for drill core intercepts of these horizons revealed much lower concentrations of U_3O_8 (< 500 ppm) and trace amounts of gold.

Table 6.1: **Summary Table of Historical Exploration for Beatons River Tenements**

Year	Program	Results/Highlights	Company/Leader
1968 - 1982	Various U (+-Au) exploration programs in Fortescue Group, Nullagine sub-basin.	Peak U at 4000 ppm and peak Au at 6 ppm in surface rock chips (attributed to surface enrichment)	Cominco, Esso Aust, Essex Minerals, Otter, Marathon Petroleum
1968 - 1974	U exploration in Hardey Fm, central Nullagine sub-basin. Program included airborne and ground radiometrics and follow up drilling (14 DDH for 1851m)	Uraninite inclusions in carbonaceous pellites in conglomerate matrix. Best result 0.6m@ 425 ppm U3O8	Cominco (Simpson, 1969)
1974	U exploration in Hardey Fm, central Nullagine sub-basin. Program included airborne and ground radiometrics and follow up shallow percussion drilling (11 holes for 1291m)	Holes not deep enough (Farrell and Blake, 1984).Best intercept 1.0m@ 124 ppm U3O8	Esso Australia Ltd (Harrison, 1974)
1978 - 1979	U exploration in Hardey Fm, central Nullagine sub-basin, centred on Beatons Creek area. Program included size analysis of Au from Beatons Creek Conglomerate and older source rocks.	Best results 130 ppm U3O8	Essex Minerals (Wilson, 1979)
1978 - 1981	U exploration in Hardey Fm, central Nullagine sub-basin. Program included 23 core and percussion holes for 1887m.	Uranium mineralised zones thin, low-grade and discontinuous. Best results 0.16m @1085 ppm U3O8 and 0.1m @ 0.5 ppm Au	Otter, Marathon Petroleum
1983 /198 5	Strip mining and treatment of colluvial and alluvial deposits adjacent to hard-rock conglomerate-hosted gold deposits at Beatons Creek. Exploration of the Beatons Creek conglomerate included mapping, rock chip sampling, RC and DC drilling.	Drilling s results established subsurface continuity of historically mined reefs. However, despite a number of significant mineralised intercepts (see below) the hard-rock deposits were considered sub-economic.	Metana Minerals
1983	Beatons Creek drilling WW series DDH: 2 holes 150m & 1066m on M46/11	Best intersection WW1 2m @10.8g/t Au, 1m @7.23g/t Au, 2m @4.83g/t Au WW2 (1066m) results suggest auriferous conglomerates restricted to top 100-200m of >800m thick alluvial fan succession. Unconformable contact with basement at 970m	Metana Minerals

Year	Program	Results/Highlights	Company/Leader
Ca.1 984-1985	Beatons Creek drilling CDH-series (DDH): 9 holes for 350m on M46/11	Best intersection 2m @ 2.89g/t Au	Metana Minerals
1984	Beatons Creek B series (RC): 77 holes for 1982m on M46/11	Best intersections 1m @14.63g/t Au, 1m @11.0g/t Au and 1m @ 5.12g/t Au	Metana Minerals
1984	District-scale geological mapping and 2 DC holes for 1019m in Hardey Fm to W and SW Nullagine	DDH BCD-2 contained 36m weakly auriferous pyritic conglomerate sandstone at similar stratigraphic level to auriferous conglomerates at Beatons Creek. Au values	AMB-JV Australia Mining/ Bass Strait Oil and Gas
1984	2 DDH for 592m test subsurface continuity of auriferous package beneath Hardey Fm cover, 1km SW of Beatons Creek historic workings	Both hole intersect ca. 200m thick package of pyritic conglomerate with multiple >1mg/t Au intersections. Variability of repeat assays suggests nuggetty gold (max: 33cm@ 144.6g/t Au). Best results in DDH IN3-A 4x 1m@ >6g/t Au	Ivanhoe Gold
1984	Surface and downhole IP (DDH IN2)	Downhole IP delineates main auriferous (pyritic) horizon in DDH IN2. Surface IP defines narrow chargeability anomaly interpreted at 100-150m depth in vicinity of IN3-A but possibly terrane effect.	Scintrex for Ivanhoe Gold
1984	Single DDH for 549m 7km SW of Nullagine	DDH ZD-1 intersected 55m interval of pyritic conglomeratic sandstone at similar stratigraphic level to auriferous conglomerate at Beatons Creek	BC-JV South Eastern Petroleum/ Zanex/ Western Res Projects
1986	2 DDH for 1200m to follow up previous drilling	Both Holes intersected thick auriferous conglomerate package with numerous thin	Minsaco/ Ivanhoe Gold JV
1985 - 1990	Geological mapping and data compilation, costeans, shallow RAB drilling at Beatons Creek	Best RAB result 1m @27.4g/t Au at surface.	Sons of Gwalia
1987 - 1988	Short-lived continuation of alluvial gold mining operations at Beatons Creek		Black Horse Mining
1992 - 1993	DDH for 161.5m in lower Kylena Basalt, upper Hardey Fm	Drill hole did not penetrate to stratigraphic level equivalent to auriferous conglomerate at Beatons Creek	Alkane
1993	Diamond (+-Au) exploration on W limb of Nullagine syncline	Au particles found all 8>40kg loam and stream, sediment samples from area draining probable continuation of auriferous package at Beatons Creek	Ocean Resources

Year	Program	Results/Highlights	Company/Leader
27/03/20 01 to 10/12/2010	Creasy Group Tenements comprising Nullagine Project area are pegged		Mark Creasy
May 2001	Wedgetail acquire significant package of tenements in Nullagine area previously held under option	Tenement package largely based in older Mosquito Creek Belt to the E, but includes M46/10-11 covering historic Au workings at Beatons Creek	Wedgetail Expl
2001	Beatons Creek workings, COM series RAB 21 holes for 420m on M56/9	COM01003 intersected 12-13m @13.73g/t Au and 14-15m @1.9g/t Au in recent alluvium E of historic hard rock workings	Wedgetail Expl
Pre- 2002	Geological compilation, soil sampling on M46/10- 11	JORC compliant inferred resource 1.6Mt @2.15g/t Au (110,000oz) at Beatons Creek M46/10-11 announced to ASX	Wedgetail Expl/Mining
April 2006	Prospecting/rock sampling at Beatons Creek	Best 314g/t Au Grant's Hill results rock chip at workings	Quinton Henningh Newmont
After June 2006	Beatons Creek soil sampling M46/10-11	3sqkm Au in soil anomaly (>150 ppb) defined with peak 6.28g/t Au	Wedgetail Expl Mining
2006 - 2007	Beatons Creek M46/11 RC drilling (20 holes) BCRB0001-BCRB0020	Best result 7m @ 2.88g/t Au, 15m @1.45g/t Au. Results suggest Metana RC drilling underestimated grade and width of reefs	Wedgetail Expl Mining
2007	Beatons Creek M46/11 RAB drilling (173 holes), av 5-40m depth with total depth 5-10m below base of oxidation	Best results BCRC0104 2m @116g/t Au and 6m @4.57g/t Au, BCRB0105 12m @ 7.27g/t Au, BCRB0122 2m @16.1g/t Au, BCRB0128 3m @ 8.65g/t Au, BCRB0130 3m @12.98g/t Au	Wedgetail Expl Mining
2010	In- loop EM surveys on Creasy ground. 4 lines for 14.9km across E margin of sub basin	Section 6.1.2	Quinton Henningh Galliard Resources
November 2010	Millennium Minerals (formerly Wedgetail Mining) announce 25% increase in ore reserve for Nullagine Gold Project	Updated resource 10.45Mt @1.7g/t Au (567,800oz Au). Updated total mineral resource 34.4Mt @1. 13g/t Au (1.247moz Au). *NB. Resources spread across 5 project areas, not including Beatons Creek	Millennium Minerals

Elevated gold and uranium values in rock chip samples where interpreted to reflect near-surface enrichment due to the action of acidic ground waters generated by oxidation of pyritic conglomerates (Carter and Gee, 1988).

During the period 1968 to 1993, gold exploration in the area was carried out by various companies looking for Witwatersrand-style conglomerate gold mineralization hosted within conglomerates of the Hardey Formation. Between 1983 and 1985, Metana Minerals carried out a successful surface mining operation at Nullagine treating alluvial material shedding from the Beaton Creek conglomerates.

From 2001 to the present, the main gold exploration over the area was conducted by the Creasy Group of companies and after 2011, Novo Resources explored the Nullagine area under joint venture with Creasy. Exploration and focused on the area of outcropping and well mineralized Beatons Creek conglomerate that occurs just to the south and east of the Beatons River Project tenements.

In 2014, Novo drilled a single deep, exploration, diamond drill hole, ND14 DD-1, to a depth of 963.4m. The hole located just 800m east of the E46/1215 boundary was designed to ascertain the structural and stratigraphic continuity of auriferous conglomerate units to the west of the Beatons Creek Resource.

The hole intersected a number of Hardey Formation marker horizons, most significantly tuffaceous horizons below which occur the auriferous conglomerate equivalents that host the Beatons Creek Resource. A total of 437 samples were assayed for gold by Fire Assay. These assays identified a zone of mineralization containing 7.87m @ 0.22g/t Au from 562.59m, including 1.37m @ 0.64g/t Au from 566.58m.

Novo commented that based on their current understanding of Paleo placer mineralized systems of the Nullagine region that this anomaly was regarded as significant due to the nuggety nature of the mineralisation and the relatively small sample size of half core.

An interim geological interpretation of the hole concluded that these prospective units had been down faulted relative to those at the Beatons Creek Resource. Exploration on the Beatons River Project tenements since 2001 has mainly involved surface geochemical sampling and geological mapping. The geochemical work involved stream, soil and rock sampling but no holes were drilled.

Exploration on the Mineral Edge tenements since 2001 has mainly involved surface geochemical sampling and geological mapping. The geochemical work involved stream, soil and rock sampling. Most geochemical programs returned anomalous gold results but were not regarded as significant enough to warrant a major focused exploration program. The last of the tenements covering the Mineral Edge project was surrendered in 2018.

In addition to gold and iron ore, the Beatons River Project area is well known for its numerous alluvial diamond occurrences. Diamonds were first reported from the area in 1896 with a number of diamonds recovered during alluvial gold mining operations and by diamond explorers between 1989 and 2000.

6.2 PREVIOUS EXPLORATION OF THE CUPRITE PROJECT AREA

The WA Department of Mines, Industry Regulation and Safety geological mapping website (GEOVIEW.WA, 2020) was interrogated to obtain the available data for the project area. Spatial data, including geology and historical exploration, was also sourced from the Department of Mines, Industry Regulation and Safety Data and Software Centre and viewed in MapInfo Professional for spatial analysis and interpretation.

Further geological studies could expand the area of investigations and increase the volume of data available for review.

Data extracted from the GEOVIEW.WA system that is in the Cuprite Project area includes:

- 74 historic tenements;
- 0 overlapping tenures;
- 13 adjoining exploration tenements;
- 30 exploration drill holes within the tenements;
- 8,115 historical, surface, geochemical samples collected from the Cuprite Project; adjacent areas; and
- 95 historical company reports of previous exploration.

Numerous companies have explored the area covered by the Cuprite Project (E45/4918 & E45/5028) since the late 1960s for a range of commodities and deposit styles.

The initial focus was on iron ore, nickel, base metals, molybdenum, silver and PGE and in recent years the focus has been gold.

Recent exploration at Cuprite West, which is near Kalamazoo Resources Dom's Hill project, has obtained extensive high-grade rock chip results with peaks of 57.5g/t Au and 10% Pb. Similarly, exploration at Cuprite East has returned stream sediment results peaks of 34.7 ppb Au and 24.9 ppb Au in adjacent drainages within the tenement (Pilbara Gold Group, Investor Presentation May 2020).

A review of historical drilling data shows that at Cuprite West and Cuprite East, there are multiple high-grade shallow drill intercepts within or near the tenure boundaries including:

- 4m @ 2.9g/t Au, 0.74% Pb and 1.3% Zn from 8m in hole KZ001 (Stuart, 2011c);
- 1m @ 14.4g/t Au from 38m in hole NERBOO2 (Standisk & Fox, 2005);
- 1m @ 13.5g/t Au from 28m in hole DHRC0230 (Standisk & Fox, 2005);
- 1m @ 6.62g/t Au from 29m in hole DHRC021 (Standisk & Fox, 2005);
- 4m @ 2g/t Au from 20m in hole NERB019 (Standisk & Fox, 2005); and
- 4m @ 1.9g/t Au from 20m in hole NERC009 (Standisk & Fox, 2005).

Table 6.2: Cuprite East and West Historical Tenure

TENEMENT	TYPE	STATUS	RELINQUISHED	HOLDER NAME
E 45/0003	EXPLORATION LICENCE	Surrendered	5/09/1984	ANACONDA AUSTRALIA INC
E 45/0077	EXPLORATION LICENCE	Surrendered	12/02/1985	ROCKLAND PTY LTD
E 45/0723	EXPLORATION LICENCE	Surrendered	20/02/1990	MIRALGA MINING NL
E 45/0776	EXPLORATION LICENCE	Forfeited	23/11/1990	WANLESS, ROBERT JAMES
E 45/0906	EXPLORATION LICENCE	Surrendered	20/02/1990	MIRALGA MINING NL
E 45/1209	EXPLORATION LICENCE	Surrendered	17/05/1993	TROY RESOURCES NL
E 45/1297	EXPLORATION LICENCE	Withdrawn	29/09/1992	BACOME PTY LTD
E 45/1402	EXPLORATION LICENCE	Surrendered	16/11/1999	DOMAIN MINING NL
E 45/1424	EXPLORATION LICENCE	Surrendered	13/09/1996	ASHLING RESOURCES NL
E 45/1424	EXPLORATION LICENCE	Surrendered	13/09/1996	OUTOKUMPU ZINC AUSTRALIA PTY LTD
E 45/1493	EXPLORATION LICENCE	Surrendered	12/10/1999	DOMAIN MINING NL
E45/1507	EXPLORATION LICENCE	Surrendered	4/10/1996	O'MEARA, DENIS WILLIAM
E 45/1598	EXPLORATION LICENCE	Surrendered	31/12/1996	RIO TINTO EXPLORATION PTY LIMITED
E 45/1792	EXPLORATION LICENCE	Surrendered	17/03/1997	STOCKDALE PROSPECTING LTD
E 45/1806	EXPLORATION LICENCE	Withdrawn	20/02/1997	DOMAIN MINING NL
E 45/1837	EXPLORATION LICENCE	Surrendered	13/05/1998	LYNAS GOLD NL
E 45/1865	EXPLORATION LICENCE	Surrendered	16/11/1999	DOMAIN MINING NL
E45/2174	EXPLORATION LICENCE	Expired	23/07/2013	KALAMAZOO RESOURCES PTY LTD
E45/2329	EXPLORATION LICENCE	Withdrawn	31/07/2009	PANDELL PTY LTD
E45/2336	EXPLORATION LICENCE	Withdrawn	24/05/2002	DE BEERS AUSTRALIA EXPLORATION LTD
E45/2570	EXPLORATION LICENCE	Surrendered	26/02/2010	ATLAS IRON LIMITED
E45/2666	EXPLORATION LICENCE	Refused	10/12/2008	JULIET MINERALS PTY LTD
E45/2996	EXPLORATION LICENCE	Surrendered	16/03/2016	KALAMAZOO RESOURCES PTY LTD
E45/3153	EXPLORATION LICENCE	Refused	19/05/2009	STATE RESOURCES PTY LTD
E45/3253	EXPLORATION LICENCE	Surrendered	18/10/2013	BROCKMAN IRON PTY LTD
E45/3258	EXPLORATION LICENCE	Withdrawn	17/04/2009	ATRIPLEX LTD
E45/3417	EXPLORATION LICENCE	Surrendered	28/06/2016	FMG PILBARA PTY LTD
E45/3427	EXPLORATION LICENCE	Surrendered	4/07/2014	KALAMAZOO RESOURCES PTY LTD
E45/3455	EXPLORATION LICENCE	Withdrawn	17/09/2012	BROCKMAN EXPLORATION PTY LTD
E45/3460	EXPLORATION LICENCE	Withdrawn	19/10/2009	FMG PILBARA PTY LTD
E45/3461	EXPLORATION LICENCE	Withdrawn	19/10/2009	FMG PILBARA PTY LTD
E45/3633	EXPLORATION LICENCE	Surrendered	16/03/2016	KALAMAZOO RESOURCES PTY LTD
E45/3634	EXPLORATION LICENCE	Withdrawn	19/03/2010	GREAT SANDY PTY LTD
E45/3635	EXPLORATION LICENCE	Surrendered	18/06/2015	KALAMAZOO RESOURCES PTY LTD
E45/3875	EXPLORATION LICENCE	Withdrawn	14/11/2012	MOLY METALS AUSTRALIA PTY LTD
E45/4300	EXPLORATION LICENCE	Withdrawn	9/05/2014	FMG PILBARA PTY LTD
E45/4380	EXPLORATION LICENCE	Surrendered	7/04/2017	FMG PILBARA PTY LTD
E45/4381	EXPLORATION LICENCE	Withdrawn	22/01/2015	FMG PILBARA PTY LTD
E45/4415	EXPLORATION LICENCE	Withdrawn	22/01/2015	FMG PILBARA PTY LTD
E45/4416	EXPLORATION LICENCE	Withdrawn	17/07/2014	PUCK RESOURCES PTY LTD
E45/4479	EXPLORATION LICENCE	Surrendered	7/04/2017	FMG PILBARA PTY LTD
E45/4589	EXPLORATION LICENCE	Withdrawn	14/02/2017	FMG PILBARA PTY LTD

TENEMENT	TYPE	STATUS	RELINQUISHED	HOLDER NAME
E45/4793	EXPLORATION LICENCE	Withdrawn	14/02/2017	FMG PILBARA PTY LTD
E45/4794	EXPLORATION LICENCE	Withdrawn	14/02/2017	FMG PILBARA PTY LTD
L45/00200	MISCELLANEOUS LICENCE	Surrendered	7/04/2014	MOLY METALS AUSTRALIA PTY LTD
MC 45/1115	MINERAL CLAIM	Surrendered	15/06/1972	NAME NOT PROVIDED
MC 45/4775	MINERAL CLAIM	Surrendered	14/06/1973	NAME NOT PROVIDED
MC 45/4788	MINERAL CLAIM	Refused	8/11/1971	NAME NOT PROVIDED
MC 45/5025	MINERAL CLAIM	Surrendered	14/06/1973	NAME NOT PROVIDED
MC 45/5027	MINERAL CLAIM	Surrendered	14/06/1973	NAME NOT PROVIDED
MC 45/11461	MINERAL CLAIM	Expired	17/11/1984	NAME NOT PROVIDED
MC 45/11462	MINERAL CLAIM	Expired	17/11/1984	NAME NOT PROVIDED
MC 45/11463	MINERAL CLAIM	Expired	17/11/1984	NAME NOT PROVIDED
MC 45/11464	MINERAL CLAIM	Expired	17/11/1984	NAME NOT PROVIDED
MC 45/11465	MINERAL CLAIM	Expired	20/01/1985	NAME NOT PROVIDED
P45/0028	PROSPECTING LICENCE	Surrendered	6/04/1983	HANCOCK PROSPECTING PTY LTD
P45/0029	PROSPECTING LICENCE	Surrendered	6/04/1983	HANCOCK PROSPECTING PTY LTD
P45/0033	PROSPECTING LICENCE	Surrendered	12/12/1984	HANCOCK PROSPECTING PTY LTD
P45/2570	PROSPECTING LICENCE	Refused	10/12/2008	JULIET MINERALS PTY LTD
P45/2574	PROSPECTING LICENCE	Withdrawn	10/08/2007	ADELAIDE PROSPECTING PTY LTD
P45/2757	PROSPECTING LICENCE	Surrendered	18/09/2014	818205 PTY LTD
P45/2934	PROSPECTING LICENCE	Surrendered	7/04/2017	FMG PILBARA PTY LTD
PA45/2528	PROSPECTING AREA	Expired	19/06/1957	NAME NOT PROVIDED
PA45/2560	PROSPECTING AREA	Expired	19/08/1958	NAME NOT PROVIDED
PA45/2565	PROSPECTING AREA	Expired	14/10/1958	NAME NOT PROVIDED
PA45/2947	PROSPECTING AREA	Expired	12/02/1971	NAME NOT PROVIDED
TR 7001643	TEMPORARY RESERVE	Cancelled	15/11/1964	NAME NOT PROVIDED
TR 7001643	TEMPORARY RESERVE	Cancelled	15/11/1964	NAME NOT PROVIDED
TR 7001803	TEMPORARY RESERVE	Expired	13/09/1960	NAME NOT PROVIDED
TR 7002066	TEMPORARY RESERVE	Cancelled	21/08/1962	NAME NOT PROVIDED
TR 7002067	TEMPORARY RESERVE	Cancelled	21/08/1962	NAME NOT PROVIDED
TR 7005993	TEMPORARY RESERVE	Cancelled	24/03/1979	NAME NOT PROVIDED
TR 7007439	TEMPORARY RESERVE	Cancelled	12/11/1982	NAME NOT PROVIDED
TR 7008557	TEMPORARY RESERVE	Cancelled	26/07/1983	NAME NOT PROVIDED

Selected highlights from historical records include:

1974 to 1976 Otter Exploration

In 1974 Otter Exploration NL applied for three mineral claims to cover the Farrell Well nickel prospect as well as the Anomaly 17 copper VMS target that had been discovered by Kennecott. Otter re-processed the aeromagnetic data and produced a new interpretation of the geology and no further work was completed. The ground was surrendered in 1976.

1985 to 1989 Miralga Mining / DOM Prospecting

Prospector Denis O'Meara (trading as Denis O'Meara Prospecting – "DOM") acquired the ground and either farmed out or sold the prospect to companies including Pilbara Mining and Exploration Pty Ltd and Miralga Mining NL ("Miralga").

Miralga carried out a detailed gold exploration programme over the property including

- Prospecting;
- stream sampling;
- soil sampling;
- limited shallow drilling;
- high-grade rock chip samples with a peak value of 4.5g/t gold on the prominent topographic feature now known as Dom's Hill;
- programme of infill soil sampling and subsequent RAB drilling. Best intercept of 18m from surface grading 3.07g/t Au in drill hole GRR018;
- Shallow rotary air blast ("RAB") drilling (average depth 30m) and reverse circulation ("RC") drilling (4 RC holes maximum depth 60m) returned numerous wide intercepts of low-grade gold values from within the leached near surface zone;
- Miralga discovered large gold in soil anomaly known as the NE Zone and
- Following a change of management and corporate priorities Miralga relinquished its interest in the Gorge Range – Farrell Well area.

1990 to 1995 CRA Exploration

Denis O'Meara then went into joint venture arrangements with companies including Domain Mining NL ("Domain") and CRA Exploration Pty Ltd ("CRA").

The soil anomaly at NE Zone (>100 ppb Au and 1.2km long) was considered a target in the favoured model for extensive shear hosted gold mineralisation. Prior to the rig arriving to test the target, CRA made a corporate decision to withdraw completely from mineral exploration in Western Australia and the prospect remained untested by systematic exploration.

1993 to 1996 Sipa Resources Limited

Sipa Resources Limited in joint venture with Ashling Resources NL and Outokumpu Zinc Australia Ltd explored an area centred around E45/5028 during 1993-96 for gold and base metals ((Sipa Resources Ltd, 1995), (Sipa Resources Ltd, 1996), (Watson, 1997)).

Samples of pyritic chert returned gold values with a peak of 0.66 ppm, lead with a peak of 3,660 ppm and arsenic with a peak of 651 ppm. Sampling of a minor secondary copper mineralisation associated with silicified volcanic rocks, 1.5km north of Farrell Well, returned a peak of 6,960 ppm Cu and 2.1g/t Ag in sample 80114 ((Sipa Resources Ltd, 1996)).

1995 to 1997 Domain Mining NL

Domain carried out:

• Rock chip sampling with best results with a peak value of 1.2% Ni and 2.05% Cu;
• Shallow RC holes at the Farrell Well nickel prospect generally inconclusive; and
• RC drilling at "Anomaly 17" copper prospect returned several metres of copper rich massive sulphides over a strike length of 70m.

1997 to 2003 DOM Prospecting

Following the failure of Domain to list on the ASX in 1997 the property reverted to Denis O'Meara. Exploration carried out included:

- RAB drilling programme at Myrna's Hill returned elevated gold and copper results. This anomalous zone remains open at depth and along strike; and

- rock chip sampling located copper and gold rich gossans returning values of 2.28g/t Au and 1.92% Cu.

2004 to 2005 Atlas Gold Limited

During 2004-2005, Atlas Gold Limited explored the Farrell Well Project (E45/2174 and E45/2570) (Standisk & Fox, 2005) for Au, Ni, Cu, Fe and Mn. The project was centred on the Don's Hill prospect and covered substantial parts of E 45/4918 and E 45/5028.

Exploration was comprehensive and included stream, soil and rock chip sampling, geological mapping, airborne and ground magnetic surveys and ground EM surveys, followed by RAB and RC drilling. The soil sampling produced soil anomalies at 32 locations, with some being followed up with RAB and RC drilling.

The best drill hole intersections included 5m @ 3.43g/t Au from 32m depth in hole DHRC0204; 4m @ 3.36g/t Au from 26m depth in hole DHRC0213; and 4m @ 1.88g/t Au from 20m depth in hole NERC009.

Most of the high-grade gold intercepts were associated with quartz veins containing fine-grained disseminated sulphides (predominately pyrite) and with common hematite and goethite staining. The drilling intersected gold mineralisation of economic grades at the Dom's Hill, Graeme, Lukangas and NE Zone prospects.

RAB holes drilled at the NE Zone within the Cuprite Project failed to intersect significant mineralisation. Atlas Gold reported gold values are associated with ferruginous chert at Dom's Hill North (3.51g/t Au) and a brecciated lens at Dom's Hill South (5.36g/t Au) (Standisk & Fox, 2005).

2005 to 2010 Shaw River Resources Limited

Shaw River Resources Limited farmed into Atlas Gold's Farrell Creek Project (E45/2750) (Martin G, 2007) and during 2005-10 carried out stream sediment and rock chip sampling, geological mapping, RAB and RC drilling and a VTEM survey.

No significant mineralisation was found. A project review by Consultant Dave Archer outlined several shear host gold targets at Dom's Hill, the NE Zone, Graeme, Lukangas and Myrnas Hill. Targets were also highlighted in the Muccan South and Bamboo Creek Shear Zones.

The project was also considered prospective for VHMS style mineralisation, with some prospects identified within the Sulphur Springs Group, Panorama Formation and the Duffer Formation. The Pear Creek, Gorge Range, Talga Talga and Eginbah ultramafic intrusions were thought to have potential for nickel-copper and nickel-PGE-chromite mineralisation.

Shaw River Resources Ltd worked on the project as part of a joint venture with Kalamazoo Resources Ltd and Great Sandy Pty Ltd (Stone C, 2016).

2010 to 2011 Great Sandy Pty Ltd

Great Sandy Pty Ltd also explored the Gorge Creek/Farrell Well area (E45/2174 and E45/2996) during 2010 and 2011 (Stuart L, 2011). The tenements were held by Shaw River Resources Limited. Great Sandy Pty Ltd purchased the Farrell Well Project database in 2010 and re-evaluated the surface geochemistry to identify target areas that had not been previously tested by drilling.

Two targets, namely Fordor and Myrnas Hill, were identified and tested by RC drilling that returned disappointing results. In mid-June 2010, the emphasis changed to an area in the southwest of the project, called the Kalamazoo prospect, where exploration included rock chip and soil sampling, RC drilling, down-hole EM and petrology.

Grab samples from the Kalamazoo prospect (later held under P45/2757) collected in 2010 returned gold peak values of 57 ppm, 26 ppm Ag, 10% Pb and 6.6% Zn (Richardson & Stone, 2014c) from gossanous material. Another sample collected from the Kalamazoo prospect assayed 25.6g/t Au and confirmed the presence of gold mineralisation in quartz veining in ultramafic host rock (Richardson & Stone, 2014c).

Regional soil sampling in 2010 produced subdued anomalism with elevated Zn, As and Pb and no anomalous values in the immediate vicinity of the initial highly anomalous grab sample. Follow-up RC drilling during 2011 intersected 4m @ 2.91 g/t Au, 0.74% Pb and 1.3% Zn in hole KZ001 from 8m and down-hole EM surveys did not detect any off-hole or in hole conductor.

2010 to 2015 Mithril Resources Ltd

Mithril Resources Ltd investigated tenements ((E45/3457 and E45/33680) located immediately southeast of E45/4918 during 2010-15 (Lockheed A, 2011, Richardson B, 2015, Lockheed A, 2015). The main target was Ni-Cu-PGE sulphide deposits associated with mafic and ultramafic rocks.

Work comprised a review of historic exploration and rock chip sampling, airborne VTEM and ground EM surveys followed by RC drilling. Rock chip sampling returned a peak value of 27% Cu in gossan and 0.1- 0.9% Ni in altered ultramafics. The drilling tested the geophysical target and failed to intersect any significant mineralisation at the modelled conductor depth.

In 2014, Kalamazoo joint ventured into both tenements and focused on the iron ore potential within the Gorge Creek Group. They completed helicopter assisted reconnaissance and identified seven areas worthy of follow-up that were later determined to have little potential.

Rock chip samples collected at the Railway prospect returned encouraging results but results from follow-up soil sampling were disappointing. Rock chip sampling at the Fe prospect were also disappointing, with the highest assay recording 49.86% Fe. Rock chip sampling at the Gorge Range prospect were positive, with one sample returning 0.21% Cu, and an iron-rich boulder returned 59.54% Fe and 4,450 ppm Ni.

2012 to 2017 Fortescue Metals Group Ltd

During 2012-17, Fortescue Metals Group Ltd explored several tenements (E45/3417, E45/3433, E45/4239, E45/4304, E45/4380, E454479 and P45/2934) **(**Backus, R 2015. Backus R, 2015, Perkins R, 2016, Backus R, 2017, for gold and base metals. They undertook reviews of historic exploration data, rock chip, soil and stream sediment sampling.

The most amount of work was undertaken over E45/3433 where 178 stream sediment samples and 53 soil samples were collected. Twelve stream sediment samples returned >2 ppb, with a maximum assay of 9 ppb Au (sample XF014259).

2012 to 2018 Atlas Iron Limited

Atlas Iron Limited investigated E45/3858 for iron ore during 2012-18 (Sweeny S, 2018). The tenement was located adjacent to the southern boundary of E45/5028 and covered part of the Warralong Greenstone Belt that represents a continuation of the Gorge Creek Group, which typically host North Pilbara DSO iron.

Exploration included geophysical interpretation, desktop studies, field reconnaissance, geological mapping and rock chip sampling. This work has failed to identify any areas containing large-scale economic iron ore enrichment.

2013 to 2018 Kalamazoo Resources Pty Ltd

During 2013-18, Kalamazoo Resources Pty Ltd focused on the Farrell Well/Gorge Creek area while investigation a series of tenements including E45/2296, E45/3427, E45/3450, E45/3451, E45/3452, E45/3633, E45/3635. E45/3856, E45/3858, P45/2754-2757 ((Richardson, B 2014), (Richardson & Stone 2014), (Richardson & Stone, 2013b), (Stone C. , 2015), Richardson & Stone 2014c, (Stone & Richardson, 2016), Minerals, A. A. (1981), (Stone & Richardson, 2016)).

The exploration target was gold and base metals mineralisation and most of the work was reliant on historical data reviews and data compilations. Other exploration included geological reconnaissance and rock chip and soil sampling, RC drilling and petrology. The work identified numerous copper and gold anomalies throughout the project area.

At the “Anomaly 22” prospect (previously EM anomaly F), rock chip sampling failed to detect any significant mineralisation. Kalamazoo also explored E45/3453, initially for gold and later iron ore, similar to the Spinifex Ridge-style, narrow lode hematite-goethite. One rock chip sample of BIF returned 37% Fe.

While investigating E45/3633, Kalamazoo collected rock chip samples from the “Anomaly 22” prospect (EM Anomaly F), which returned insignificant results, while rock chip samples from the Dom’s Hill prospect confirmed its gold potential.

2018 Great Sandy Pty Ltd

During 2018, Great Sandy Pty Ltd explored E45/3856 in Joint Venture with LMTD Marble North Pty Ltd Sebet, (2019). The tenement abuts the southern boundary of E45/4198. The exploration target is paleo gold in the basal conglomerates in the Bellary Formation, which lies beneath the Mount Roe Basalt.

Within the tenement, the Bellary Formation has been mapped as a thickly bedded, pebble to cobble conglomerate ranging to pebble sandstone. Equivalent conglomerates throughout parts of the Pilbara are sometimes gold bearing. Exploration mostly relied on stream sediment sampling, were the coarse fraction (-5mm to +2mm) was panned for free gold and the fine fraction (-2mm) analyses for cyanide leach gold and multi-element analysis, including gold by aqua regia digest.

6.3 PREVIOUS EXPLORATION IN THE FORTUNA AND TYCHE PROJECT AREA

The WA State Department of Mines, Industry Regulation and Safety geological mapping website (GeoVIEW.WA) was interrogated to obtain the available data for the project area.

Spatial data, including geology and historical exploration, was also sourced from the Department of Mines, Industry Regulation and Safety Data and Software Centre (Government of Western Australia, 2020) and viewed in MapInfo Professional for spatial analysis and interpretation.

Further geological studies could expand the area of investigations and increase the volume of data available for review. Data extracted from the GEOVIEW.WA system in the project area includes:

- 29 historic tenements for Fortuna tenement and 20 historical tenements for Tyche tenement;
- There is no overlapping tenure for Fortuna (E46/1278) and Tyche (E45/5304) exploration licences;
- There are no exploration drill holes for Fortuna (E46/1278) and Tyche (E45/5304) exploration licences;
- 49 unique surface geochemistry samples – 22 historical company samples for Fortuna (E46/1278) and 27 unique surface geochemistry samples – historical company samples for Tyche (E45/5304) tenement; and
- 52 historical company reports of previous exploration over and around the Fortuna (E46/1278) tenure and 15 historical company reports over and around the Tyche (E45/5304) tenure.

Significant historical gold production has come from the nearby four mining centres (outside of the Fortuna and Tyche tenures) within the region Boodalyerrie, Eastern Creek, Elsie and Mosquito Creek. Additionally, substantial amounts of alluvial gold have been extracted through prospecting activity up to the present time.

Most of the hard-rock mining occurred in the early 1900s, although some mines have been worked sporadically since then (Farrell, 2006).

The Boodalyerrie mining centre encompasses a group of small workings within the Yilgalong Granitic Complex that were active from 1901 to 1910. Gold was extracted from thin quartz veins in granitic rock with a yellow-green alteration (Finucane K. J., 1939a).

Alluvial gold was also produced from the adjacent creeks. Total gold production was 25.992 kg (Ferguson, 2001). The Elsie mining centre is in the Mount Elsie greenstone belt, close to Mount Elsie. Mining activity occurred mainly between 1899 and 1906 and was focused on quartz veins in foliated metabasalt and mafic schist with carbonate alteration (Finucane K., 1939b). Total production up to 1998 was 52.388 kg of gold (Ferguson, 2001).

Larger amounts of gold were found in the Mosquito Creek Formation, which continues to be an area of active gold prospecting and exploration. The Eastern Creek mining centre lies in the northeast corner of the Mosquito Creek Formation, close to Eastern Creek Well.

In this area the gold is in quartz veins in slate and metamorphosed siltstone and sandstone.

The mining centre was active mainly between 1908 and 1924 for a total gold production of 308.132 kg, although a few of the shafts have been worked sporadically since then by prospectors. The Mosquito Creek mining centre extends onto the western edge of the Eastern Creek 3054 map sheet from the Nullagine 3954 map sheet and encompasses the Federal and Parnell mines.

These mines lie on the eastern extension of a line of gold and antimony deposits, called the Blue Spec line (Ferguson, 2001). Several other small workings are present along the eastern extension of this line.

There are 49 historical tenements with a total of 67 exploration reports that intersect the current Tyche-Fortuna tenure. The majority of these reports refer to exploration in and around the historical mining centres of Mt Elsie, Boodalyerrie (Yilgalong Granite), Eastern Creek and Mosquito creek which are all outside of the Fortuna and Tyche tenements.

A summary of these historical exploration reports is given below:

Table 6.3: Fortuna and Tyche Historical Tenure Summary Table

WAMEX Report A No	Report Title	Year	Author	Project	Operator	Target Commodity
1101	Cooke's Creek Project, Non-statutory Report; Record of Exploration for the period ending 06/12/1966, TR70/3841-3844H.	1966		Cookes Creek	Dfd Rhodes Pty Ltd	Copper; Molybdenum; Tungsten
18362	Eastern Creek, Non-statutory report, January 1986, E46/33, 46/99	1986	G B Barnes & Associates	Eastern Creek	Highgate Holdings Pty Ltd	Gold
20668	Annual report, E46/33, For the year ending December 1985, Eastern Creek Area	1986		Eastern Creek	Highgate Holdings Pty Ltd	Gold
27420	EL 45/677 and EL 45/623-624, Elsie Creek, A Remote Sensing Study.	1987		Elsie Creek	Star Minerals Nl	Gold
35330	Annual report for the period 22/02/91-21/02/92 Mount Elsie Project E45/1043	1992		Mount Elsie	Yulara Pty Ltd	Gold
37670	Mt Hays Project, Final Surrender Report for the period ending 2nd November 1992, E46/281.	1993	Pond C	Mount Hays	Homestake Australia Ltd	Gold
40117	Annual report for the period 22/02/91-21/02/92 Mt Elsie Project E45/1043	1753		Mount Elsie	Yulara Pty Ltd	Gold
40900	Annual report for the period 22/02/93-21/02/94 Mt Elsie Project E45/1043	1994	Kozyrski B W	Mount Elsie	Mr Kozyrski Bw	Gold
44015	1994-1995 Annual Report, East Pilbara Project, E46/363, E46/367, M46/113, M46/153, P46/1130, P46/1139 and P46/1149 to P46/1152.	1995	Johnston G G	East Pilbara	Gabriel Resources Nl	Gold
45114	Annual Report for the period 03/94-03/95,Yilgalong Project ,E45/1469-	1995	Jessup A	Yilgalong	Mr O'Brien Rj	Gold

WAMEX Report A No	Report Title	Year	Author	Project	Operator	Target Commodity
	1471,1487.					
45115	R Report for the period 05/95 Yilgalong Project E45/1469-1471,1487	1995	Smith B	M9598/0: Yilgalong gold nickel exploration	Plenty River Gold Mines Nl	Gold
48414	Annual Report for the period 06/03/95-05/03/96 ,Yilgalong Project, E45/1471	1996		Yilgalong	Plenty River Mining Co Nl	Gold; Base Metals
51418	Annual report 22 April 1996 to 21 April 1997 Butcher Well and Mount Olive Project Nullagine District, East Pilbara E46/401 and E46/402 Blue Spec Mining NL Jonellen Pty Ltd	1997	Ronk A	Butcher Camp Well & Mount Olive	Jonellen Pty Ltd	Gold
54731	Mount Elsie Project, Exploration Licence: E45/1832 Annual Report, 04/04/97 to 03/04/98 Minair Exploration Pty Ltd for Dale Estates Pty Ltd	1998		Mount Elsie	Minair Exploration Pty Ltd	Gold; Base Metals
54935	Butcher Camp Well & Mt Olive Project, Exploration Licence 46/401 and 46/402 22/04/97 - 21/04/98 Combined Annual Report	1998	Alcock P J	Butcher Camp Well & Mount Olive	Jonellen Pty Ltd	Gold
55044	Butcher Camp Well & Mt Olive Project, 22/04/97 - 21/04/98 Exploration Licence: 46/401, 401, 416	1998	Alcock P J	Butcher Camp Well & Mount Olive	Jonellen Pty Ltd	Gold
58434	Mount Elsie Project 15/05/98 - 15/05/99 E45/1832	1999	Sakalidis G	Mount Elsie	Magnetic Resources Nl	Gold; Base Metals
60438	Mt Elsie (2) Joint Venture Project Annual Report for the Period 07/04/1999 to 06/04/2000 PE00/19 Tenements P45/2370, P45/2371,P45/2372 & E45/1832 C80/1998	2000	Miller C	Mount Elsie	Mines & Resources Australia Pty Ltd	Gold
61003	Combined Annual Mineral Exploration Report - C322/1996 Yilgalong Project- M9598 E45/1470,1471,1487,1497	2000	Jessup A	Yilgalong	Plenty River Mining Co Nl	Gold
61177	Annual Report for the Period 7 August 1999 to 6 August 2000 Pilbara Mineral Field, Eastern Creek Prospect, Nullagine District, Sheet SF51-5 Nullagine, E46/447.	2000	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold
62591	Mt Elsie (2) Joint Venture Project Annual Report For The Period 7 April 2000 To 6 April 2001 PE01/08. Tenement: P45/2370, P45/2371, P45/2372, E45/1832 & MLA45/964.	2001	Weber K	Mount Elsie	Mines & Resources Australia Pty Ltd	Gold
62912	Annual Report for the period 7 August 2000 to 6 August 2001 Pilbara Mineral Field Eastern Creek Prospect Nullagine District Sheet SF51-5 Nullagine Exploration Licence E46/447	2001	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold

WAMEX Report A No	Report Title	Year	Author	Project	Operator	Target Commodity
63792	Final Surrender Report E45/1471, Yilgalong Project, for the period 16/03/1994 to 28/09/2001.	2001		Yilgalong	Plenty River Corporation Ltd	Gold
64085	Partial Surrender Report Eastern Creek Prospect exploration licence E46/447, Nullagine District, Pilbara Mineral Field, sheet SF51-5 Nullagine.	2002	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold
65076	Mt Elsie (2) Joint Venture Project Annual Report For The Period 7 April 2001 To 6 April 2002 PE02/08 Tenement: P45/2370, P45/2371, P45/2372, E45/1832, MLA45/964, MLA46/258 Tenement MLA 45/966 & Combined Reporting No C80/1998	2002	Weber K	Mount Elsie (2) JV	Mines & Resources Australia Pty Ltd	Gold
65159	Annual Report for the period 7 August 2001 to 6 August 2002 Pilbara Mineral Field Eastern Creek Prospect Nullagine District Sheet SF51-5 Nullagine Exploration Licence E46/447	2002	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold
65160	Partial Surrender Report for the period ending 6 August 2002 Pilbara Mineral Field Eastern Creek Prospect Nullagine District Sheet SF51-5 Nullagine Exploration Licence E46/447	2002	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold
66090	Mt Elsie Project, All Joint Ventures, Annual Report for the period 1st January 2002 to 31st December 2002, E45/1683 & 1832; P45/2303-2305, 2362-2365 & 2370-2372.	2003	Allmark D	Mount Elsie	Image Resources Nl	Gold
67302	Surrender Report for the period ending 6 August 2003 Eastern Creek Prospect Nullagine District E46/447	2003	Cranley N	Eastern Creek	Wedgetail Exploration Nl	Gold
76201	Cookes Creek - E46/591 Annual Report From 25th August 2006 - 24th August 2007	2007	Pretty J	Cookes Creek	Wedgetail Mining Ltd	Gold
77603	NULLAGINE PROJECT, ANNUAL REPORT, C183/2007, FROM 1st JANUARY 2007 - 31st DECEMBER 2007 C183/2007	2008	Pretty J	Nullagine	Wedgetail Mining Ltd	Gold
81499	NULLAGINE PROJECT ANNUAL REPORT C183/2008 FROM 1st JANUARY 2008 - 31st DECEMBER 2008	2009	Tuffin T	NULLAGINE	Millennium Minerals Ltd	Gold; Molybdenum
85470	E45/3000, E45/3001, C145/2009, Nullagine-Meentheena Project, Combined Annual Report, For the period 19 December 2008 –18 December 2009.	2009	Ronk A	Nullagine - Meentheena	Creasy M G	Gold
89282	E45/3000, E45/3001 C145/2009 Nullagine-Meentheena Project Combined Annual Report For the	2011	Ronk A	Nullagine - Meentheena	Creasy M G	Gold

WAMEX Report A No	Report Title	Year	Author	Project	Operator	Target Commodity
	period 19 December 2009 –18 December 2010					
90326	Southern Granite Project, Annual Report for the period 5th April 2010 to 4th April 2011, E45/3337.	2011	Ronk A	Southern Granite	Bookaburna Minerals Pty Ltd	Molybdenum
91708	E46/831 - Annual Report for the period 6 September 2010 to 5 September 2011	2011	Scott A	E46/831	Mesa Minerals Ltd	Gold
92971	E45/3000, E45/3001 C145/2009 Nullagine-Meentheena Project Combined Annual Report for the period 18 December 2010 –17 December 2011	2012	Ronk A	Nullagine - Meentheena	Creasy M G	Gold
93956	Southern Granite Project E45/3337 Annual Report for the period 6 April 2011 to 5 April 2012	2012	Ronk A	Southern	Bookaburna Minerals Pty Ltd	Granite
95348	E46/831 - Annual Report for the period 6 September 2011 to 5 September 2012	2012	Scott A	E46/831	Mesa Minerals Ltd	Gold
96791	E45/3000, E45/3001 C145/2009 Nullagine-Meentheena Project Combined Annual Report for the period For the period 19 December 2011 –18 December 2012	2013	Ronk A	Nullagine - Meentheena	Creasy M G	Gold
98427	Annual Report, Mt Elsie Project, E45/3337 for the period 6/04/2012 to 5/04/2013	2013		Mount Elsie	Bookaburna Minerals Pty Ltd	Gold; Molybdenum
99186	Annual Report Two Creeks Project E46/816 & E46/831 (C208/2012) year to 12 July 2013	2013	Vooys R	Two Creeks	Mesa Minerals Ltd	Gold
99360	Mt Elsie Project, Annual Report for the period 01/07/2012 to 30/06/2013, E46/950 & 951. [C176/2012]	2013		Mount Elsie	Witx Pty Ltd	Gold
101043	Meentheena Project Annual Report for the period 19/12/2012 to 18/12/2013, E45/3000 & 3001.	2013		Meentheena	Creasy M G	Gold
102337	Yilgalong Project E45/3337 Annual Report for the period 06/04/2013 - 05/04/2014	2014	Barrow K	Yilgalong	Conglomerate Gold Exploration Pty Ltd	Molybdenum
104664	Meentheena Project (E45/3001) Surrender Report for the period 19/12/08 to 18/12/14	2015		Meentheena	Creasy M G	Gold
107920	Surrender Report Mt Elsie Project E46/950 for the period 21st June 2012 to the 16th September 2015	2016		Mount Elsie	Witx Pty Ltd	Gold
107977	Final Surrender Report - Exploration Licence 46/831 for the period 6 September 2010 to 4 September 2015	2016	Keillor J	E46/831	Mesa Minerals Limited	Gold; Iron; Magnesium; Manganese
109815	Surrender Report Mt Elsie Project E45/3337 for the period 05/04/2010 to 12/07/2016	2016	Lane S	Mount Elsie	Bookaburna Minerals Pty Ltd	Gold
114758	Partial Surrender Report - Meentheena Project E45/04198 for the period 28/07/2014 - 26/07/2017	2017	Sharp J	Meentheena	Mt Stewart Resources Pty Ltd	Gold

WAMEX Report A No	Report Title	Year	Author	Project	Operator	Target Commodity
117449	Partial Surrender Report E46/951 Elsie Creek for the period 21 June 2012 to 20 June 2018	2018	Sharp J	Elsie Creek	Witx Pty Ltd	Gold
48413	Annual Report for the period 07/04/95-06/04/96 ,Yilgalong Project ,E45/1470	1996		Yilgalong	Plenty River Mining Co Nl	Base Metals; Gold
97362	South Woodie Woodie Project, Annual Report for the period 14th February 2012 to 13th April 2013, E46/935.	2013	Peterson S	South Woodie Woodie	Spitfire Resources Ltd	Gold; Manganese
102235	Final Surrender Report, E46/935, South Woodie Woodie Project for the period 29/04/2011 to 3/04/2014.	2014	Peterson S	South Woodie Woodie	Spitfire Australia (Sww) Pty Ltd	Manganese
103735	Whites Reward E45/3586, E45/3587 and E45/3572 Annual Report for the period 01/07/2013 to 30/06/2014	2014	Cooke J	Whites Reward	Gardner Mining Pty Ltd	Gold
103821	East Pilbara Project Annual Report for the period 01/07/2013 to 30/06/2014, E45/3000, E45/3001, E45/3332, E45/3337, E45/3724, E45/3864, E45/3951, E45/3952, E45/4159, E45/4160, E46/607, E46/608, E46/947, E46/950, E46/951, M45/202	2014	Barrow K; Merhi G	East Pilbara	Conglomerate Gold Exploration Pty Ltd	Gold
108648	Final Surrender Report for Whites Reward Project E45/3587 for the period 23/05/2012 to 18/11/2015	2016	Jewson R	Whites Reward	Gardner Mining Pty Ltd	Gold
114758	Partial Surrender Report - Meentheena Project E45/04198 for the period 28/07/2014 - 26/07/2017	2017	Sharp J	Meentheena	Mt Stewart Resources Pty Ltd	Gold
117449	Partial Surrender Report E46/951 Elsie Creek for the period 21 June 2012 to 20 June 2018	2018	Sharp J	Elsie Creek	Witx Pty Ltd	GOLD
122411	E45/5033 Warrawagine 3 Annual & Final Report for the period 3 July 2018 – 2 July 2019	2019		Warrawagine 3	Yandan Gold Mines Pty Ltd	Gold

6.4 PREVIOUS EXPLORATION IN THE NORTIA PROJECT AREA

The WA State Department of Mines, Industry Regulation and Safety geological mapping website (GeoVIEW.WA) was interrogated to obtain the available data for the project area.

Spatial data, including geology and historical exploration, was also sourced from the Department of Mines, Industry Regulation and Safety Data and Software Centre ***(Government of Western Australia, 2020)*** and viewed in MapInfo Professional for spatial analysis and interpretation. Further geological studies could expand the area of investigations and increase the volume of data available for review.

Data extracted from the GEOVIEW.WA system in the project area includes:

- 37 historic tenements;
- 1 overlapping tenure;
- 0 exploration drillholes;
- 231 unique surface geochemistry samples – historical company samples; and
- 36 historical company reports of previous exploration.

A summary of the historical tenure is given below in Table 6.4 on page 66.

Table 6.4: Nortia Project, Historical Tenements

Tenement	Type	Reason	Relinquished	Holder Name
E 46/407	Exploration Licence	Forfeited	1997	Waratah Equity Pty LTD
E 46/360	Exploration Licence	Forfeited	1995	Ward, Donald Frederick & Panich, Drago
E 46/283	Exploration Licence	Surrendered	1993	Hitec Energy NL
E 46/292	Exploration Licence	Surrendered	1993	Valiant Consolidated LTD
E 46/220	Exploration Licence	Forfeited	1992	Kismet Oberon NL
E 46/259	Exploration Licence	Surrendered	1992	Hitec Energy NL
E 46/203	Exploration Licence	Surrendered	1991	Stockdale Prospecting LTD
E 46/202	Exploration Licence	Surrendered	1990	Stockdale Prospecting LTD
E 46/201	Exploration Licence	Surrendered	1989	Stockdale Prospecting LTD
E 46/117	Exploration Licence	Surrendered	1986	Gem Exploration and Minerals LTD
P 46/282	Prospecting Licence	Expired	1986	Pilbara Mining and Exploration Pty LTD
TR 70/5788	Temporary Reserve	Cancelled	1975	Name Not Provided
MC 46/2394	Mineral Claim	Surrendered	1975	Name Not Provided
TR 70/4974	Temporary Reserve	Cancelled	1969	Name Not Provided
TR 70/1643	Temporary Reserve	Cancelled	1964	Name Not Provided
PA 46/420	Prospecting Area	Surrendered	1939	Name Not Provided

7.0 GEOLOGICAL SETTING AND MINERALISATION

7.1 REGIONAL GEOLOGICAL SETTING

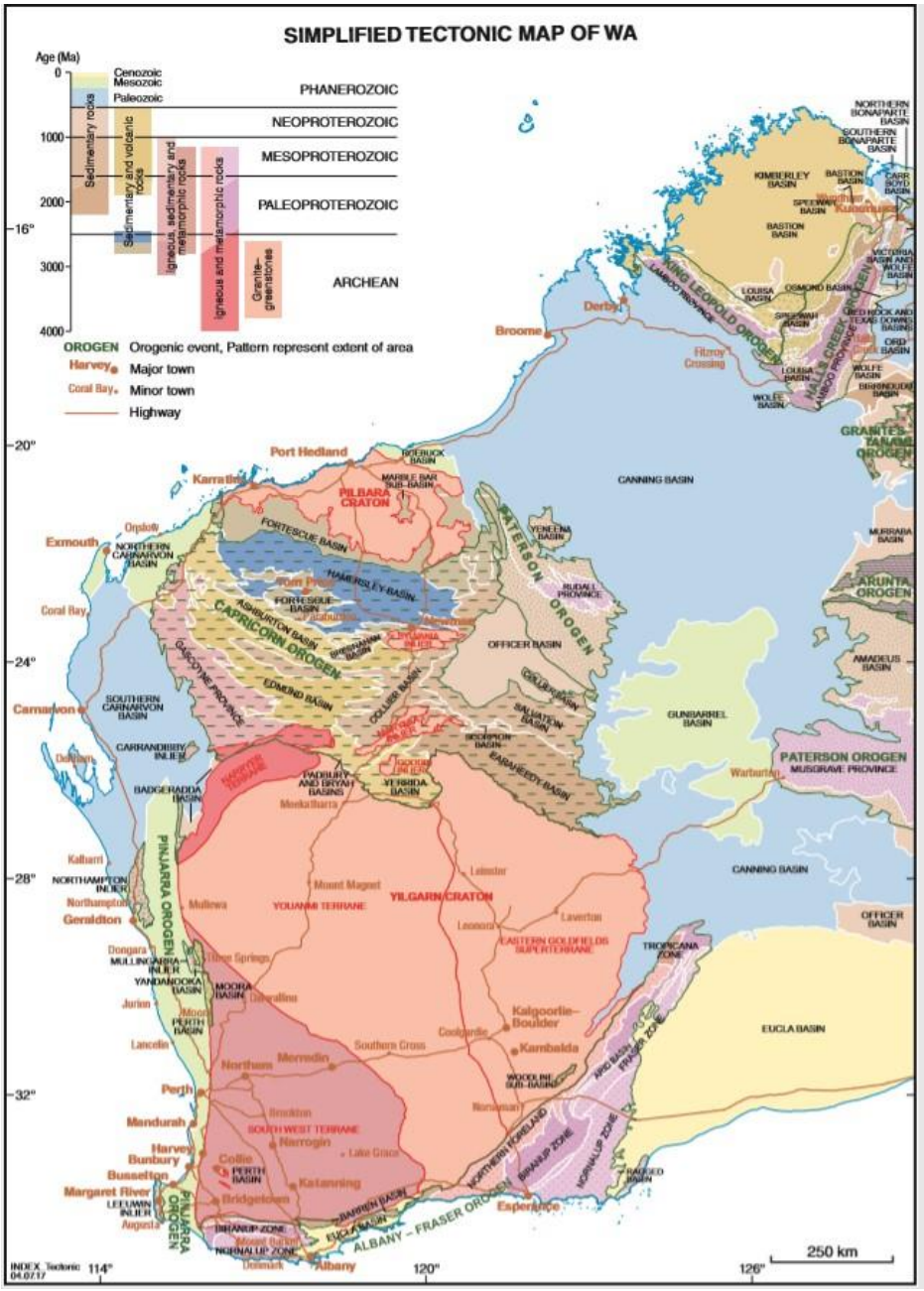


Figure 7.7.1: Simplified Tectonic Map of WA (Geological Survey WA, 2018)

Western Australia is comprised of a series of cratons and basins which are host to world-class mineral deposits. WA's geological framework consists of stable Archean cratonic nuclei that were progressively sutured during the Proterozoic into successively larger cratons and ultimately supercontinents (Figure 7.7.1).

WA started to separate from the remaining mass of Gondwana in the Late Jurassic (160 million years ago), with the western margin separating from India and Africa during the Early Cretaceous (130 million years ago).

A wealth of mineral deposits and petroleum resources formed during the 4.4-billion-year geological history of WA (Geological Survey of Western Australia, 2018). The main tectonic units of Western Australia are displayed in Figure 7.7.1 on page 67.

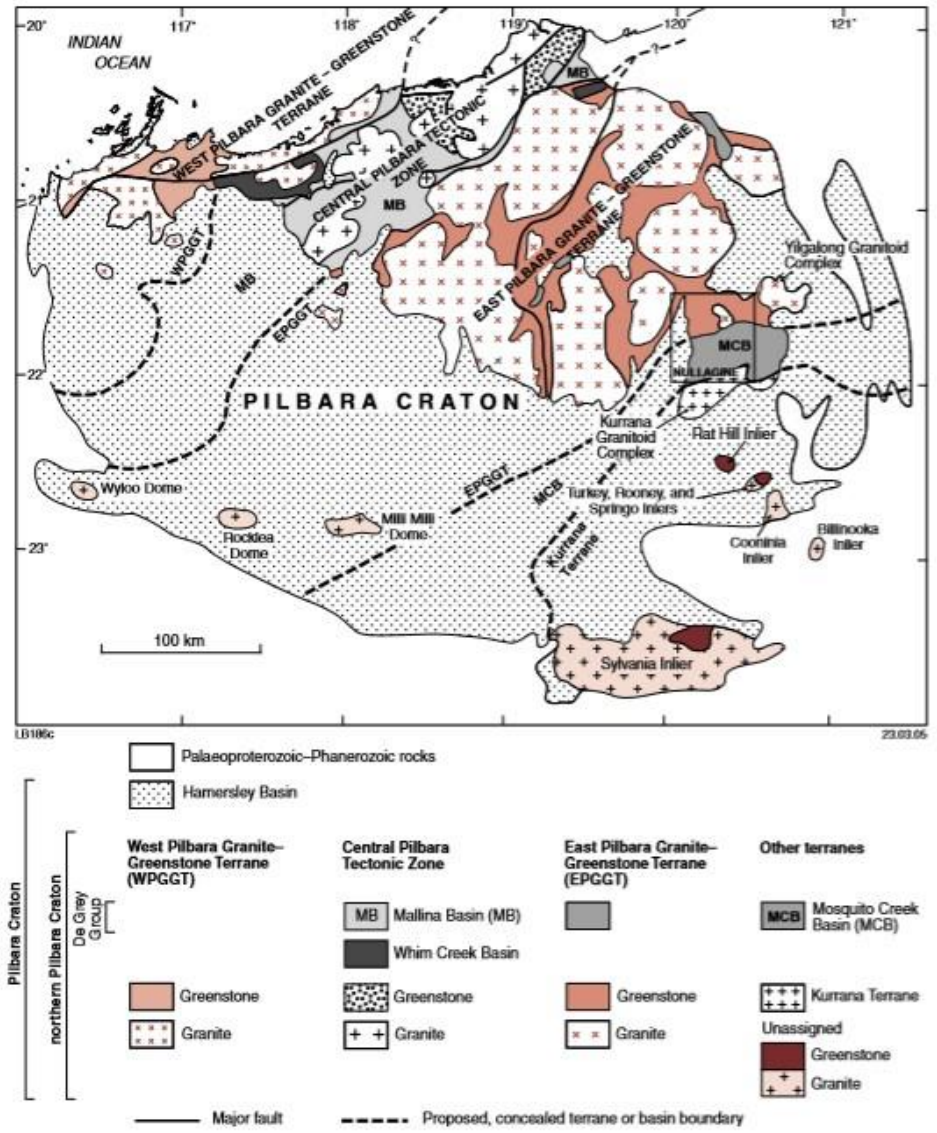


Figure 7.7.2: Regional Geological Setting Nullagine (GSWA 2005)

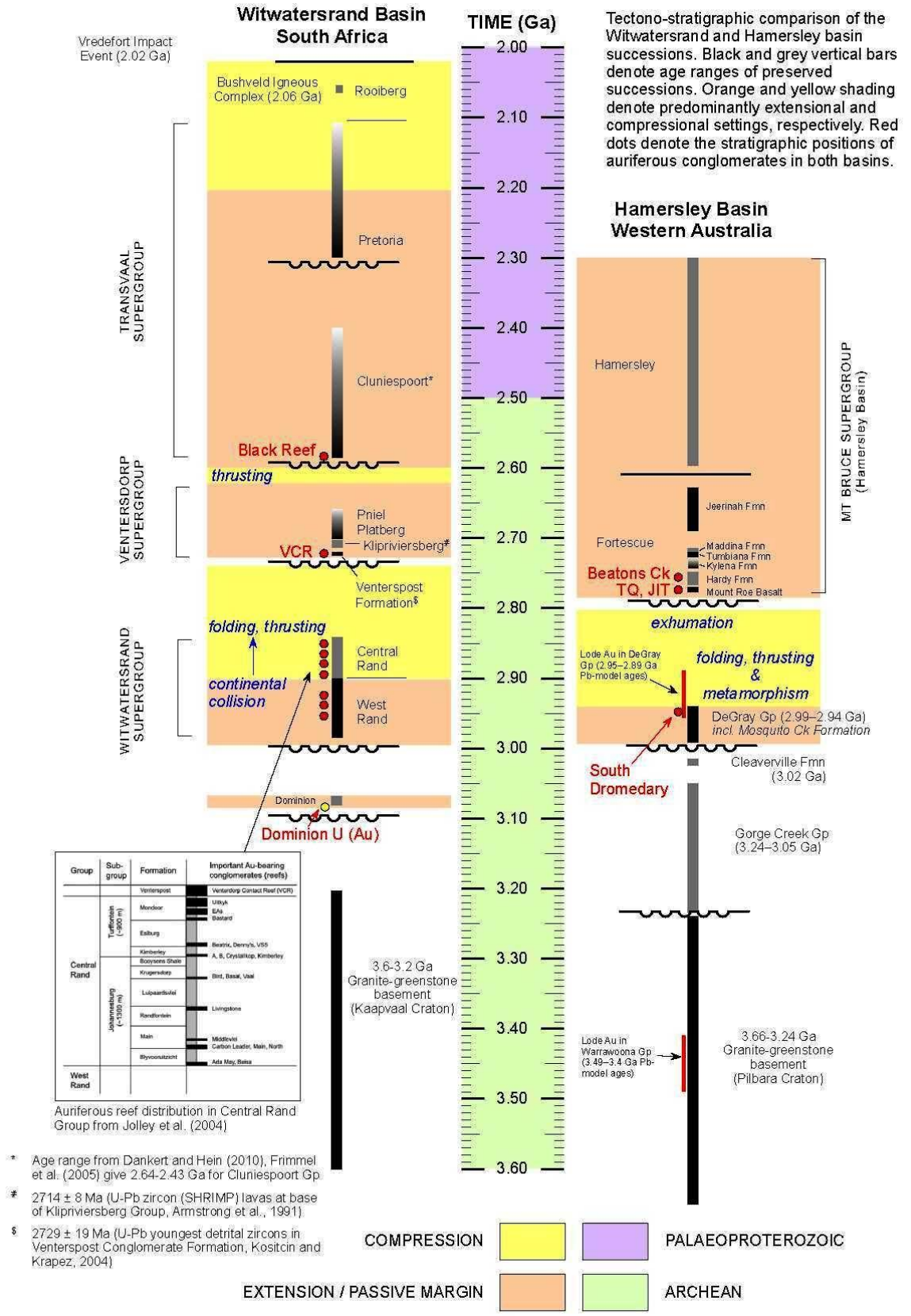


Figure 7.7.3: Comparison between Hammersley Basin and Witwatersrand Basin tectono-stratigraphy (after Nelson et al., 1992, 1999; Martin et al., 1998; Thorne and Trendall, 2001)

7.1.1 BEATONS RIVER PROJECT AREA GEOLOGY

The Beatons River Project Area is located in the East Pilbara granite–greenstone terrain of the Early to Late Archaean Pilbara Craton of north-western Western Australia.

The sub-basins formed on the older granite–greenstone basement during the initial stages of Late Archaean continental rifting and formation of the Late Archaean–Paleoproterozoic Hamersley Basin (Figure 7.7.4 on page 71).

The Beatons River tenure is centred on an area containing extensive and relatively complete lower Fortescue Group successions, in comparison to other parts of the north Pilbara Craton.

Although up to 50 million years older, the 2.77–2.63 Ga Fortescue Group is commonly compared to the Ventersdorp Supergroup of the Witwatersrand Basin in South Africa, which is similar in both composition and tectono-stratigraphic setting (Figure 7.7.3 on page 69); Nelson et al., 1992, 1999; Martin et al., 1998; Thorne and Trendall, 2001).

The lowest part of the regional succession is comprised of granitic and greenstone rocks that are between 3.66 and 2.84 Ga; these are moderately to strongly deformed mafic volcanics and intercalated felsic volcanic and sedimentary rocks, which comprise the greenstone sequences, now occupying a series of arcuate synclinorial belts between less deformed complexes void of granitoids ; Huston et al., 2001, 2002a).

The granite batholiths are 25km – 110km in diameter, have centres spaced, on average, 60km apart and were largely emplaced prior to 2.92Ga, however some were also intruded by small, highly reduced, post-tectonic, tin-bearing granites between 2.88 Ga and 2.84 Ga. These basement rocks are overlain by four sequences of Archaean sedimentary and volcanic rocks. From oldest to youngest these sequences are:

- George Creek Group (3.24–3.05 Ga);
- Cleaverville Formation (3.02 Ga);
- De Grey Group (2.99–2.94 Ga); and
- Hamersley Basin succession (Mt Bruce Supergroup) (2.78–2.3 Ga). The Mt Bruce Supergroup consists of the Fortescue and overlying Hamersley groups (Figure 7.7.4 on page 71).

The Mosquito creek formation which correlates with the De Grey group is interpreted based on Geophysical data to extend for at least 20km beneath the Fortescue Group cover and hosts a number of small to moderate sized disseminated, vein- and shear-hosted mesothermal Au deposits, interpreted to have formed at ca. 2.90 Ga (Huston et al., 2002a).

Gold eroded from these deposits during the Late Archaean has long been considered a likely source for auriferous placer deposits hosted in the Fortescue Group near Nullagine (Maitland, 1905; Finucane, 1935; Noldart and Wyatt, 1962; Hickman, 1983; Thorne and Trendall, 2001).

Part of the Hammersley Basin succession is the late Archaean (2.77–2.63Ga) Fortescue Group, a sequence of mafic and felsic volcanics and sedimentary rocks up to 6.5km thick

(Thorne and Trendall, 2001; Blake, 1993, 2001) and is exposed over a wide area in the Pilbara Craton.

Thorne and Trendall (2001) divide the Fortescue Group into four major tectono-stratigraphic units and seven formations. The entire sequence is interpreted to reflect increasing amounts of subsidence in an overall extensional setting. These four units are summarised as follows:

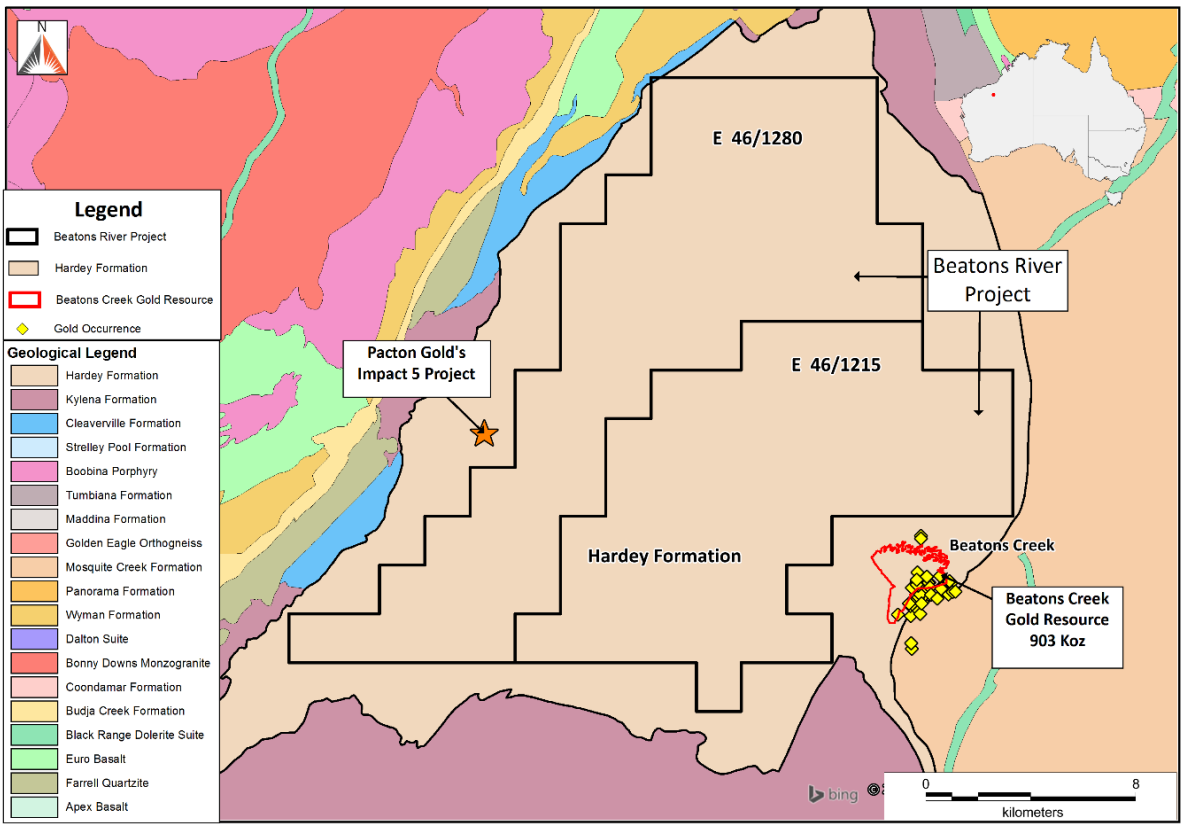


Figure 7.7.4: Local Geology Beatons River (GWSA2020)

• Unit 1 (basal) – Consists primarily of the ≤2.5km thick Mount Roe Basalt which consists of sub aerial and subaqueous (<2%) basaltic lavas and locally intercalated subaqueous volcaniclastics (<5%). Subaqueous units in the Mount Roe Basalt are interpreted to have been deposited in a lacustrine, rather than marine, setting (Thorne and Trendall, 2001).

• Unit 2 – Primarily the Hardey Formation which unconformably overlies Unit 1 and is up to 3km thick and consists of a diverse association of sedimentary, mafic and felsic volcanic rocks (and high-level intrusions), which were deposited in continental to shallow-marine settings. This unit hosts the Gold mineralization at Nullagine and Marble Bar.

• Unit 3 consists of the basal Kylena (sub aerial basalt), Tumbiana (marginal to shallow marine sedimentary rocks) and uppermost Maddina (sub aerial basalt) formations. Although deposited in a largely sub aerial environment, Unit 3 marks a widespread coalescence of individual subbasins across the Pilbara craton (Thorne and Trendall, 2001). Where the Fortescue Group directly overlies granitic basement the Kylena (Basalt) Formation is typically the lowermost unit (Figure 7.7.4; Hickman, 1983; Thorne and Trendall, 2001).

• Unit 4 – The Jeerinah Formation marked the onset of a major marine transgression across the Hamersley Basin (which continued into deposition of the overlying Hamersley Group). In the north Pilbara Craton, the Jeerinah Formation predominantly consists of argillaceous rocks; however basaltic lavas and volcaniclastic rocks dominate in the south. The Fortescue Group is disconformably overlain by marine sedimentary sequences (shale, banded iron formation and carbonate) of the 2.6 – 2.3 Ga Hamersley Group (Figure 7.7.5 on page 72).

Blake (2001) and Blake et al. (2004) place the Kylena Basalt, Hardey Formation and Mt Roe Basalt in their Nullagine Supersequence, which is interpreted to reflect initial deposition into fault-controlled rift-basins during the early stages of continental break-up.

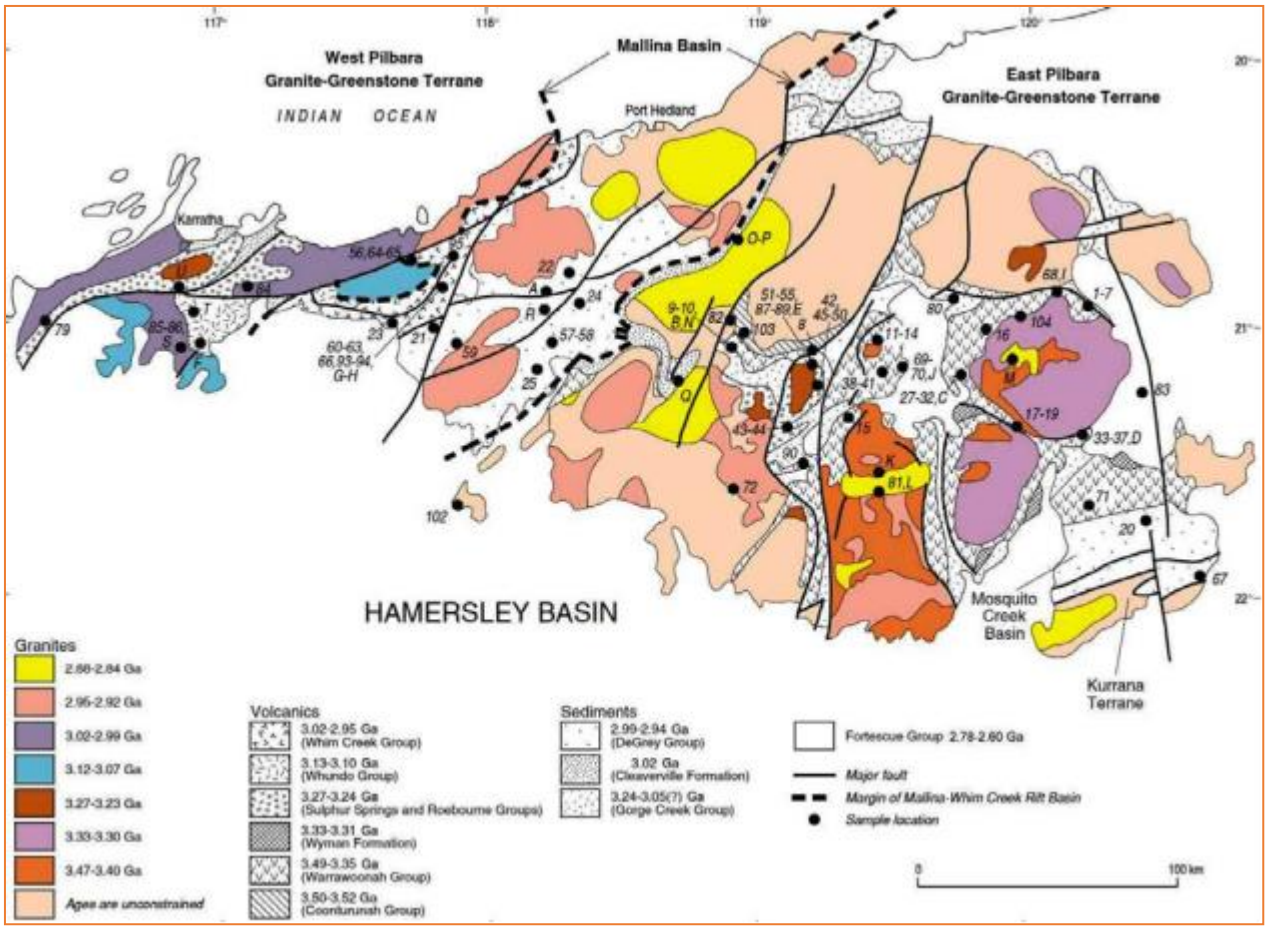


Figure 7.7.5: Summary map showing the age and distribution of the granites, greenstone successions and sedimentary basins in the north Pilbara Craton. (From Huston et al., 2002a)

Overlying Fortescue Group formations are interpreted to have been deposited during a more complex second phase of rifting. Blake (2001) and Blake et al. (2004) assign the Tumbiana Formation and lower part of the Maddina Formation to their Mount Jope (1) Supersequence). They interpret this succession to record a change to regional subsidence and burial. The upper part of the Maddina Formation and most of the overlying Jeerinah Formation are assigned to the Mount Jope (2) Supersequence (Blake, 2001; Blake et al., 2004).

7.1.2 CUPRITE EAST AND WEST PROJECT GEOLOGY

The Cuprite East and West Project is located in the East Pilbara Granite-Greenstone Terrane which comprises the eastern portion of the Archaean Pilbara Craton (Figure 7.6 on page 74).

The East Pilbara Granite-Greenstone Terrane comprises groups of volcanic and sedimentary rocks (greenstones) deposited between c. 3515 and 3240 Ma, in addition to younger, dominantly sedimentary, greenstone successions and numerous suites of granitoid rocks varying in composition from trondhjemite through to monzogranite that were emplaced between c. 3576 and 2850 Ma.

The terrane is characterised by large ovoid granitoid complexes flanked by curvi-planar belts of commonly steeply dipping greenstones. The volcanic and sedimentary rocks form strongly deformed greenstone belts between large, oval-shaped, multicomponent granitic complexes.

The Warralong greenstone belt is triangular in shape with its apex pointing to the northeast. According to Van Kranendonk (2004) the Warralong greenstone belt contains rocks of the c. 3515–3500 Ma Coonterunah Group, the c. 3490–3310 Ma Warrawoona Group, the c. 3255–3235 Ma Sulphur Springs Group and undated rocks of the <3235 to 2940 Ma Gorge Creek Group.

These groups are separated by unconformities. The western edge of the Warralong greenstone belt is marked by the regional-scale Lalla Rookh — Western Shaw Fault. The fault is up to about 20m wide and formed during regional transpression (Krapež, 1989; Van Kranendonk, 2000).

The Warralong, Doolena Gap and Marble Bar greenstone belts occur in the area and the Gorge Creek Group is an extensive component of the greenstone belts which lies unconformably over the older greenstone formations. Most of the rocks in the greenstone belt consist of mafic and felsic volcanic rock and sedimentary rock metamorphosed at amphibolite to greenschist facies (Van Kranendonk, 2004).

All of these rocks were intruded by ultramafic rocks. Interflow sedimentary rocks are mainly white to black laminated chert, rare jaspilite, ferruginous cherty quartzite and banded iron formation. Rocks at the base of the greenstone belt are contact metamorphosed by the adjacent granitic complexes.

To the south, sandstone and conglomerate of the Gorge Creek Group unconformably overlie the greenstones. The Warralong greenstone belt has a long and complicated structural history. Sedimentary facing is very rarely consistent from area to area suggesting that a large portion of the greenstone sequence is overturned.

Near the western margin of the belt adjacent to the granite, a strong mylonitic fabric is developed with a steep stretching lineation presumably related to intrusion of the granite (Van Kranendonk, 2004).

The Fortescue Group unconformably overlies the older rocks and comprises predominantly basaltic sequences with minor coarse clastic rocks. The ovoid shaped Carlindi, Muccan and Mount Edgar granitoid complexes bound the greenstone belts.

A cursory examination of the Total Magnetic Intensity (TMI) imagery covering the Cuprite area highlights the extent of the Archean ultramafic and mafic lithologies, even below surficial cover (Figure 7.7 on page 75).

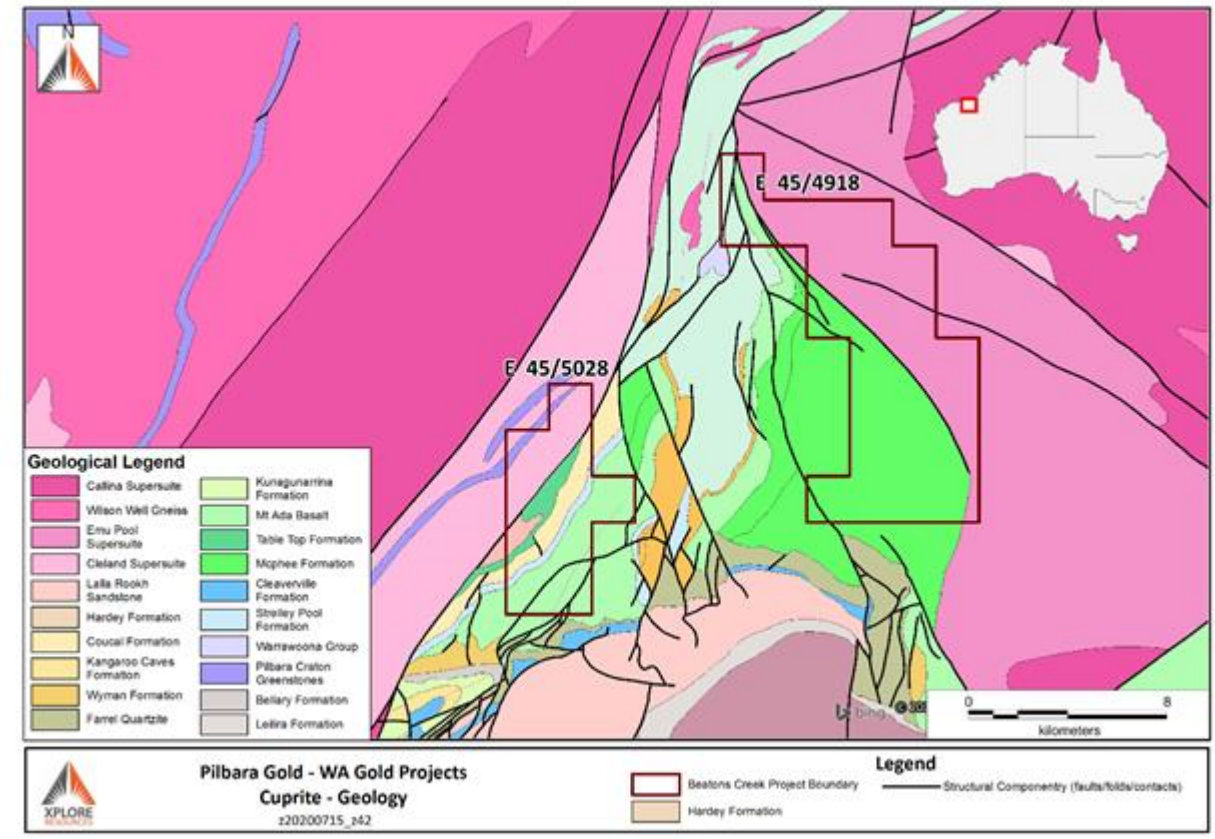


Figure 7.6: Cuprite East and West Project Geology

The magnetic data shows there are no obvious magnetic responses associated with areas of known mineralisation or areas of hydrothermal alteration, which could be easily masked by the complexity of the geology and regional nature of the aeromagnetic data.

A subtle magnetic response occurs near Crawford Bore and an intense 3km long, NNE linear response occurs south of Farrell Well North 2 prospect. This response is likely associated with a carbonate-talc-chlorite-serpentine schist and a komatiitic basalt member of the McPhee Formation.

Two subtle, bullseye responses, near the southern end of the NE Zone Prospect are likely associated with unassigned sheared amphibolite and a tremolite-chlorite-schist derived from komatiitic basalt. A noticeable magnetic response south of Cuprite East, near Pear Creek is possibly associated with an intrusion related to the Muccan Granitoid Complex.

Other magnetic responses south and southwest of Cuprite East are related to a BIF in Paddy Market Formation and a subtle broad magnetic response immediately south of Cuprite West is also related to a BIF, but in the Cleaverville Formation.

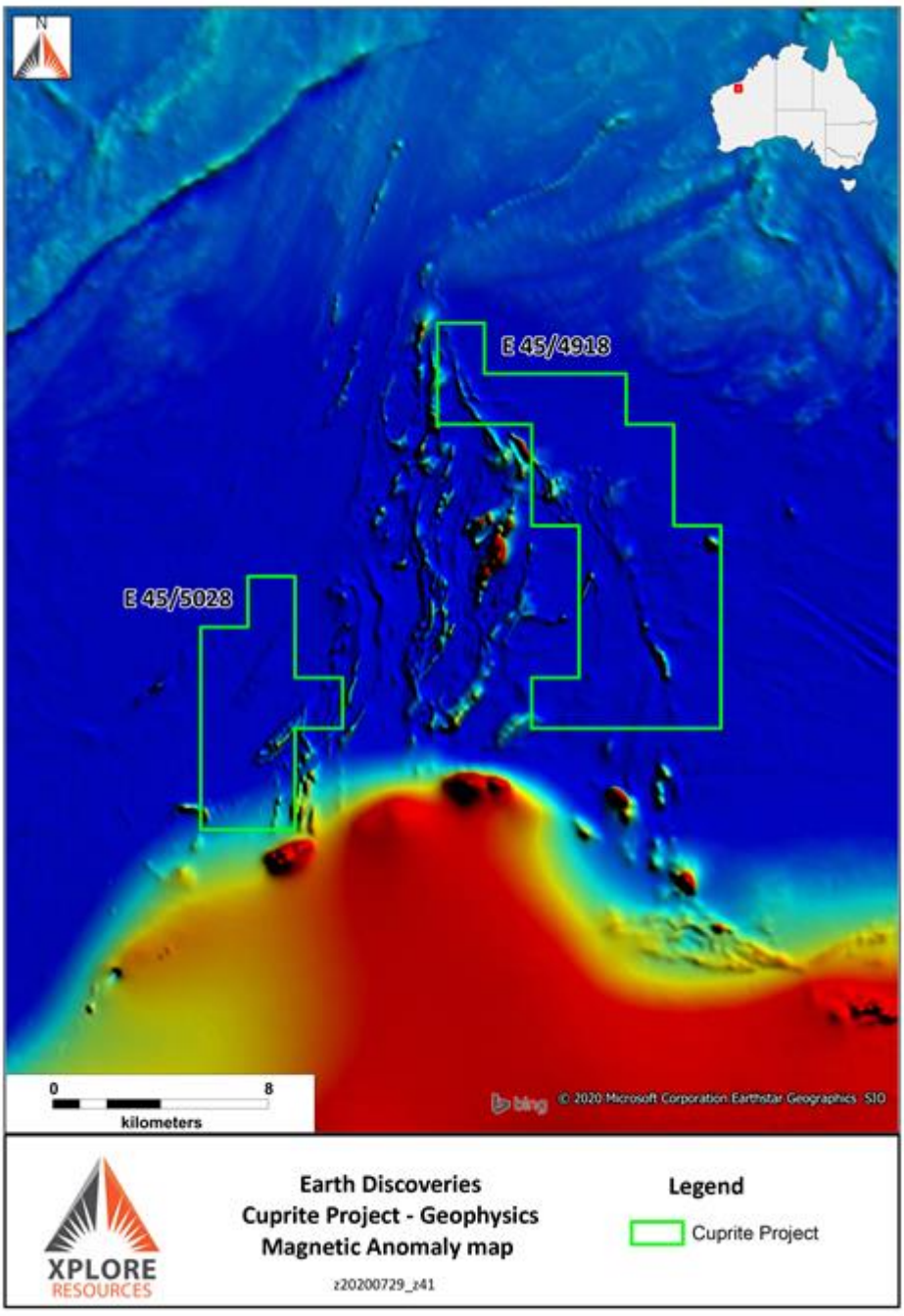


Figure 7.7: Cuprite Project, Total Magnetic Intensity

7.1.3 FORTUNA AND TYCHE PROJECT GEOLOGY

The project area is dominated by rocks of the Fortescue Group namely the Hardy Formation and the Kylena Formation. Thorne and Trendall (2001) divide the Fortescue Group into four major tectono-stratigraphic units and seven formations. The entire sequence is interpreted to reflect increasing amounts of subsidence in an overall extensional setting (Figure 7.8 on page 78).

Mount Roe Basalt

The Mount Roe Basalt (Kriewaldt, 1964) is a succession, up to 2.5km thick, of subaerial basaltic lavas, volcaniclastic rocks and minor subaqueous basaltic lavas (Thorne and Trendall, 2001). Epiclastic sedimentary rocks are a minor component and are thought to constitute no more than about 1% of the unit (Thorne and Trendall, 2001).

On the Eastern Creek 1:100,000 map sheet the Mount Roe Basalt is locally at the base of the Fortescue Group and lies unconformably on rocks of the Mount Elsie greenstone belt, Yilgalong Granitic Complex and Mosquito Creek Formation in the northwest of the map. A maximum thickness of about 500m is indicated for an area north of Mount Olive. The unit consists of a basal sandstone and polymictic conglomerate (gold bearing) and an upper succession of basalt and minor gabbro.

Hardey Formation

The Hardey Formation (Thorne et al., 1991) is a succession of clastic sedimentary and volcanic rocks up to 3km thick that locally includes a quartz–feldspar porphyry, named the Bamboo Creek Member (Thorne and Trendall, 2001).

Within the project area the Hardey Formation unconformably overlies the Mount Roe Basalt and parts of the East Pilbara Granite–Greenstone Terrane and Mosquito Creek Basin. Outcrop is discontinuous and the thickness of the unit varies up to a maximum of about 800m near the southern boundary of the Yilgalong Granitic Complex. The formation is unconformably overlain by rocks of the Kylena Formation.

Bamboo Creek Member

The Bamboo Creek Member overlies and locally intrudes the sedimentary rocks of the Hardey Formation. There are large exposures in the central-northern area, but much of the outcrop is deeply weathered. In fresh outcrops the porphyry is a dark green-grey rock crowded with phenocrysts of pinkish feldspar (?K-feldspar) and quartz in a fine-grained groundmass.

The rock is typically massive and possible columnar jointing is preserved in several locations. In some areas the porphyry is cut by closely spaced joints and in others it has a crude layering. Contacts with the Hardey Formation are locally discordant, suggesting that the porphyry may be locally intrusive.

Kylena Formation

The Kylena Formation (Kojan and Hickman, 1998) outcrops in the central and central-northern parts of project region. The formation lies unconformably on the Yilgalong Granitic Complex, Mosquito Creek Formation and Golden Eagle Orthogneiss. For the most part the Kylena Formation is unconformable on the Hardey Formation, although there are locally conformable relationships in the Fortescue Group outlier west of Mount Elsie.

Contact with the overlying Tumbiana Formation appears to be conformable. The formation is from about 0.5km to 2.5km thick. The mafic rocks of the Kylena Formation are petrographically similar to the basalts of the Mount Roe Basalt. They have been subdivided using geochemical (Glikson et al., 1986) and radiometric data as has been done in the west Pilbara (Kojan and Hickman, 1998).

Locally the Kylena Formation comprises a lower succession of basalt, local mafic tuff and probable komatiitic basalt, a thin unit of limestone and calcareous shale and siltstone and an

upper succession of tholeiitic basalt, basaltic andesite and andesite, with the more differentiated rocks towards the top of the succession.

Tumbiana Formation

The Tumbiana Formation (Lipple, 1975; Thorne and Trendall, 2001) conformably overlies the Kylena Formation and reaches a maximum thickness of about 250m.

In the east Pilbara it consists of a lower unit of fine-grained volcaniclastic rocks with minor carbonate (named the Mingah Tuff Member by Lipple, 1975) and an upper unit of stromatolitic carbonate and calcareous sandstone (named the Meentheena Carbonate Member by Lipple, 1975).

An age of 2724–2715 Ma for the Tumbiana Formation is indicated by SHRIMP U–Pb zircon dates of 2715 ± 6 Ma (Arndt et al., 1991) on a tuffaceous sandstone from the middle of the formation and 2724 ± 5 and 2721 ± 4 Ma (Blake et al., 2004) on felsic tuffs from the base and mid-section of the formation respectively.

The main rock types are fine-grained sandstone, siltstone and a distinctive tuffaceous sandstone or granulestone containing abundant accretionary lapilli. The latter is blue-grey or green-grey and has individual beds, packed with accretionary lapilli, showing weak grain-size grading. Thorne and Trendall (2001) interpreted similar rock types as primary pyroclastic fall deposits. The sandstone is typically basaltic in composition and is locally intercalated with thin basalt flows.

Maddina Formation

The Maddina Formation (AFm; Kojan and Hickman, 1998; Thorne and Trendall, 2001 and references therein) consists mainly of subaerial basaltic lavas and mafic volcaniclastic rocks. The formation conformably overlies the Tumbiana Formation, is up to about 1km thick and encompasses the former Nymerina Basalt, Maddina Basalt and Kuruna Siltstone (MacLeod and de la Hunty, 1966; Hickman, 1983).

Jeerinah Formation (AFj)

The Jeerinah Formation (MacLeod et al., 1963; Thorne and Trendall, 2001), formerly the Lewin Shale (de la Hunty, 1964; Hickman, 1983), consists mainly of fine-grained clastic sedimentary rocks with minor chert.

It is widely thought to be conformable on the Maddina Formation (Thorne and Trendall, 2001 and references therein) and attains a thickness of up to 1250m. A depositional age range of 2690 to 2629 Ma is indicated by SHRIMP U–Pb zircon dates of 2690 ± 16, 2684 ± 6 (Arndt et al., 1991) and 2629 ± 5 Ma (A. F. Trendall, quoted in Nelson et al., 1999).

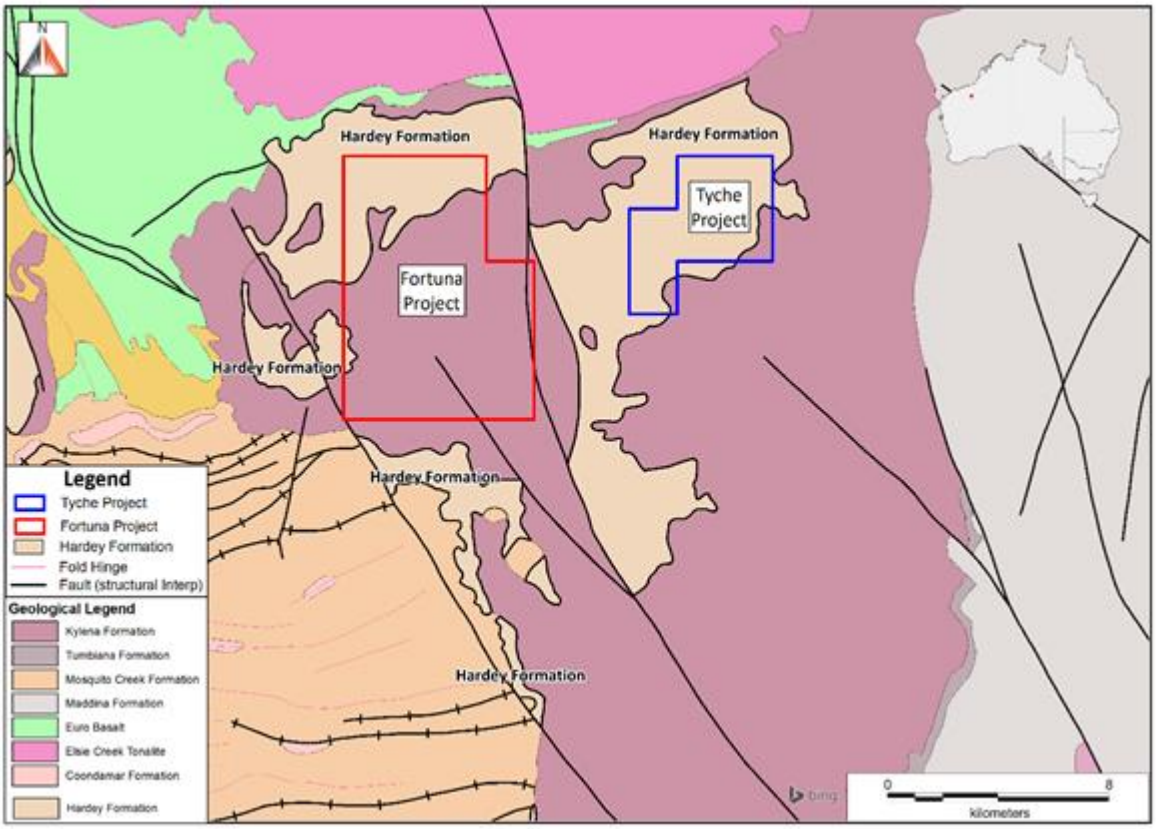


Figure 7.8: Geology of Fortuna and Tyche (Government of Western Australia, 2020)

7.1.4 NORTIA PROJECT GEOLOGY

The Nortia Tenement hosts five major geological observations. The Golden Eagle Orthogneiss covers major part of the north portion of the Nortia tenement.

In the centre portion, the Dalton Suite is located which is comprised by metamorphosed ultramafic intrusive rocks. The Coondamar Formation also takes place in the centre portion of the tenement and is composed of metamorphosed siliciclastic and mafic igneous rocks.

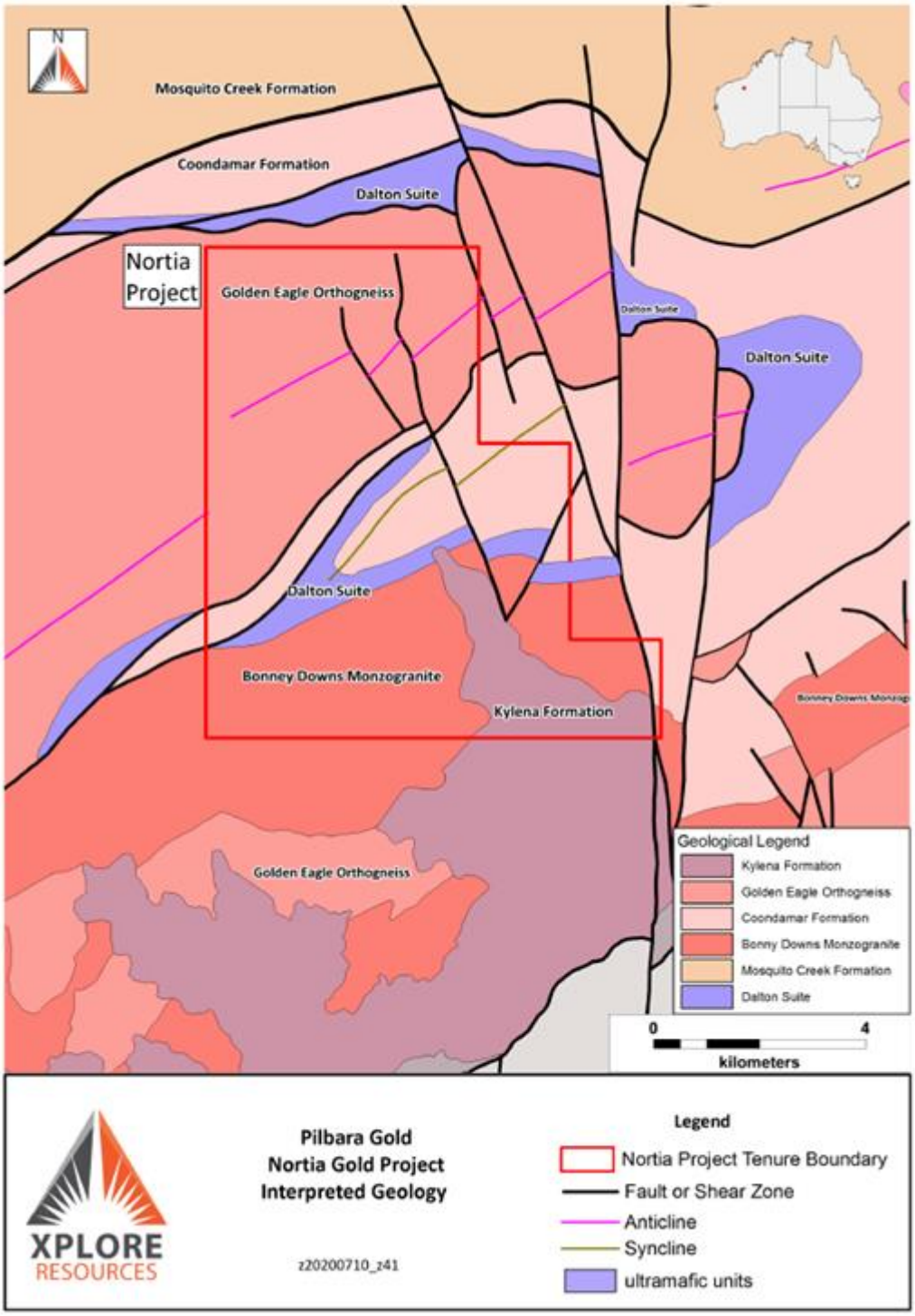


Figure 7.9: Geological Formations and Observations Within the Nortia Tenement (Government of Western Australia, 2020)

In south-east and south-west portion of the tenement there is the Bonney Downs Monzogranite which is composed of medium grained, locally sparsely porphyritic, locally muscovite bearing monzogranite.

Also, the southern portion of the tenement hosts the Kylena Formation. The Kylena Formation is composed of amygdaloidal and vesicular basalt and basaltic andesite, local komatiitic basalt, dacite and rhyolite. (Government of Western Australia, 2020). Besides the

formations within the tenement, there are large number of faults, synclines and anticlines located within the tenement boundaries (Figure 7.9 on page 79).

The nearest abandoned mine/spoil is located approximately 7.5km NNW of the Nortia tenement and the nearest operating mine is located approximately 9.5km NNW of the Nortia tenement. Both are located in the Mosquito Creek Formation.

7.2 STRUCTURE AND METAMORPHISM

The Pilbara Craton is one of the best preserved and least dismembered Archaean terrains in the world, however, it had a complex structural evolution involving at least thirteen deformation events between ± 3.46 Ga to and 2.75 Ga (Huston et al., 2001, 2002a).

In the north Pilbara Craton, the Fortescue Group has only undergone minor deformation and low-grade metamorphism (Figure 7.7.1 on page 67). In the Beatons Creek project area (Nullagine Basin), the Fortescue Group is gently folded by two generations of folds and cut by a complex array of mostly small displacement normal faults (Blake, 2001).

Fortescue Group strata generally dip at <20°, although steeper dips (up to ~45°) occur locally along the eastern margin of the Nullagine sub-basin (Farrell and Blake, 1984). In the Nullagine sub-basin assemblages reach prehnite– pumpellyite–epidote facies (Figure 7.7.1 on page 67). These assemblages indicate maximum temperatures <300°C (Smith et al., 1982; Thorne and Trendall, 2001).

7.3 REGIONAL GOLD DEPOSITS

It is interpreted that there are two main episodes of mesothermal/orogenic gold mineralisation (coincident with widespread deformation events) occurred in the north Pilbara craton (Huston et al.,2001, 2002a; Blewett et al., 2000).

Both were prior to deposition of the Fortescue Group. The first major Au mineralisation phase occurred at 3430–3370 Ma and was responsible for most of greenstone-hosted deposits (e.g. Warrawoona Group deposits). The other phase occurred at 2950–2890 Ma and principally formed deposits hosted by De Grey Group meta-sedimentary rocks, such as the Mosquito Creek Formation.

Some greenstone hosted gold deposits may have formed or undergone further enrichment during the second major phase of gold mineralisation (Huston et al., 2001, 2002a). The numerous small mesothermal gold deposits in the north Pilbara Craton have generally been considered the most likely source of gold in the Fortescue Group placer deposits (e.g. Maitland, 1905; Finucane, 1935, 1938; Hickman, 1983; Thorne and Trendall, 2001).

Gold was first discovered in the East Pilbara region in the late 1800s. Initial finds were mostly in Tertiary–Recent alluvium and colluvium and included several large gold nuggets (i.e. >10 kg) found in the vicinity of Marble Bar (Hickman, 1983).

Subsequent hard-rock gold discoveries near Marble Bar were mostly vein and lode type, mesothermal gold deposits hosted by greenstones of the Warrawoona Group. However, small palaeoplacer deposits, hosted by thin conglomerates at the base of the unconformably overlying Fortescue Group, were also identified at the Just-in-time and Tassy Queen mines.

One of the largest greenstone-hosted deposits in the Marble Bar area, Halley's Comet was discovered by Tommy Star in 1936. The Comet mine produced 4.87 tonnes (0.16Moz) of gold prior to its closure in 1955.

The Comet deposit and several smaller greenstone-hosted gold deposits nearby have been considered a likely source for gold in the Tassy Queen and Just-in-time palaeoplacer deposits (Finucane, 1938; Hickman and Lipple, 1975; Thorne and Trendall, 2001).

Total gold production at the Just-in-time and Tassy Queen mines is not known with any certainty, but available figures suggest it was probably <2500 oz Au. Alluvial gold was first discovered in Nullagine in 1886 (Maitland, 1905) and by 1893 Nullagine had become the principal alluvial gold field in the region.

A hard-rock source for alluvial deposits at Nullagine was identified in 1895, in the same year that the township was formerly declared. The alluvial gold was sourced from a thick sequence of poorly stratified conglomerates, coarse grits and minor sandstones (now assigned to the Hardey Sandstone of the Fortescue Group) exposed on hills immediately to the west of the alluvial workings.

These conglomerates contain multiple, 0.4m – 3.0m thick auriferous horizons, generally associated with significant concentrations of coarse-grained pyrite, much of it with a distinctive, well-rounded "buckshot" form (Maitland, 1905).

These discoveries immediately led to comparisons with the gold-rich Witwatersrand Basin in South Africa and sparked a gold rush to the district, as well as considerable interest on the London Stock Exchange.

By 1897, several mines were established at Nullagine, of which the most significant were Grants Hill, Success and Success Extended (Shire of East Pilbara Town Planning Scheme Report No. 4, Taylor Burrell Barnett Town Planning and Design, 2005).

There are no official records of gold production at Beatons Creek prior to the establishment of the Western Australian Mines Department in 1897 (Maitland, 1905; Finucane, 1935) and individual accounts of official production post-1897 also vary.

However, most estimates suggest total production was <4,000 oz at average grades of 15–20g/t Au (e.g. Maitland, 1905; Finucane, 1935; Wedgetail Exploration, 2007a). Post-1897 production records indicate abrupt decreases in grade within the first few years of operation at most of the mines.

Although local rich pockets of ore were mined between 1907 and 1912 (Finucane, 1935) organized mining at Beatons Creek had largely ceased by 1904 (Maitland, 1905). Millennium Minerals in 2010 announced an updated 1.247moz Resource within 5 deposits within the Mosquito Creek formation.

7.4 PREVIOUS WORK BY GOVERNMENT GEOLOGISTS

The East Pilbara Region had several government geologists investigate the Fortescue Group placer deposits and their host rocks during the early years of historic mining.

In the 1900s, various studies were done by A. G. Maitland who provided the first detailed descriptions and production records for gold mines at Beatons Creek and in the Mosquito Creek Belt and K. J. Finucane who sampled and reported on the Fortescue placer deposits in the 1930s.

Other authors include (but not limited to) W. N. MacLeod et al "A preliminary report on the Hamersley Iron province in 1963, J. R. Richards et al "Lead Isotopes and ages of galena from the Pilbara Region, Western Australia in 1977 and T. S. Blake "The lower Fortescue Group of the northern Pilbara Craton , stratigraphy and palaeogeography" in 1984.

More recent studies include D. R. Nelson et al "Chronological correlations between the Pilbara and Kaapvaal Craton, Western Australia in 1999, A. M. Thorne and A. F. Trendall "Geology of the Fortescue Group, Pilbara Craton, Western Australia" in 2001 and T. S. Blake et al "Geochronology of a Late Archean flood basalt province in the Pilbara Craton, Australia; constraints on basin evolution, volcanic and sedimentary accumulation," in 2004.

7.5 LOCAL GEOLOGICAL SETTING

7.5.1 BEATONS RIVER PROJECT GEOLOGY

The Nullagine sub-basin or Nullagine Synclinorium is a >60km long, NNE trending half-graben formed in response to WNW–ESE directed extension during the early stages of continental break-up (Blake, 1984a, b, 1993; Farrell and Blake, 1984; Carter and Gee, 1988; Blake, 2001, Blake et al., 2004).

Widespread mafic dykes of the Black Range Suite (interpreted feeders to the Mount Roe Basalt) mostly trend NNE also implying WNW–ESE-directed extension during lower Fortescue Group deposition (Williams, 1998; Thorne and Trendall, 2001; Blake, 2001; Blake et al., 2004).

The Nullagine sub-basin opens into the Hamersley Basin to the south and is partly bound by syn-depositional normal faults along its eastern margin (Farrell and Blake, 1984, Blake, 1993). Progressively younger Fortescue Group strata on-lap basement rocks towards the south (Farrell and Blake, 1984; Blake 1984a, 1993, 2001).

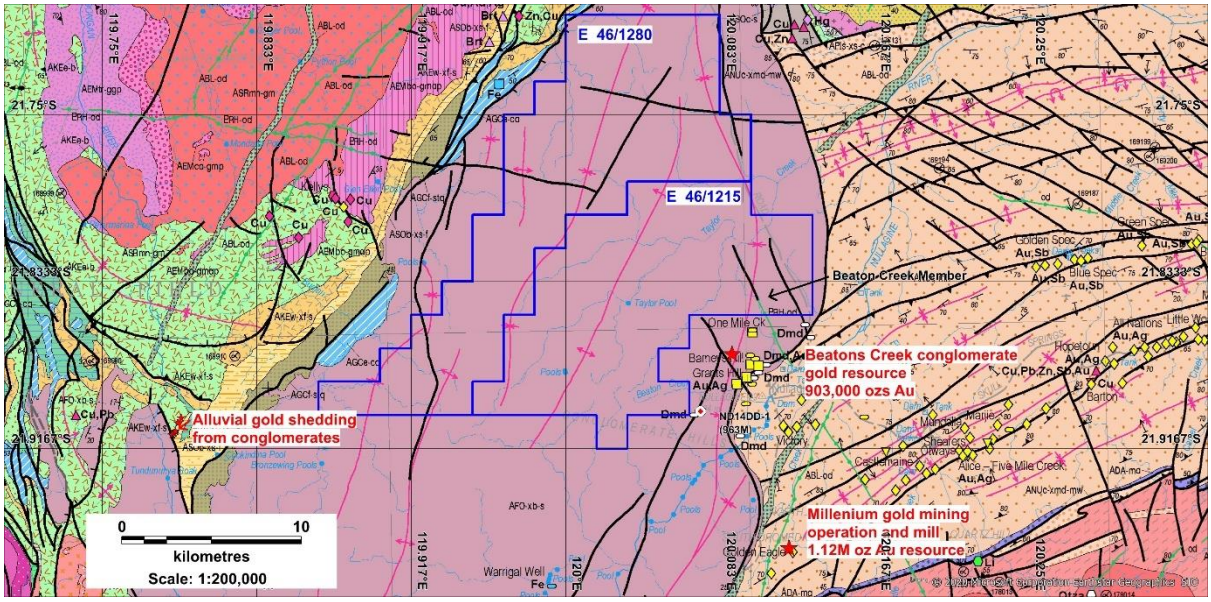


Figure 7.10: Local Geology Beatons River (Government of Western Australia, 2020)

Palaeocurrent data from the Hardey Formation suggests the Nullagine sub-basin drained towards the north during initial basin development (Farrell and Blake, 1984; Blight, 1985).

By contrast, in the south of the Hamersley Basin, westward thickening of the Hardey Formation and westerly-directed palaeocurrents are interpreted by Blight, (1985) to indicate deposition in a broad E–W trending basin that opened towards an ocean in the west.

Greater thicknesses and continuity of Mt Jope and supersequences towards the Hamersley Basin suggest a reversal in net drainage direction along the Nullagine sub-basin occurred during or after deposition of the Kylena (Basalt) Formation.

The Fortescue Group unconformably overlies a wide variety of older Archaean rocks around the perimeter to the Nullagine sub-basin. However, along much of the north-east margin to the sub-basin the Fortescue Group unconformably overlies the Mosquito Creek Formation, which occupies a 30km by 65km ENE trending belt east of the town of Nullagine.

The stratigraphic development of the Fortescue Group in the Nullagine sub-basin is better understood than anywhere else in the Pilbara region, largely due to two decades of mapping, stratigraphic and geochronological studies by T. S. Blake.

The basal unit of the Fortescue Group, the Mount Roe Basalt, is discontinuously exposed in the north and along the north western margin of the Nullagine sub-basin, where it is up to 50m thick (Hick- man, 1979; Blake, 2001).

Although the Mount Roe Basalt is not exposed at surface in the Beatons River Project area it may occur locally at depth beneath the Hardey Formation cover.

In the Nullagine sub-basin, the Hardey Formation either unconformably overlies the Mount Roe Basalt or older Archaean basement and consists of up to 1,700m of mostly terrigenous clastic sedimentary rocks deposited in braided fluvial, lacustrine and alluvial fan settings (Blake, 1993; Blake et al., 2004).

In the north of the project area, the base of the Hardey Formation is intruded by the up to 1,500m thick, 2,766 ± 2 Ma dacitic Spinaway Porphyry (Blake et al., 2004).

The upper contact of the Spinaway Porphyry is erosional, however, the Hardey Formation sandstones immediately above this contact are intruded by rhyolite of identical age to the Spinaway Porphyry indicating the time-break across the unconformity was small (Blake et al., 2004). Blake (2001) subdivides the Hardey Formation above the Spinaway Porphyry in the Nullagine sub-basin into two unconformable packages, P3 and P4.

Auriferous conglomerates exposed in the Beatons Creek area near Nullagine occur in Package P4 of the Fortescue Group (Blake, 2001; Blake et al., 2004, i.e. Taylor Creek Sequence Unit 3b), not at the base of the Hardey Formation as stated in some earlier Mines Department and Geological Survey reports (e.g. Hickman, 1983).

A felsic tuff near the base of a relatively well stratified sequence immediately overlying the auriferous conglomerates (± 300m below the top of P4) is dated 2752 ± 5 Ma (U-Pb zircon, Blake et al.,2004) and provides a minimum age constraint on their formation.

Mineralization at Novo Resources' Beatons Creek Project occurs in multiple, narrow stacked conglomeritic reef horizons, interbedded with poorly and barren conglomerate sequences, with lateral extents ranging up to 2.5km for mineralization (Figure 7.8 on page 78).

Gold occurs as fine grains, larger flakes and rounded particles up to several millimetres across (Finucane, 1935; Ivanhoe Gold Pty Ltd, 1984; Menzies, undated report) within the matrix of mineralized conglomerates and is closely associated with detrital pyrite and authigenic nodules (2–65mm in diameter), which are locally referred to as "buck shot" pyrite.

Beatons River tenements E46/1215 and E46/1280 are underlain by the Hardey Formation sitting unconformably on the underlying Spinaway Porphyry (Bamboo Creek Member) outcropping to the north. Overall, the succession dips gently to the southwest and the rocks young from the northeast to southwest.

The Beaton Creek Member strikes into E46/1215 just over 2km north of Novo Resources' Beaton Creek Project and covers some 8km^2 in outcrop within the tenement. Other conglomerate units were mapped within the two tenements.

7.5.2 CUPRITE PROJECT GEOLOGY

The tenements cover mainly Archaean Greenstone Belt lithologies and granitic batholiths, with small erosional remnants of Jurassic-Cretaceous sediments. The Greenstone lithologies, according to the GSWA maps, contain some elements of the Croydon Group, Kelley Group, Salgash Sub-group and Coongan Sub-Group.
The west of the project area is dominated by a north to north-easterly trending volcanic sequence dominantly of mafic-ultramafic composition but also including a couple of significant felsic volcanic units. Sediments are insignificant, mostly consisting of fine cherty interflow sediments.

The volcanics topographically form low to moderately high hills isolated by linear valleys varying from narrow to wide and flat. The volcanic sequence is quite complex in composition in its lower parts, with the various mafic and ultramafic components interfingering.

The GSWA has split this sequence in the area between the Euro Basalt and the Apex Basalt, however there is no discernible consistent difference in the nature of the sequence.

The mafics consist of basalts and high magnesian basalts containing several complex mafic and ultramafic intrusions. The intercalated ultramafics are generally schistose, with some non-schistose remnants identified as dunite and pyroxenite mainly.

Two relatively persistent felsic volcanic belts, locally accompanied by pelitic and less commonly psammitic clastic sediments, transect the lower half of the sequence.

Toward the top of the volcanic sequence basalts dominate and the uppermost unit is a thick pillow basalt often displaying a variolitic texture. The volcanics are unconformably overlain to the east and south by quartzites of the Farrell Quartzite.

These quartzites form a prominent wall of steep sided north-easterly to easterly trending hills that dominate the topography in the area. In the east of the project area, similar volcanics trend east-west, south of a large granitic batholith.

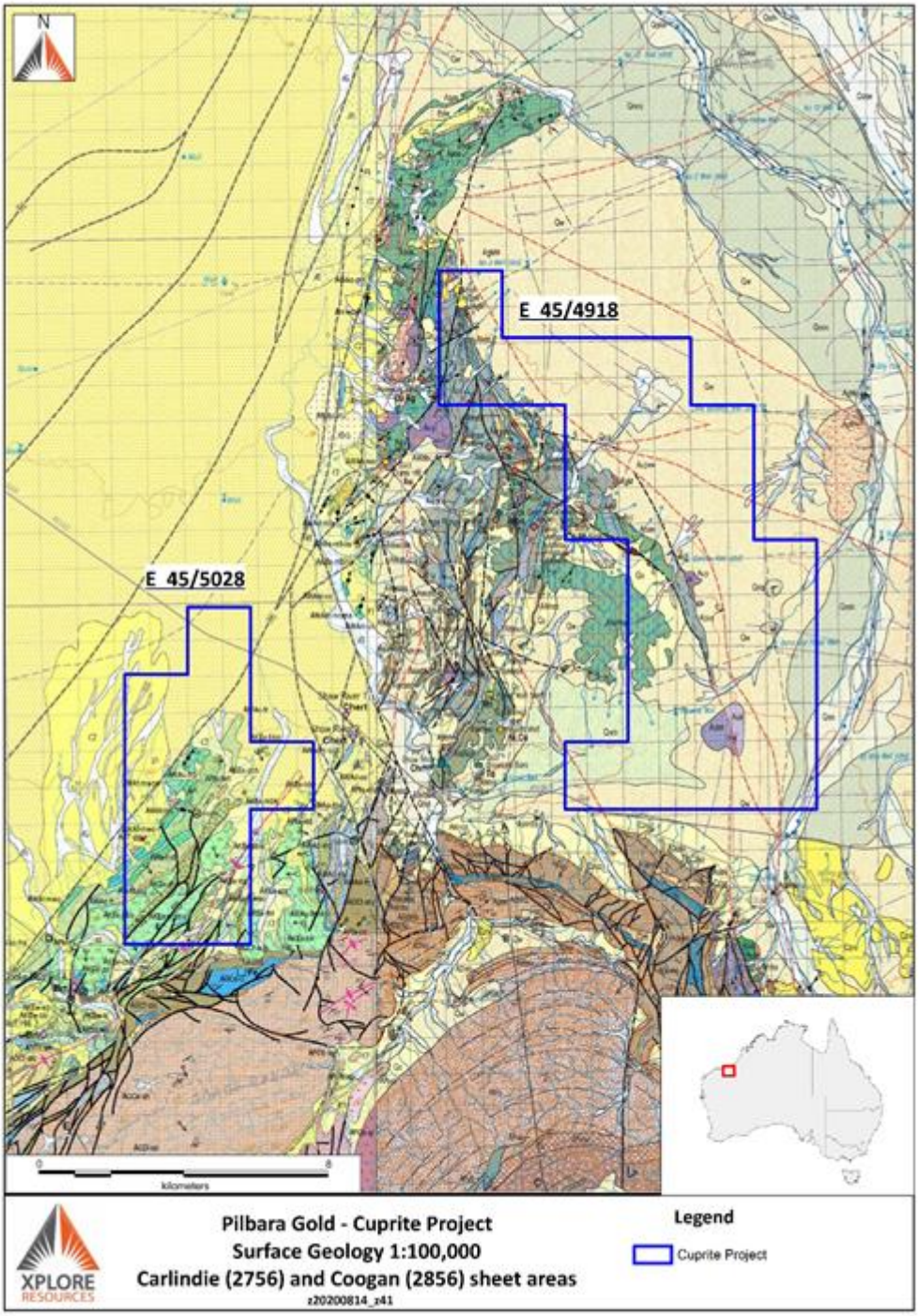


Figure 7.11: Surface Geology 1:100, 000 Carlindie (2756) and Coongan (2856) [Data sourced from (DMIRS, 2020)

The volcanics are similar in composition to those in the west, with a basal sequence of complex interfingering mafic-ultramafic lithologies, with only minor felsic rocks, passing upward into a thick sequence of basalts displaying pillowed and variolitic textures.

In both eastern and western areas, the upper basalts contain few intrusions compared to the lower mafic-ultramafic complex. In the upper levels of this sequence, the basalts are intercalated with two thick belts of quartzite of similar composition to the Farrell Quartzite.

This alternating of quartzite and basalt may be due to thrust repetition; however, the contacts are not exposed because of the thick scree slopes that occur along the base of the quartzite ridges.

More likely though there are two separate quartzites conformably interfingered with basalt and the faulting often observed on the contacts is localised and due to the high competency contrast. Overlying the alternating basalt and quartzite sequence is a thick sequence of thinly bedded vesicular basalt with some intercalated sandstone – the Mt Roe Basalt.

Where un-faulted, its contact with the quartzites is clearly an angular unconformity. In part a conglomerate and/or quartzite marks this contact. Thin cherts are common within the lower volcanic sequence but are generally absent from units above the stratigraphic level of the Farrell Quartzite and mostly occur below the quartzite unit. Many of these cherts, perhaps most, are of secondary origin.

The only primary banded iron formation of any significance occurs near the base of the Farrell Quartzite. The structural complexity increases where the volcanics are constrained and attenuated with evidence of several tight folds that are dismembered by the faults.

Where the volcanics come into contact with the overlying clastic units, the contact is consistently northerly dipping and complex which is interpreted to be due to south and southeast directed thrusting of the volcanics over the younger clastics.

The northeast trending faults do not penetrate into the clastics. In the east, the NE-SW faults are absent and several ESE-WNW faults dissect the volcanics. A few large faults of similar trend form the somewhat complex southern contact between the volcanic belts and intercalated quartzites and the overlying Mt Roe Basalt and are interpreted to be thrusts.

Younger NW-SE cross-faults, dominantly with sinistral displacement, are common in the west, whilst in the east NE-SW faults disrupt the sequence at regular intervals, also with sinistral displacement.

7.5.3 FORTUNA AND TYCHE PROJECT GEOLOGY

The geology of the project area is composed centrally of the Hardey and Kylena Formations of the Fortescue Group, the Elsie Creek Tonalite to the north, the Maddina formation to the east and the Mosquito Creek Formation to the southeast (Figure 7.11 on page 86).

The Fortescue Group, in which Fortuna and Tyche are located, have seven formations dating from 2775 Ma to 2630 Ma. In order of age from oldest to youngest they are:

- Bellary Formation and Mt Roe Basalt – subaerial basaltic lavas, sub-aqueous pillow lavas and water lain volcaniclastic and siliciclastic rocks;
- Hardey Formation – unconformably overlying the Mt. Roe Basalt composed primarily of fine to coarse grained sandstones and pebble to cobble conglomerates up to an estimated thickness of 3km and deposited in a continental to shallow marine environment host to historic gold resources around Nullagine and current discoveries by Novo Resources;
- Kylena and Maddina Formations – subaerial basaltic flows;

- Tumbiana Formation – sedimentary and volcaniclastic rocks; and
- Jeerinah Formation – argillaceous in the north and abundant basaltic lava and volcaniclastic rocks in the south.

A few sparse historic gold workings exist in the Elsie Creek Tonalite to the north composed of strongly foliated metatonalite with local sills of monzogranite and orthogneiss xenoliths. To the SE is the 30km by 65km ENE trending belt of the Mosquito Formation, a succession of psammitic to pelitic metaturbidites existing in a regional syncline.

Within the regional syncline are numerous sub-inclinal folds striking ENE with crossing dextral north-south faults. Gold is hosted in the 20km long striking Blue Spec zone associated with antimony and 5km to the south in quartz stockworks in banded schists.

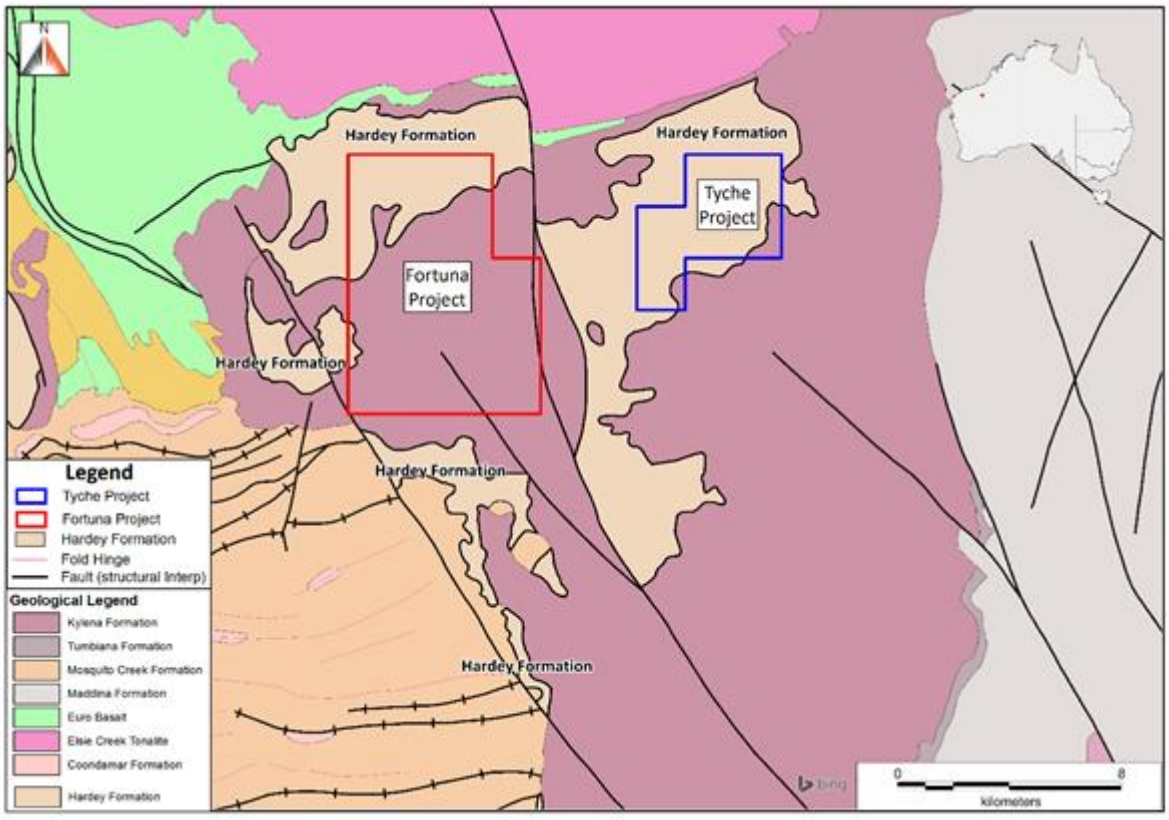


Figure 7.12: Geology of Fortuna and Tyche (Government Of Western Australia, 2020)

The Tyche and Fortuna projects are comprised of the Hardey and Kylena Formations, two of the seven formations of the Fortescue Group. The Tyche project is 90% Hardey Formation whereas the nearby Fortuna project is about 20% Hardey in the north of the tenure.

7.5.4 NORTIA PROJECT GEOLOGY

The local geology has been primarily adapted from the Nullagine 1:100,000 geological sheet (GSWA, 2020) The Nortia project is located south the Mosquito Creek gold mining area. The oldest rocks in the tenement are the c. 3199 to 3178 Ma Golden Eagle Orthogneiss and the Bonney Downs Granite, both of which form part of Kurrana Granitoid Complex.

The Golden Eagle Orthogneiss is a strongly deformed, layered orthogneiss consisting of foliated protoliths of biotite-bearing monzogranite, granodiorite and tonalite interlayered with lenses of amphibolite, ultramafic schist and quartz–mica schist (Chhabra, 2018).

The Bonney Downs Granite intrudes the Golden Eagle Orthogneiss and is a weakly foliated, fine to medium-grained, sparsely porphyritic biotite monzogranite, which locally has abundant xenoliths of granitic gneiss. The presence of chlorite, epidote, sericite, titanite and fluorite indicate hydrothermal alteration.

The De Grey Group overlie the older rocks and dated between 2926-2905 Ma. The Coondamar Formation is included in the De Grey Group and consists of mafic, ultramafic and chloritic rocks and interlayered metasedimentary rocks.

The formation is located at the base of the Mosquito Creek Basin in the southern central and north-eastern parts of Nullagine 100,000 sheet area and is probably a correlative of unassigned rocks to the north of the Mosquito Creek Formation. The formation is at least 1km thick.

The Mosquito Creek Formation outcrops in an easterly trending rectangular region approximately 60km long and 30km wide north of the Nortia Project, where it is faulted against the Coondamar Formation.

The formation is intruded and contact metamorphosed by a series of north-westerly trending c. 1800 Ma quartz syenite to quartz monzodiorite bodies of the Bridget Suite, the north-north-easterly trending c. 2772 Ma Black Range Dolerite Suite and various unassigned dolerite dykes. The total thickness of the Mosquito Creek Formation is unknown.

The Mosquito Creek Formation is economically significant and hosts a large number of gold deposits that are located in shear zones known as the Blue Spec Fault Zone, the Middle Creek Fault and a smaller proportion of deposits on the Sandy Creek Fault.

Rocks of the formation are cleaved and tightly folded and consist of interbedded conglomerate and coarse-grained sandstone, with interbedded sandstone, siltstone and shale displaying graded bedding.

The Mosquito Creek Formation is faulted against the Coondamar Formation north of Nortia and is unconformably overlain by the Fortescue Group in the southwest.

The Nortia tenement lies south of the east-northeast trending Kuuana Shear Zone which is the boundary between the prospective Mosquito Creek Formation of the De Grey Group and the Golden Eagle Orthogneiss of the Kurrana Terrane (Mwyn Exploration Pty Ltd, 2014).

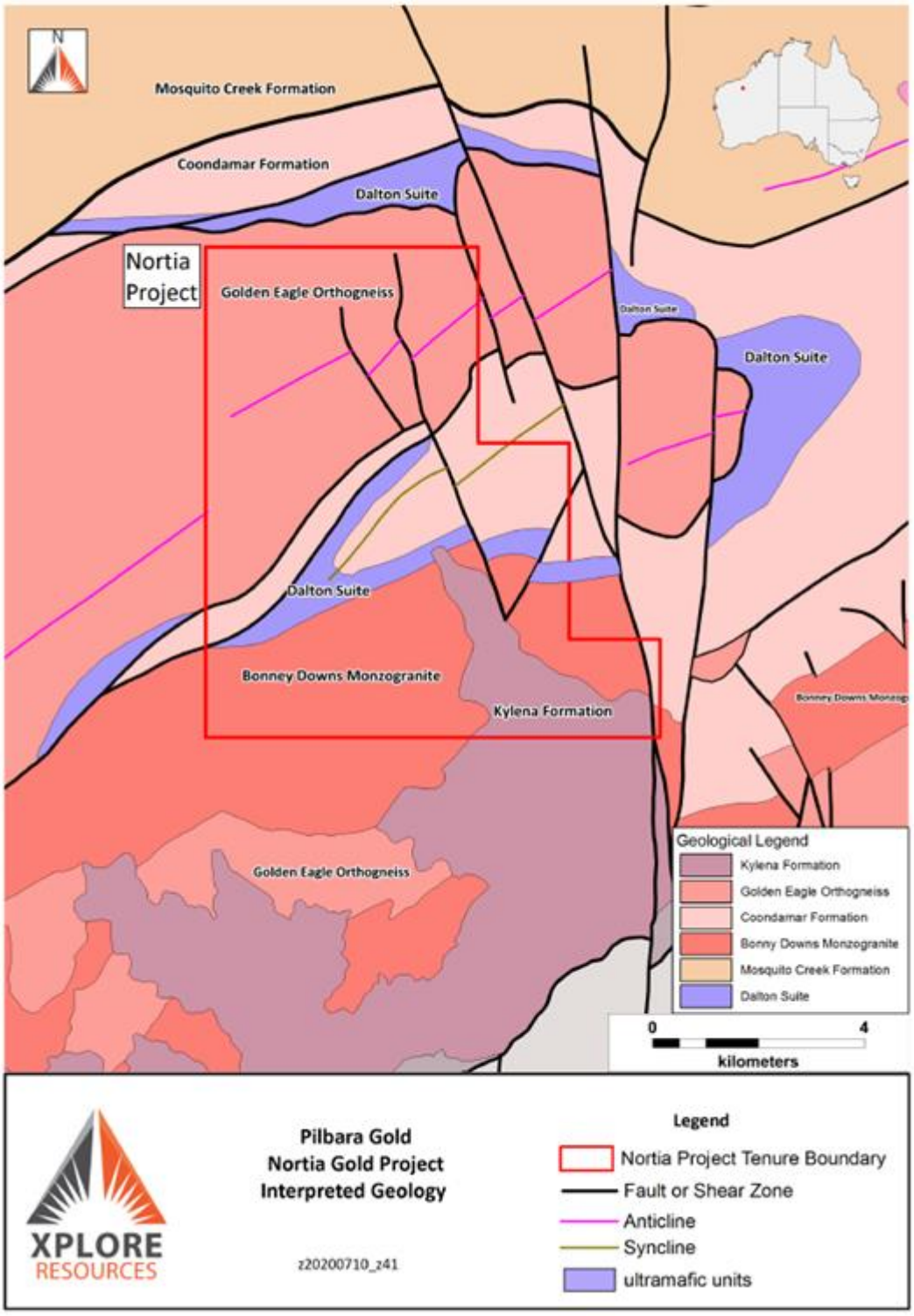


FIGURE 7.13: GEOLOGY OF THE NORTIA PROJECT (GOVERNMENT OF WESTERN AUSTRALIA, 2020)

In the southern part of the tenement, basalts and andesites of the Kylena Formation overlie Kurrana Granitoid Complex rocks and schist and amphibolite belonging to the Coondamar Formation. The local geology trends east-west, with numerous faults transecting the area and several dolerite dykes. A major north-south fault is exposed east of the tenement.

It offsets the Archean and Proterozoic rocks and have a number of associated splays which general trend northwest.

It is frequently silicified and infilled with quartz and chalcedony. Copper-lead-zinc-silver mineralisation is sometimes associated with the siliceous infilling (Hansen, 1993).

There are no known mineral occurrences within the tenement. The nearest mineral occurrences are the Coondoon and Sandy Creek copper-lead-zinc-silver prospects located about 1km - 1.2km east of the Nortia tenement.

These occurrences are associated with north and northwest trending regional faults. A small beryl occurrence hosted in pegmatite at the 20 Mine Creek Mine is located about 3.6km west of the Nortia tenement.

The Mosquito Creek Formation is economically significant and hosts a large number of gold deposits, north and northwest of the Nortia tenement. The deposits are located in shear zones known as the Blue Spec Fault Zone, the Middle Creek Fault and a smaller proportion of deposits on the Sandy Creek Fault.

This Project Area is considered prospective for a number of commodities including gold.

7.6 MINERALISATION

7.6.1 BEATONS RIVER PROJECT AREA MINERALISATION

Gold-bearing conglomerates have been identified at several stratigraphic levels in the Fortescue Group within the Marble Bar and Nullagine sub-basins.

In the Marble Bar sub-basin, auriferous conglomerates occur at the base of the group (Tassy Queen mine, Just-in-time mines, Contact Creek area) and in the lower part of the Hardey Formation (Virgin Creek and Glen Herring areas). In the Nullagine sub-basin, auriferous conglomerates at Beatons Creek occur in the (mid to) upper Hardey Formation.

Although they have not yet been shown to be auriferous, weakly uraniferous pyritic conglomerates that occur in the thick (upper Hardey Formation) siliciclastic sequences preserved in the Pear Creek and Limestone Well/Glen Herring centroclines (Marble Bar sub-basin; Carter and Gee, 1988) may be time-equivalent to the auriferous conglomerates at Beatons Creek (e.g. Blake, 1993; Thorne and Trendall, 2001).

Despite differences in stratigraphic position and depositional setting, the internal characteristics of gold-bearing conglomerates in the Fortescue Group are relatively similar. The known deposits are hosted by poorly-sorted, generally clast-supported, polymictic, pyritic pebble to boulder conglomerates.

Additionally, at Beatons Creek, gold is also hosted by rare poorly-sorted, matrix-supported auriferous conglomerates and finer grained, moderately well sorted, conglomerates with high proportions of quartzose clasts (i.e. “quartz” pebble conglomerates, Ivanhoe Gold Pty Ltd, 1984; Menzies Gold NL, undated report).

The auriferous conglomerates variously occur as:

(i) thin topographic-hollow or palaeochannel fill;
(ii) laterally extensive braided fluvial or sheet-wash deposits; and
(iii) stacked horizons in thick, laterally-extensive alluvial fan sequences.

To date, all known gold occurrences in the Nullagine and Marble Bar sub-basins occur in areas at or close to the preserved basin margins. Gold in the deposits occurs as fine grains and larger flakes and rounded particles up to several millimetres across in the conglomerate matrix (Finucane, 1935; Ivanhoe Gold Pty Ltd, 1984; Menzies Gold NL, undated report).

"Rounded and water worn" nuggets up to several ounces in weight were reportedly recovered from conglomerates at the Just-in-time palaeoplacer, near Marble Bar (Noldart and Wyatt, 1962). Clasts of vein quartz, where present, are interpreted to be barren (e.g. Finucane, 1935).

Gold is invariably associated with concentrations of pyrite (or Fe-oxides and/or dissolution cavities after pyrite in weathered rocks) in the conglomerate matrix (Maitland, 1905; Finucane, 1935, 1938). Mineralised horizons at Beatons Creek typically contain at least a few percent pyrite scattered through the conglomerate matrix. Pyrite is generally more abundant in coarser grained parts of the conglomerate beds.

Beatons Creek denser concentrations of pyrite, locally forming up to 40% of the rock matrix over intervals up to 20 cm wide, occur at the base of beds (Ivanhoe Gold Pty Ltd, 1984; Menzies, undated report to Ivanhoe Gold).

An association between gold and conglomerates containing higher proportions of chert clasts has also been reported at Beatons Creek (Menzies, undated report to Ivanhoe Gold). In fresh rocks, pyrite occurs as small variably rounded, subhedral to anhedral crystals <2mm diameter and rounded clasts or "nodules" 2–65mm in diameter.

The latter type, generally termed "buckshot" pyrite, is commonly abundant in the richest portions of auriferous horizons at Beatons Creek (Maitland, 1905; Finucane, 1935). Early reports for the Beatons Creek goldfield indicate that, in strongly weathered material, gold commonly occurred as discontinuous linings to ellipsoidal cavities formed by the dissolution of buckshot pyrite grains (Maitland, 1905; Finucane, 1935).

Finucane (1935) suggested the buckshot pyrite nodules at Beatons Creek may be marcasite-replaced slate pebbles. Conglomerates exposed in the area of historic workings at Beatons Creek are commonly moderately to strongly kaolinized (alteration affects lithic clasts and argillaceous matrix material) and locally this occurs along grossly stratabound zones.

It is not clear whether this is a result of modern weathering (e.g. acidity generated by pyrite dissolution), local interaction with acidic ground waters during deposition of the sequence or some other event. By virtue of more extensive historic mine workings and previous exploration in the Beatons Creek area, more information is known, or can be deduced, about the nature of gold mineralisation in this area than elsewhere in the project areas.

The distribution of historic workings provides some insight into the lateral continuity of individual reefs. In the Grants Hill area, closely spaced workings along a single 1–3m thick conglomerate layer extend for several hundred metres along strike.

Long sections using previous drilling results suggest reefs occur in approximately the same stratigraphic position over distances in excess of 500m, with some near the top of the auriferous conglomerate package potentially continuous for over 2.5km along strike.

7.6.2 CUPRITE EAST AND WEST PROJECT AREA MINERALISATION

The Project Area has had a significant period of iron ore exploration wherein several prospect areas were identified and investigated for areas of iron enrichment hosted within the Banded Iron Formation (BIF) of the prospective Cleaverville Formation of the Gorge Creek Group.

There were no recorded, economic resource figures generated from any of the iron ore exploration done within the current project area. Base metal mineralisation was recognised at known prospects by Kalamazoo Resources but no new occurrences were located. Copper mineralisation (malachite) was identified at Edsel (north) and lead zinc mineralisation at Coongan Siding.

The Pilbara also hosts several VMS style deposits which are worthy of consideration as exploration targets in the project area. The typical model for VMS is that they occur in a sea floor setting, usually but not always deep and tend to form irregular clusters at a particular narrow stratigraphic level usually below something like a thick basalt flow or rapidly deposited sediment that protects the VMS mound from erosion and preserves them.

They are often associated with felsic volcanics but can also be basalt hosted. Alteration typically occurs in the footwall as a zoned “stringer” zone but not the hanging wall and there may be peripheral (hydrothermal) cherts.

The Pilbara Region could not be compared in historical gold endowment to the Yilgarn Craton, however, moderate scaled deposits in the order of 10 tonnes of gold continue to be found (Golden Eagle, Klondyke, Indee).

Gold mineralisation in the region occurs in a variety of structurally controlled settings, which are thought to relate to two main deformational events (AGSO Record 2001/10):

1. A ca 3,400 Ma event. Gold mineralisation is related to faults / shears that ring granitoid complexes and is restricted to Warrawoona Group mafic-ultramafics;
2. A ca 2,900 Ma event. Gold mineralisation is mostly associated with ENE trending terrane scale faults / shears (e.g. Mallina Shear) and occurs across a range of units older than 2,900 Ma, including clastic lithologies.

More locally, gold occurs in several structural settings including:

1. In Shear Zones (Bartons, Hopetoun N);
2. Associated with faulted contacts between units of contrasting competency (Mt York, Lynas Find);
3. In tensional gash arrays in regional faults (Withnell);
4. In boudinaged veins sub-parallel to regional fabric (Warrawoona);
5. In relatively competent sandstone & conglomerates where strain has partitioned into more ductile lithologies (Golden Eagle, Otway, Shearers)

Commonly several deposits are related to a single regional scale shear.

Epithermal vein stockworks were mapped south of Coongan's Siding and is hosted by quartzite and is spatially associated with a NE – SW trending, sinistral fault. The stockwork was identified as epithermal based on the recognised crustiform – colloform banding and chalcedonic quartz mapped within the area by Kalamazoo Resources.

Similar epithermal veining was also found as pebbles in a conglomerate stratigraphically well above the host quartzite, as well as fuchsite altered pebbles.

This is significant for two reasons:

1. This constrains the age of the veining and fuchsitic alteration to the Archaean as it must be older than the conglomerate; and
2. This suggests such veining may be quite widespread as the conglomerate is not close to the mapped stockwork.

Epithermal stockwork veins and associated alteration are considered fault related. Similar patterns to the alteration – stockwork veining were seen on other structures during the air photo interpretation stage.

Should any mineralisation be found associated with the structure, there is potential for discovering other similar structures.

Epithermal veins are known from elsewhere in the Pilbara region (*Becher, Orange Rock, Sam's Ridge*) and some have been found to have Au anomalism within a wider envelope of As Sb W Te (Ag).

Although to date there are no economic, epithermal gold deposits in the Pilbara, epithermal veins should remain a valid target for gold exploration.

Other less likely target commodities include:

- Nickel and Chrome associated with the extensive ultramafics;
- Gold of Witwatersrand style associated with conglomerate beds in the Lallah Rookh sandstone;
- Gold and uranium in the Lallah Rookh conglomerate.

7.6.3 TYCHE FORTUNA PROJECT AREA MINERALISATION

Tyche sits over the two stratigraphic units of the Fortescue Group, the Hardey and Kylena Formations Notably. The Hardy Formation is ubiquitous within the tenure, it has been mapped on the GSWA 1:100,00 map sheets across >90% of the project area.

The Kylena Formation, which overlays the Hardey Formation, sits on the eastern edges of the project. Minimal historic exploration has been undertaken which is one of the key attractions for the Tyche project.

The extensive Hardey Formation creates a substantial target for conglomerate-hosted gold further, the overlaying Kylena Formation (which is present on the eastern margins) has been

known to host elevated gold in quartz veins within basalt as noted below in historical company reports.

In historical exploration report (A48413) it states:

"*gold in quartz-sulphide and carbonate veins cutting the Kylena Basalt of the Fortescue Group. Two quartz veins cutting the basal part of the gently dipping Kylena Formation on Historical E45/1499 were located. These veins contain some carbonate bands and minor secondary copper and lead minerals. Maximum gold assay was 1.4g/t Au."*

It also reports the following:

"Detrital gold in the Hardy Sandstone at the base of the Fortescue Group. Prospecting work has located gold in two locations shedding from the Hardy Sandstone. At one of these locations' quartz pebbles weathering from a conglomerate were found to be gold bearing. At another locality soil derived from sandstone and conglomerate assayed up to 2g/t Au. This is comparable to other gold mineralisation at Beatons Creek at Nullagine."

"*Gold in tuffaceous rocks and interflow sediments and limestone within the Kylena Formation. Samples of silicified cherty sediments associated with thin limestone units occurring as interflow bands within the Kylena Basalts contain anomalous gold values up to 0.4 ppm. Close to one of these areas a small area of pyritic tuffaceous material assayed up to 4.8 ppm Au."*

The report also notes "*minor gold associated with quartz veining in the Fortescue Group rocks. Quartz veins cutting the Fortescue Group occur in a variety of settings and forms. Some minor gold and silver values are associated with some of these veins.*"

The Fortuna project has similar geology to Tyche and is underlain by the same two stratigraphic units of the Fortescue Group: Hardey and Kylena Formations.

Reflecting upside for conglomerate-hosted gold, the Hardey Formation is present across 22% (~12km^2) of the tenure, which is the first priority target. The tenure contains three mapped fault zones that have the potential to be structural controls for shear zones and may contain breccia's and quartz veining related to the faulting.

Historical Reports have recorded the presence of barite, secondary copper (malachite) and lead (galena) in the region. These occurrences are all off tenure.

Trace gold values have been found associated with barite mineralisation and minor lead mineralisation (peak value of 3% Pb) in a brecciated zone along a major north trending fault (Jessup, 1995), location was not given. Several samples in the same report also contained secondary copper (Malachite) and primary lead mineral, Galena.

- Samples Y37 (273150E,7620650N) Malachite, chalcocite and vein quartz assayed with peak values of 6.9% Cu, 3600 ppm Zn and 2260 ppm Pb;

- Sample Y39 (273160E,7620799N) Quartz, galena and malachite assayed 13% Pb, 3500 ppm Cu and 2200 ppm Zn

MINDEX (GeoVIEW- WA Government) recorded barite occurrences in the Elsie Creek Units to the north-west of the project tenements.

7.6.4 NORTIA PROJECT AREA MINERALISATION

Target mineralization for the Project Area is primarily shear hosted gold. The Project Area contains ancient greenstone-granite assemblages and is intersected by multiple faults and shears. The Mosquito Creek Formation occurs about two kilometres north of the tenement and contains over 300 historical gold occurrences in mines and deposits.

The Project Area is structurally related to some of gold occurrences in the Mosquito Creek Formation via local faults and shears.

Furthermore, historical surface sampling data on the east portion of the tenement showed pathfinder occurrences such as galena and sphalerite. Copper, lead and zinc will therefore be targeted in future exploration programmes as these occurrences are structurally controlled with linear structures both within and around the tenure area.

Pegmatites occurrences are also located in the Nortia tenure area and historical sampling results show lithium (Li) occurrences peaking at 150 ppm and should be considered in any future exploration programmes.

8.0 DEPOSIT TYPES

8.1 GOLD DEPOSITS OF THE WITWATERSRAND BASIN

8.1.1 PALAEOPLACER MODEL FOR THE WITWATERSRAND BASIN GOLD DEPOSITS

The primary gold-bearing clastic sedimentary rocks that make up the gold deposits of the Late Archaean Witwatersrand Basin, referred to as conglomerate, were deposited in ancient rivers, streams and oceans. Subsequent physical and chemical processes over time introduced gold into the "reefs" that are mined in South Africa (Figure 8.1 on page 97).

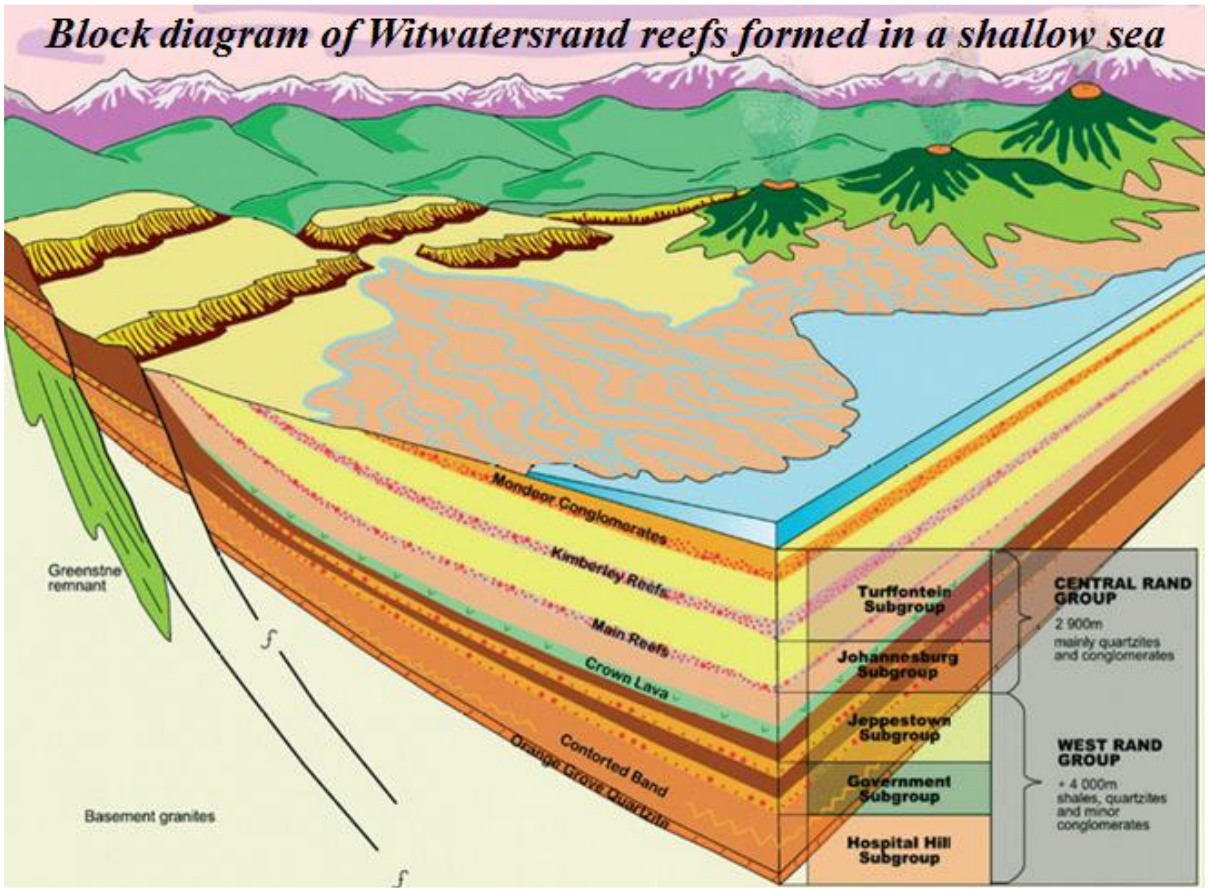


Figure 8.1: Block diagram of Witwatersrand Reefs (J Taylor's Gold, Energy and Tech Stocks, Miningstocks.com July 11, 2014)

Although there is still no consensus on how and when the Witwatersrand gold deposits formed most geologists who have studied the Witwatersrand Basin are persuaded by the strong sedimentological controls on gold distribution and so favour palaeoplacer models for gold deposition.

The palaeoplacer process or fossilized placer deposit i.e. the unconsolidated deposits originally formed at the surface by running water then later buried to sufficient depth to lithify the sediment into solid sedimentary rock.

Original placer mineralization was formed by gravity separation during a sedimentary process before they were buried to become a palaeoplacer deposit.

8.1.2 OTHER MODELS FOR THE WITWATERSRAND DEPOSITS

The following section contains excerpts from a July 2014 radio interview done with Dr Quinton Henningh, CEO of Novo Resources.

"The two main theories advanced by geologists for the origin of that massive gold deposit do not explain the enormity of that deposit. The two prevailing mainstream ideas about the origin of the Witwatersrand are the following:

- *A palaeoplacer process or fossilized placer deposit i.e. the unconsolidated deposits originally formed at the surface by running water then later buried to sufficient depth to lithify the sediment into solid sedimentary rock. Original placer mineralization was formed by gravity separation during a sedimentary process before they were buried to become a palaeoplacer deposit; and*
- *A hydrothermal process in which gold was introduced into the conglomerate rocks by hot, gold-bearing fluids long after they were deposited by streams and rivers.*

However, these theories do not satisfactorily explain the deposition of so much gold in one place. Neither known examples on earth explained by either process comes even close to the enormous size of the Witwatersrand Deposit.

Furthermore, gold particles typically found in the Wits are very fine grained, often less than 0.05mm in diameter. Small particles such as that would be dispersed in a high-energy stream environment, rather than being consolidated as they are in that famous South African deposit."

Observations by Dr Henningh in lab work noticed thin layers of carbonaceous material that hosts high grades of gold in thin reefs known as leaders. Given the very small particles of gold hosted within this carbon material, the theory is that the Witwatersrand Deposit may have logically been a precipitation event in which huge amounts of gold were drawn out of the water by the layers of carbon at the bottom of a shallow, relatively tranquil sea.

8.2 COMPARISONS WITH PROJECT AREAS

Dr Henningh stated that until recently, not many geologists would have believed that the Pilbara would likely host any gold deposit let alone a major one similar in some characteristics to the Witwatersrand deposit.

He noticed that the rocks of the Hamersley Basin share many similarities with those of the Witwatersrand Basin. Studies done on drill core from Novo's Beatons Creek Conglomerate Gold Project in the Pilbara generated two observations relating to the style of mineralisation.

The first was that small amounts of gersdorffite (a nickle arsenic sulphide) are sometimes present in these gold bearing conglomerates and secondly, detrital particles of carbonaceous material (kerogen) were recovered with U bearing minerals commonly rim these particles.

The presence of kerogen and gersdorffite is ubiquitous in gold ores from the Witwatersrand basin in South Africa.

More than 1.6 billion ounces of gold have been mined from the conglomerate beds (gold reefs) of the Witwatersrand Basin. (Worth approximately 3 trillion USD today).

This equates to approximately half of all the gold mined throughout history.

Despite not being identical, there are strong similarities in the geological developments of the Witwatersrand Basin/Kaapvaal Craton and Hamersley Basin/Pilbara Craton (Figure 8.2 on page 99).
The Archaean granite-greenstone basement is similar in age and composition in both areas, although older greenstone sequences also occur in the east of the Pilbara Craton.

In both regions, the greenstone belts host numerous small mesothermal (vein-hosted/lode-type) gold deposits formed prior to deposition of the Witwatersrand and Hamersley basin successions (e.g. Frimmel et al., 2005; Huston et al., 2002a).

Previous workers (e.g. Nelson et al., 1999; Thorne and Trendall, 2001) have noted similarities in the composition and tectonic setting of the Ventersdorp Supergroup (Witwatersrand Basin) and Fortescue group (Hamersley basin). Both sequences contain voluminous basaltic andesite lavas interspersed with terrestrial to shallow marine sedimentary rocks and lesser felsic volcanics and/or high-level intrusions.

Commonly described as continental flood basalts, the mafic lavas were more likely emplaced in continental rift settings (Thorne and Trendall, 2001; Frimmel et al., 2005). Although the Fortescue succession is up to 50 m.y. older than the Ventersdorp Supergroup both were deposited after protracted depositional hiatuses (>100 m.y.), during which compressional deformation, metamorphism and exhumation of older rocks occurred.

Furthermore, deposition of the Fortescue Group and Ventersdorp Supergroup sequences were both followed by major marine transgression events, involving deposition of thick sequences of chemical sediments (carbonate, banded iron formation) and lesser marine clastics (i.e. Cluniespoort Group, Kaapvaal Craton and Hamersley Group, Pilbara Craton, Figure 8.2 on page 99).

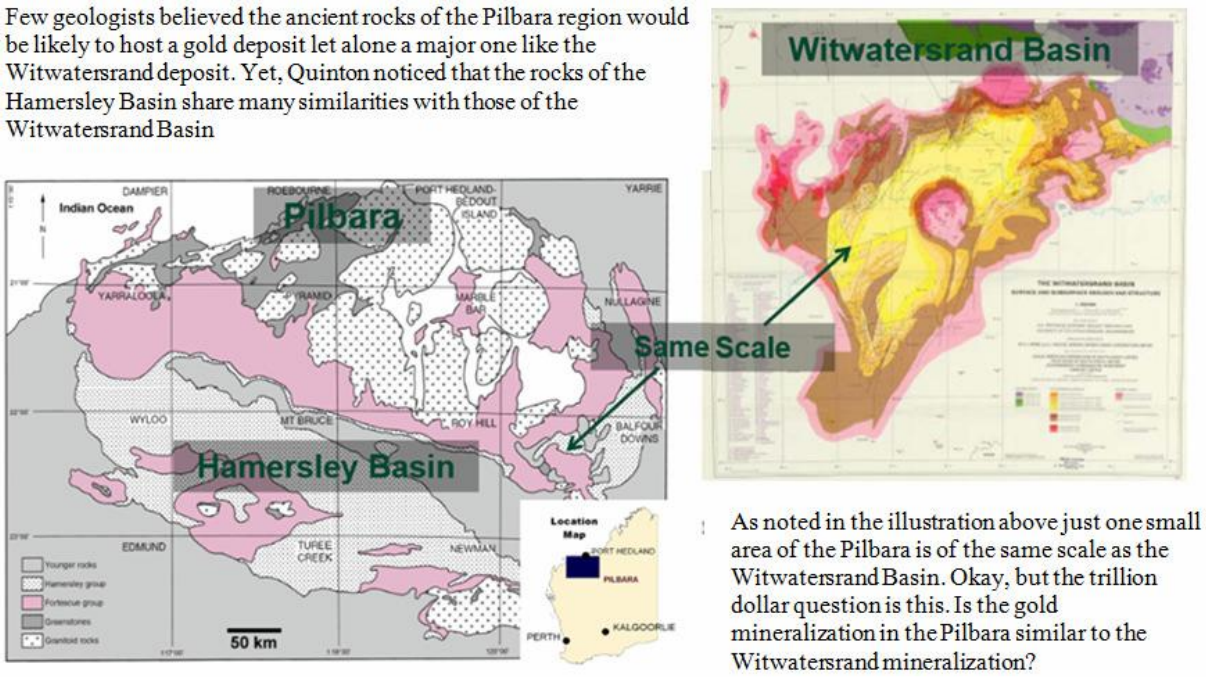


Figure 8.2: Comparisons between the Witwatersrand and the Pilbara (Henningh 2014)

9.0 EXPLORATION

9.1 EXPLORATION COMPLETED BY PILBARA GOLD GROUP

As Graphite Energy Corp is in the process of recently taking ownership of the four Project Areas from the Pilbara Gold Group, there has been no recent exploration work done by Graphite Energy Corp.

Exploration by all previous explorers has been detailed in Section 6 of this report.

9.2 GEOCHEMISTRY COMPLETED BY PREVIOUS EXPLORERS

9.2.1 BEATONS RIVER PROJECT AREA GEOCHEMISTRY

The Beatons River tenements are surrounded and covered by a significant amount of historical geochemistry data including rock chips, stream sediments and bulk stream sediments completed by exploration companies, largely in the pursuit of uranium, gold and diamond mineralisation (Figure 9.1on page 100).

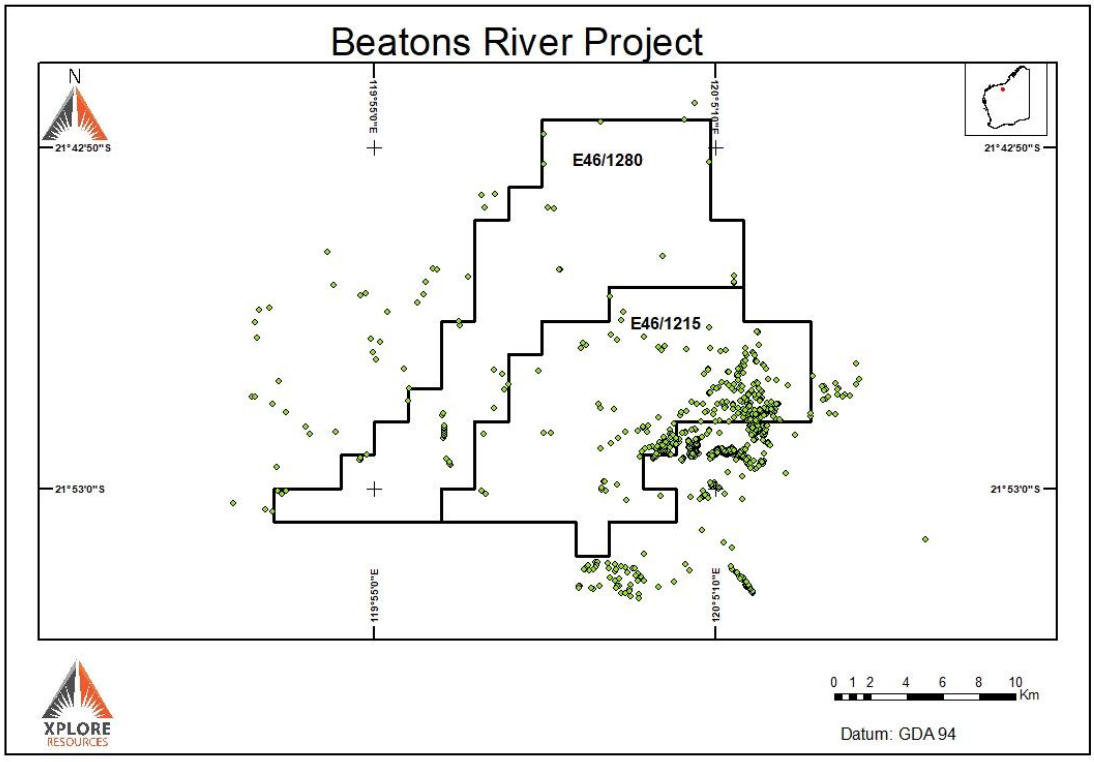


Figure 9.1: Beatons River Tenure showing Regional Historical Company Surface Sample Geochemistry Samples (Government of Western Australia, 2019a)

Figure 9.2 on page 101 summarises gold results that were the by-product of a major diamond exploration effort by several companies including Randolph Resources Pty Ltd, Perilya Mines N. L., Alkane Exploration Ltd, Ocean Resources Pty Ltd and West Australian Metals N. L. during 1987 to 1997. The gold was visual gold only and the samples were never assayed for gold.

Various types of material were sampled during the diamond exploration programs including hand-collected loam, stream sediment, minor rock samples and bulk stream sediment samples which were collected by machine. Hand-collected stream sediment and loam samples ranged in weight from 15–70+ kg.

The bulk stream sediment samples each comprised about 12m^3 of sediment that were concentrated in the field to about 100–200 kg each. Field samples were processed in diamond laboratories to the smallest heavy mineral concentrates practically possible.

All or part of each concentrate was observed for diamonds, diamond indicator minerals and other heavy minerals. Gold, being a heavy mineral, was found in many of the exploration stream sediment samples.

Gold was recorded either as “trace” or as individual grains, mostly in the less than 0.5mm size fractions. The gold recovered represents a very small part of each sample but cannot be quantified accurately as a percentage. Results should be interpreted as either gold present or gold not present.

The gold recovered represents a very small part of each sample but cannot be quantified accurately as a percentage. Results should be interpreted as either gold present or gold not present (Blake 2018).

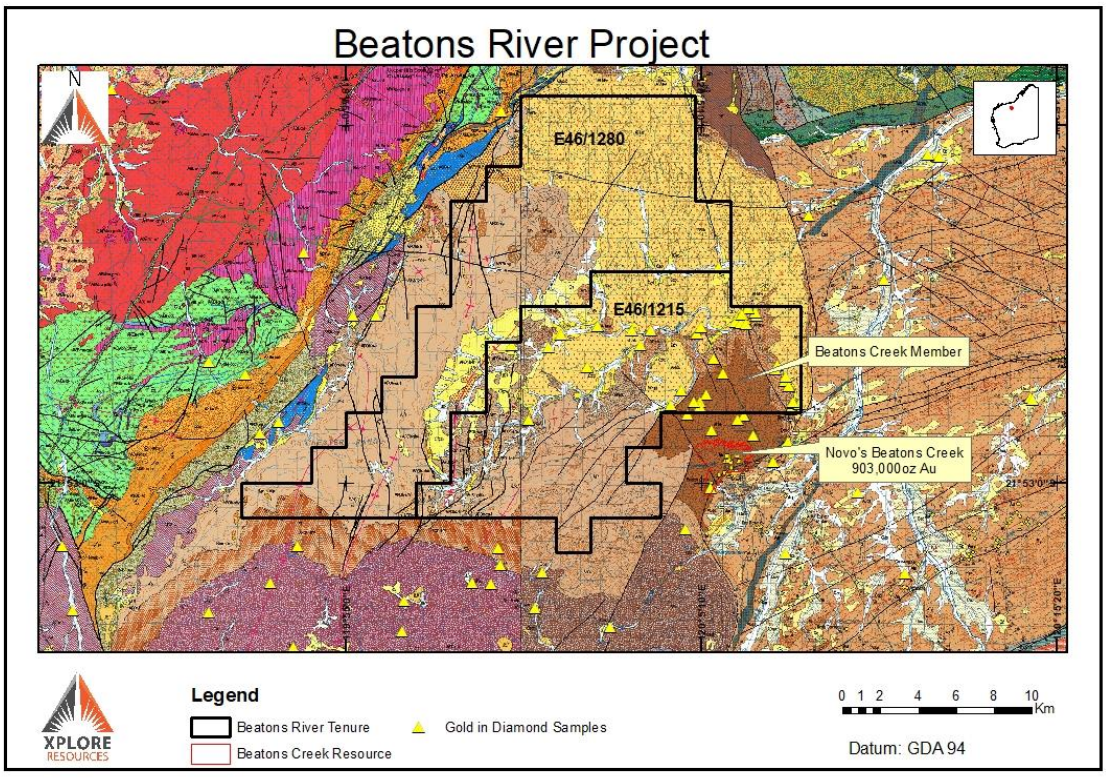


Figure 9.2: Visible Gold recovered in historical, diamond sample programs

Figure 9.3 on page 102 shows the locations of diamond heavy mineral samples within E46/1215 and E46/1280 and surrounding areas.

Many gold occurrences are associated spatially with the Beatons Creek Conglomerate and finer-grainer stratigraphic equivalents.

There are other gold occurrences northwest and north of the Beatons Creek Conglomerate and finer-grainer stratigraphic equivalents and the origin of this gold is unknown.

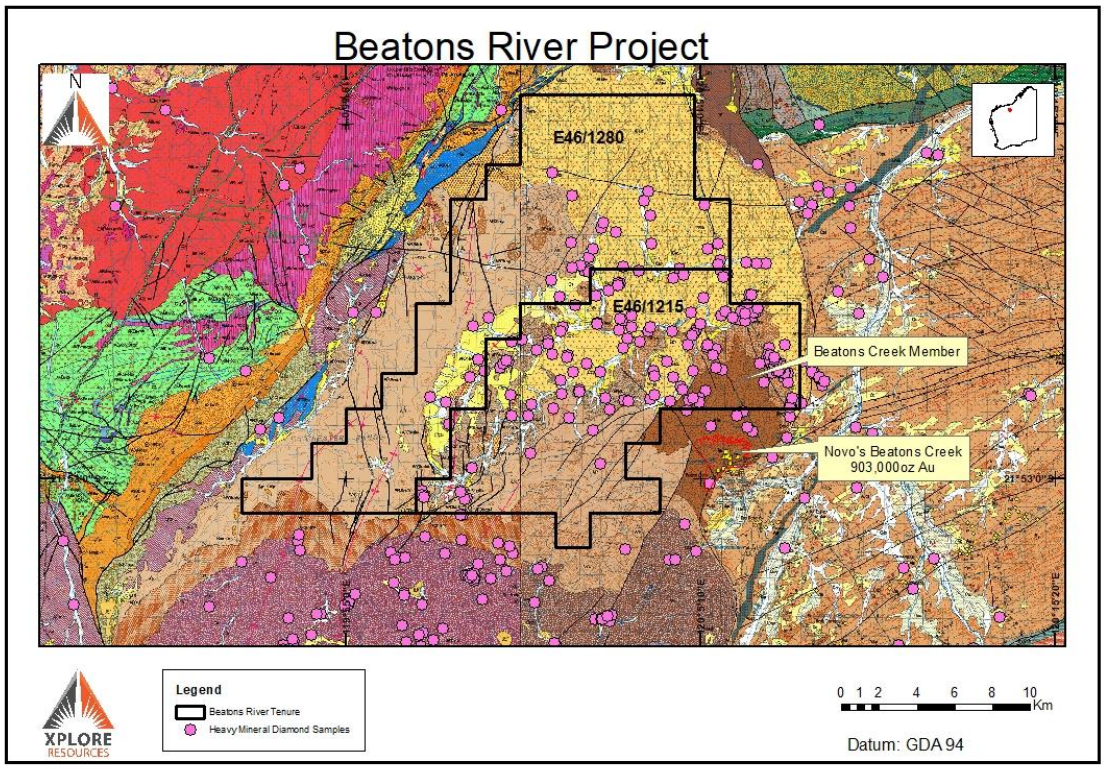


Figure 9.3: Heavy mineral samples taken for diamond exploration

BC Iron Pty Ltd / Vaalbara JV undertook stream sediment sampling and rock chip within historical tenement E46/524 during 2007-2008. A total of 6 BLEG samples, 386 stream sediment samples and 104 rock samples were collected throughout the tenement area which lies within the current tenement of E46/1215.

Some of these samples were collected over the outcropping Beatons Creek Conglomerate. The BLEG and stream sediment sampling identified significant gold anomalism with peaks of 1637ppb Au in the southwest and central southern portion of the Beatons Creek Member. Scattered gold anomalism was also reported throughout the remainder of the Beatons Creek Member (Figure 9.4 on page 103).

As part of the Vaalbara JV detailed mapping and rock chip sampling was undertaken over the outcropping Beatons Creek Conglomerate area above.

Mapping utilised 1:10 000 and 1:20 000 aerial photographs and resulted in the definition of a stratigraphic subdivision of the Beatons Creek Member.

A total of 42 rock chip samples were taken across the area and analysed for major and trace elements, including gold.

Combination of the analytical results with the mapping identifies horizons of economic interest such as sub-unit BC6, which contains the previously mined A and B Horizons. Best rock chip assay was 1.24g/t Au. Above back-ground concentrations of As, Bi, Sb, Se and Te are also encountered from the rock chip sampling.

These need to be investigated further.

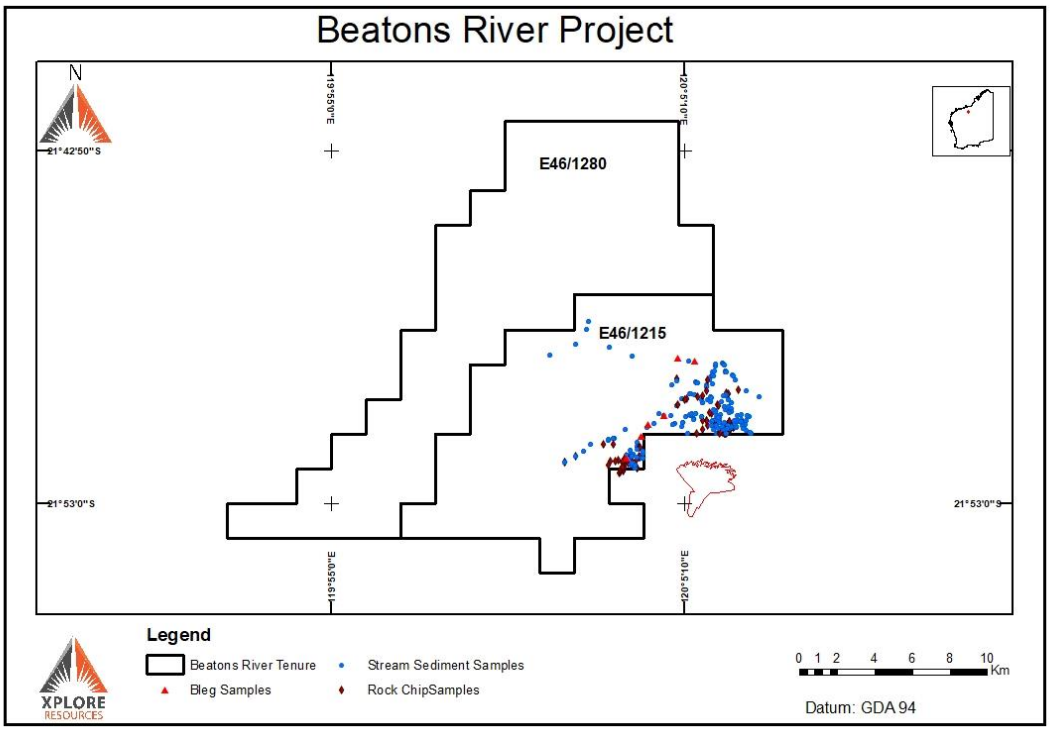


Figure 9.4: Beatons River Surface samples by Vaalbara JV

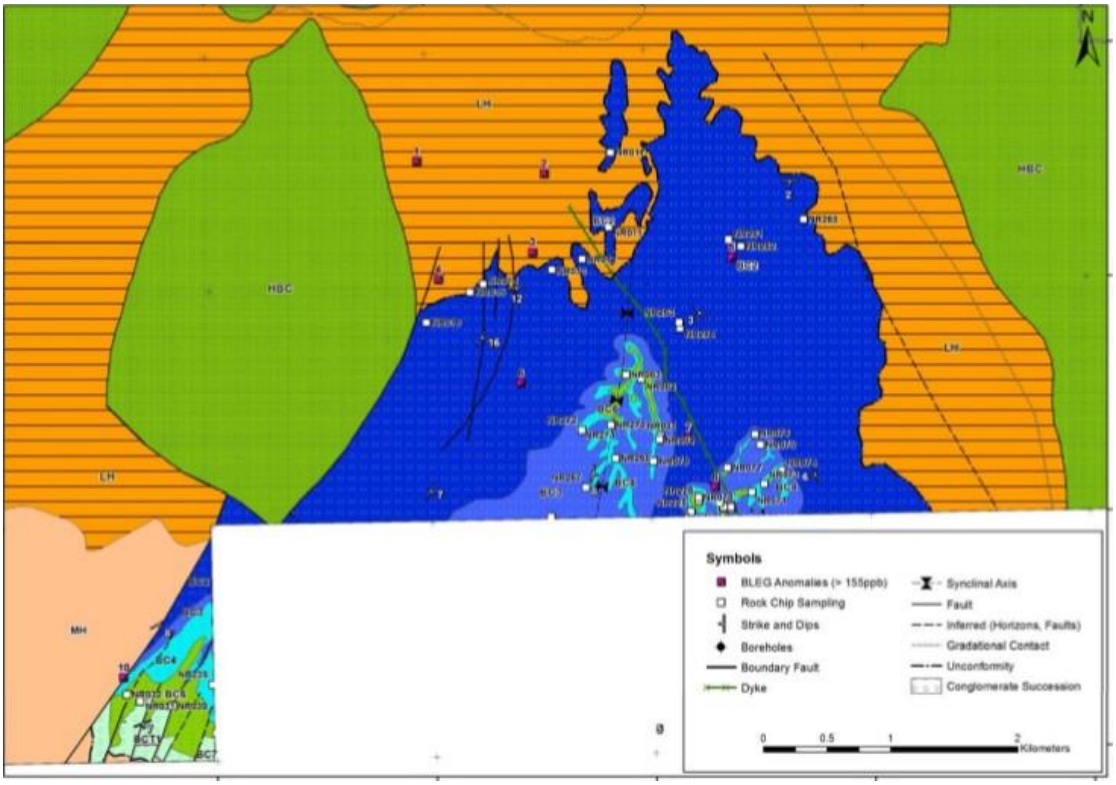


Figure 9.5: Geological Mapping, BLEG and Rock Chip for the Vaalbarra JV (Mehri 2009)

9.2.2 CUPRITE EAST AND WEST PROJECT AREA GEOCHEMISTRY

The Cuprite Project has been covered by numerous historical geochemistry surveys dating back to the late 1960s. The surveys were completed by either individuals or exploration companies that were largely exploring for nickel, base metals and later gold mineralisation.

Many of the geochemical surveys involved the collection of soil and rock chip samples and sometimes heavy mineral concentrate (HMC). BLEG and minus 80 mesh (-80#) stream sediment samples. Results shows there are several areas with elevated gold and base metals assay values.

For example, at the Kalamazoo prospect, rock chip sampling returned high-order gold values results, including 57.5g/t Au and 56.6g/t Au (A103961).

Table 9.1: E45/4918-Cuprite East, Significant Rock Chip Results

Sample Type	Sample ID	Northing	Easting	Assay (g/t Au)	Location	WAMEX number
Rock	DOMROCK 30	7703377	760206	3.38	5km W	A71514
Rock	DOMROCK 38	7703404	760229	5.33	5km W	A71514
Rock	DOMROCK 4	7703775	760579	4.52	5km W	A71514
Rock	SR51523	7698122	765502	6.7, 8.98% Cu	1.6km SW	A79352
Rock	12110	7703777	760605.21	6.2	2.1km W	A108779
Rock	12144	7703727	760529.8	14.5	2.1km W	A108779
Rock	12153	7703666	760491.62	12.5	2.1km W	A108779
Rock	12154	7703674	760478.59	4.1	2.1km W	A108779
Rock	12155	7703673	760477.91	2.25	2.1km W	A108779
Rock	12158	7703665	760468.99	2.55	2.1km W	A108779

Sample Type	Sample ID	Northing	Easting	Assay (g/t Au)	Location	WAMEX number
Rock	12185	7703660	760463.48	3.1	2.2km W	A108779
Rock	19823	7703635	760442.43	70	2.2km W	A108779
Rock	21560	7707169	761668	300	0.4km W	A108779
Rock	25205rock	7703474	764008	1320	1.5km W	A108779
Rock	29006	7705050	762446	2.92	0.2km W	A108779

Table 9.2: E45/4918-Cuprite East, Significant Stream Sediment Results

Sample Type	Sample ID	Northing	Easting	Assay (ppb Au)	Location	WAMEX number
Stream	760694/7704183	7704183	760694	97.6	1.8km W	A108779
Stream	760852/7704408	7704408	760852	23.3	1.8km W	A108779
Stream	764947/7704302	7704302	764947	23.9	0.5km W	A108779
Stream	764977/7704614	7704614	764977	8.5	0.5km W	A108779
Stream	765256/7703539	7703539	765256	13.7	0.5km W	A108779
Stream	765263/7703612	7703612	765263	18.9	0.5km W	A108779
Stream	765516/7704137	7704137	765516	31.5	0.05km W	A108779
Stream	765546/7702511	7702511	765546	9.4	in tenement	A108779
Stream	765560/7702537	7702537	765560	12.4	In tenement	A108779
Stream	765614/7702510	7702510	765614	24.9	in tenement	A108779
Stream	765886/7702874	7702874	765886	34.7	In tenement	A108779
Stream	762936_7701435	7701435	762936	8.20	2.6km W	A108778
Stream	763132_7701377	7701377	763132	21.00	2.4km W	A108778
Stream	763341_7701493	7701493	763341	21.00	2.1km W	A108778
Stream	763418_7701551	7701551	763418	14.00	2km W	A108778
Stream	763609_7701622	7701622	763609	11.90	1.9km W	A108778
Stream	763644_7701812	7701812	763644	21.90	1.9km W	A108778
HMC	216	7701910	764928	16.60	0.6km W	A108778
HMC	218	7702282	765034	2.72	0.5km W	A108778
HMC	219	7702539	764865	7.53	0.6km W	A108778
HMC	220	7702725	765012	35.80	0.6km W	A108778
HMC	224	7701258	763958	8.78	1.6km W	A108778

Table 9.3: E45/5028-Cuprite West, Significant Rock Chip Results

Sample Type	Sample ID	Northing	Easting	Assay (g/t Au)	Location	WAMEX number
Rock	44807	7695942	755049	56.60	In tenement	A103961
Rock	44808	7695942	755049	13.5	In tenement	A103961
Rock	44809	7695942	755049	28.3	In tenement	A103961
Rock	44810	7695942	755049	17.70	In tenement	A103961
Rock	44828	7695942	755038	3.55	In tenement	A103961
Rock	44830	7695942	755041	23.5	In tenement	A103961
Rock	44831	7695942	755041	57.50	In tenement	A103961
Rock	44832	7695942	755041	3.49	In tenement	A103961
Rock	572022	7695952	755046	25.60	In tenement	A103961

No areas within the Cuprite East tenement returned significant gold or base metals assay values from rock chip sampling. The historical geochemistry also showed no significant stream sediment results for the Cuprite West tenement, despite anomalous gold at the Kalamazoo prospect.

A summary of significant gold results is shown in Tables 9.1 and 9.2 for Cuprite East and Table 9.3 on page 106 for Cuprite West. The locations of historical rock chip and stream sediment samples are respectively shown below in Figure 9.6 on page 107 and Figure 9.7 on page 108.

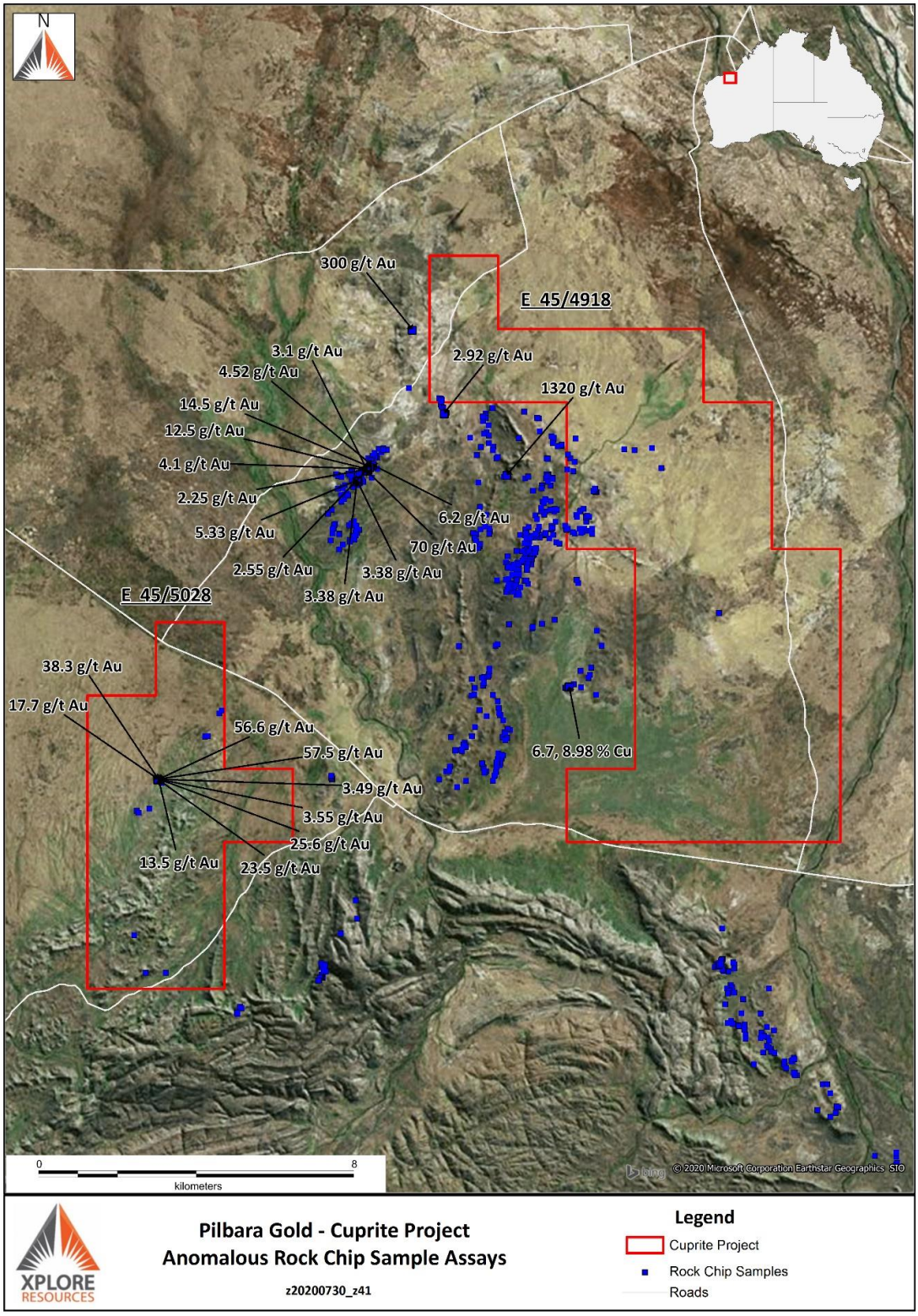


Figure 9.6: Location of anomalous rock chip samples, Cuprite East and West

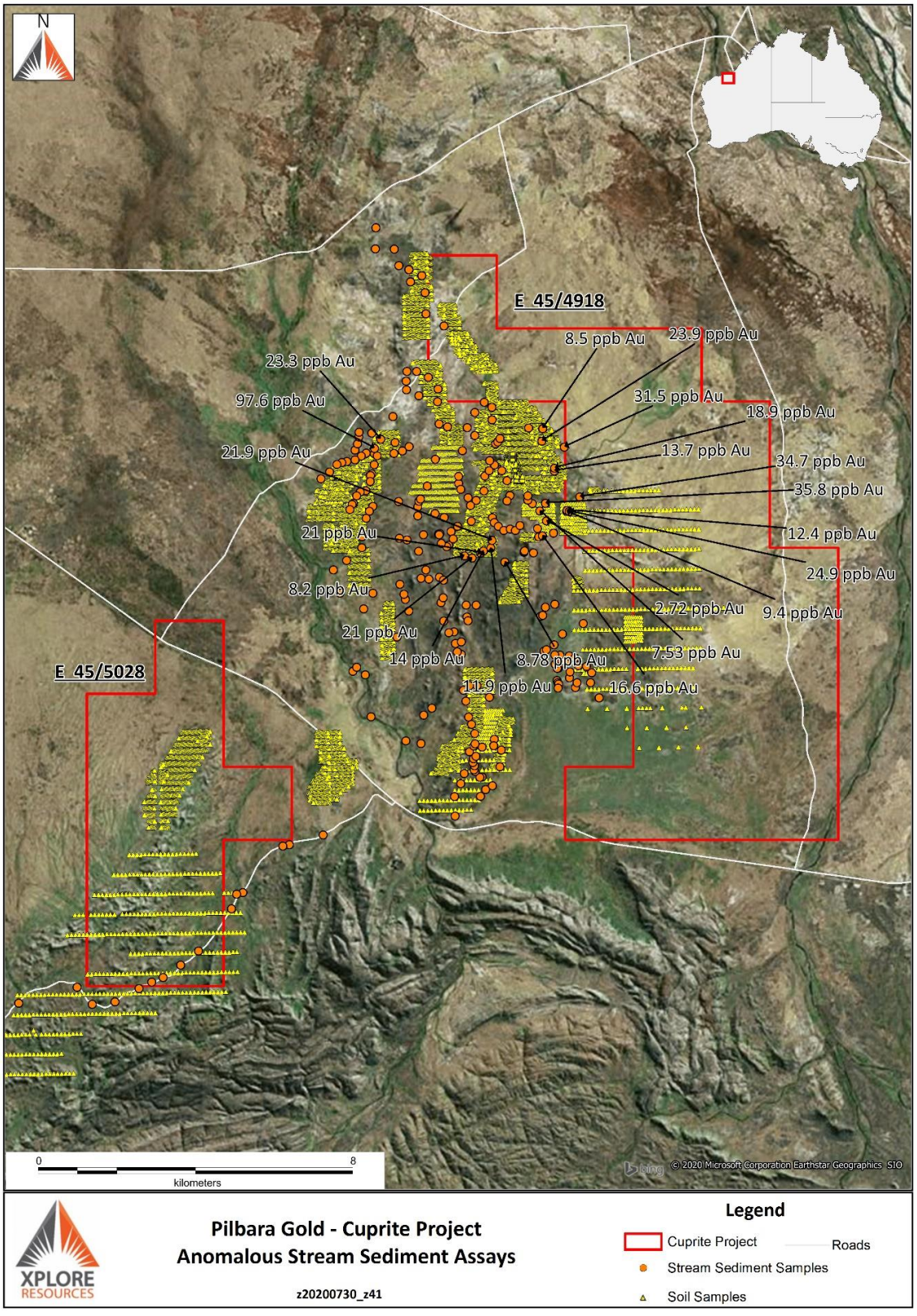


Figure 9.7: Location of anomalous, stream sediment samples, Cuprite East and West

9.2.3 FORTUNA AND TYCHE PROJECT AREA GEOCHEMISTRY

The Fortuna (E46/1278) and Tyche (E45/5304) tenements have relatively few surface geochemistry results but do have abundant near tenure surface geochemistry results.

Historical surface sampling included stream sediment, rock chip and soil sampling and the areas targeted were the historical mining centres of Mt. Elsie, Eastern Creek and Boodalyerrie, which are all outside of the two tenement areas, with the technique proving successful in delineating gold mineralisation

A total amount of 49 surface samples (stream sediment, rock chip) were collected within the Fortuna tenement and 27 surface samples (stream sediment) were collected within the Tyche tenement (Figure 9.8 on page 110). There were no anomalous gold results returned from the sampling.

The conglomerate at the base of the Mt Roe Basalt has been identified as a significant source of gold within the Pilbara. Comparisons have been drawn with the Witwatersrand of South Africa. Outcrops of the conglomerate had been noted on the GSWA mapping.

In an exploration report (A9930) reconnaissance field mapping was undertaken within E46/951 was carried out to confirm and delineate the extent of the conglomerate unit, geochemically sample the unit and determine how best to test the unit for mineralisation. Conglomerate prospective for gold mineralisation was confirmed and assay data is given below in Table 9.4 on page 109.

Table 9.4: Geochemical Sampling basal conglomerate (Witx, 2013)

Sample Number	MGA_East	MGA_North	Sample code	Au_ppb	Au-Rp1_ppm
12ECR 1	253910	7608899	Rock	>500	4.82
12ECR 2	253912.7	7608903	Rock	>500	5.37
12ECR 3	253909.4	7608917	Rock	>500	20.75
12ECR 4	253949.8	7608949	Rock	>500	5.32
12ECR 5	253965.5	7608980	Rock	>500	1.2
MPX100002	253906	7608921	Rock	>500	2.87
MPX100003	253917	7608911	Rock	>500	1.6
MPX100004	253910	7608899	Rock	>500	1.49

Plenty River Mining Company NL in 1995 undertook a major rock chip sampling program in the region and yielded some spectacular gold grades in quartz veins as shown below (Source: Jessup, 1995).

- 10.2g/t. Located 5km NNE of Tyche tenement (sample number Y08);
- 13.5g/t. Located 5km NNE of Tyche tenement (sample number Y11);
- 68g/t. Located 5km NNE of Tyche tenement (sample number Y15);
- 195g/t Located 5km NNE of Tyche tenement (sample number Y25). Repeated with sample number Y134 at 175g/t;
- 92g/t Located 1km N of Tyche tenement and 4km NE of Fortuna tenement (sample number Y64) and

- 11.4g/t. Located 1km N of Tyche tenement and 4km NE of Fortuna tenement. (sample number Y67).

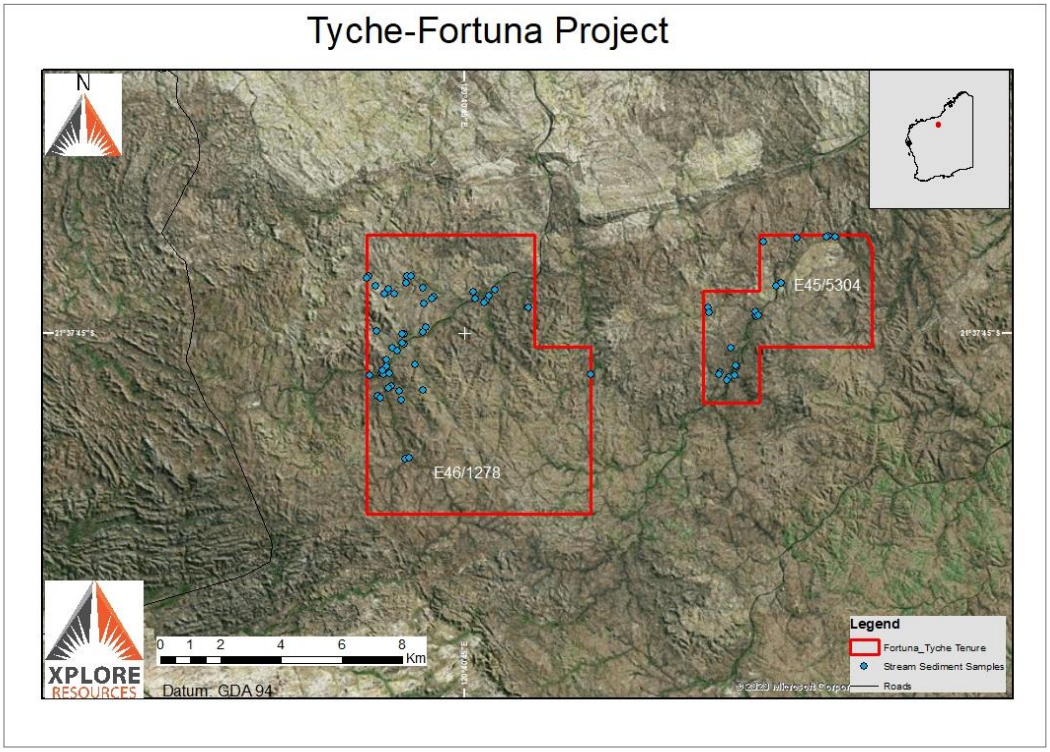


Figure 9.8: Surface samplings within the tenements (Government of W. A., 2020)

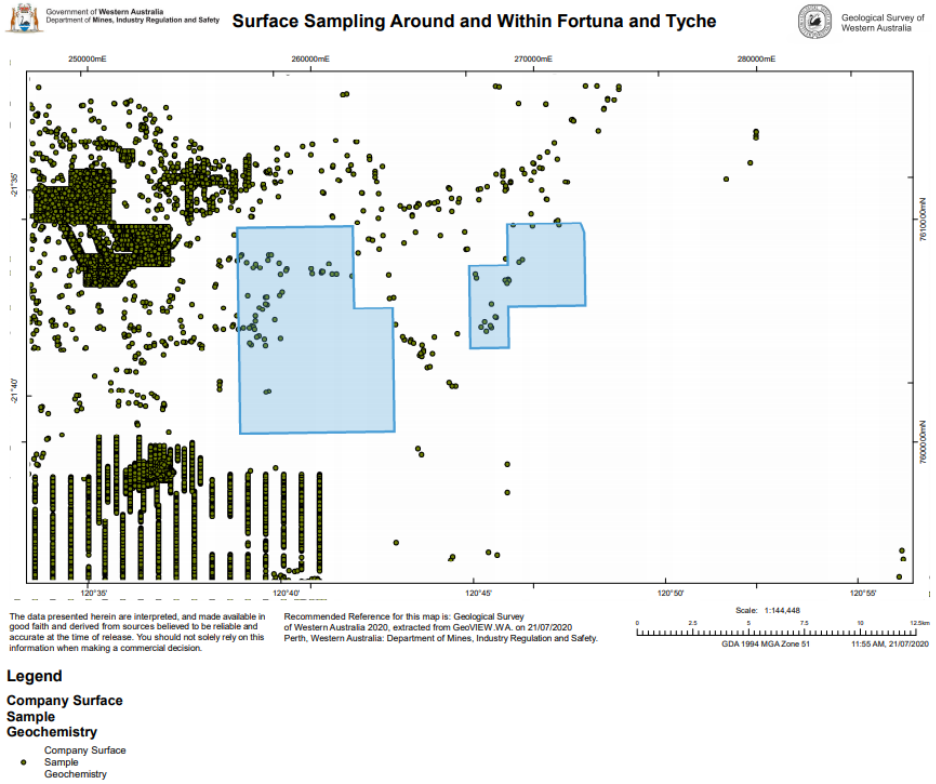


Figure 9.9: Surface samplings around and within the tenements (Government of Western Australia, 2020)

The nearby tenements indicate that other exploration and/or mining companies consider the area prospective for gold. The Boodalyerrie Project (E45/3586) is Pacton Gold's most easterly Pilbara tenement which lies approximately 10km north of the Tyche tenure.

Pacton has stated that in addition to encouraging historic prospecting results, analysis of satellite image data (Figure 9.11 on page 112) indicates large areas of alteration within the vicinity of the large quartz veins. This is interpreted as representing a stockwork of smaller, nested vein systems that present excellent, large, pervasive gold-bearing targets.

The Boodalyerrie tenement also contains over 20km of strike length along the contact of Fortescue Group rocks that unconformably overlie the tonalite pluton. The Fortescue Group Mount Roe formation and the directly overlying Kylena Formation are present.

Geological relationships indicate that the emplacement of the quartz veins precedes the deposition of the Mount Roe Formation. Consequently, the vein system is interpreted to probably extend underneath the Mount Roe formation.

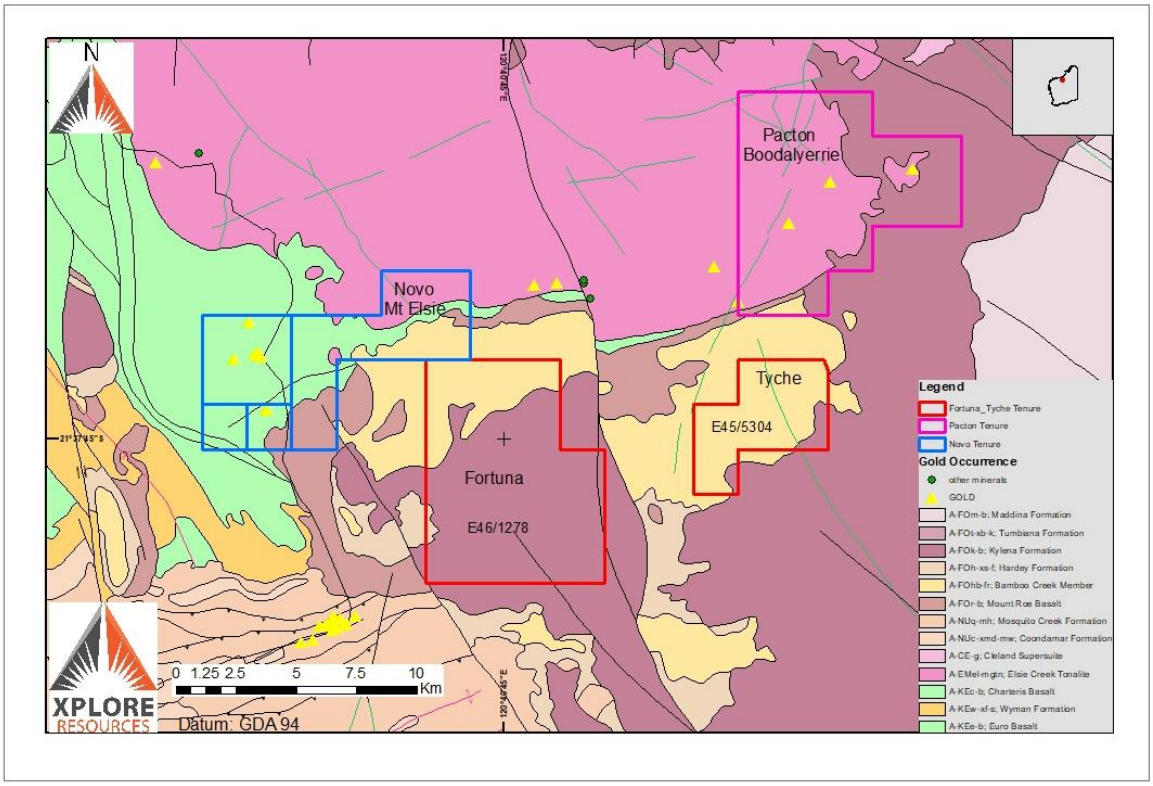


Figure 9.10: Nearby tenements – Fortuna and Tyche Project Area

Novo Resources Group has recently acquired three exploration licences (the "Mt. Elsie Project") comprising an area of approximately 19km^2 adjacent to numerous Novo wholly owned tenements (Figure 9.11 on page 112). Novo has stated; *"Numerous high-priority bedrock and alluvial gold targets have been identified by Novo staff at the Mt. Elsie Project. Novo plans to soon undertake work designed to generate drill targets for testing later this year. We see the Mt. Elsie Project as a new, important part of our strategy to build a future hub of production around our well-advanced Beatons Creek gold project near Nullagine."*

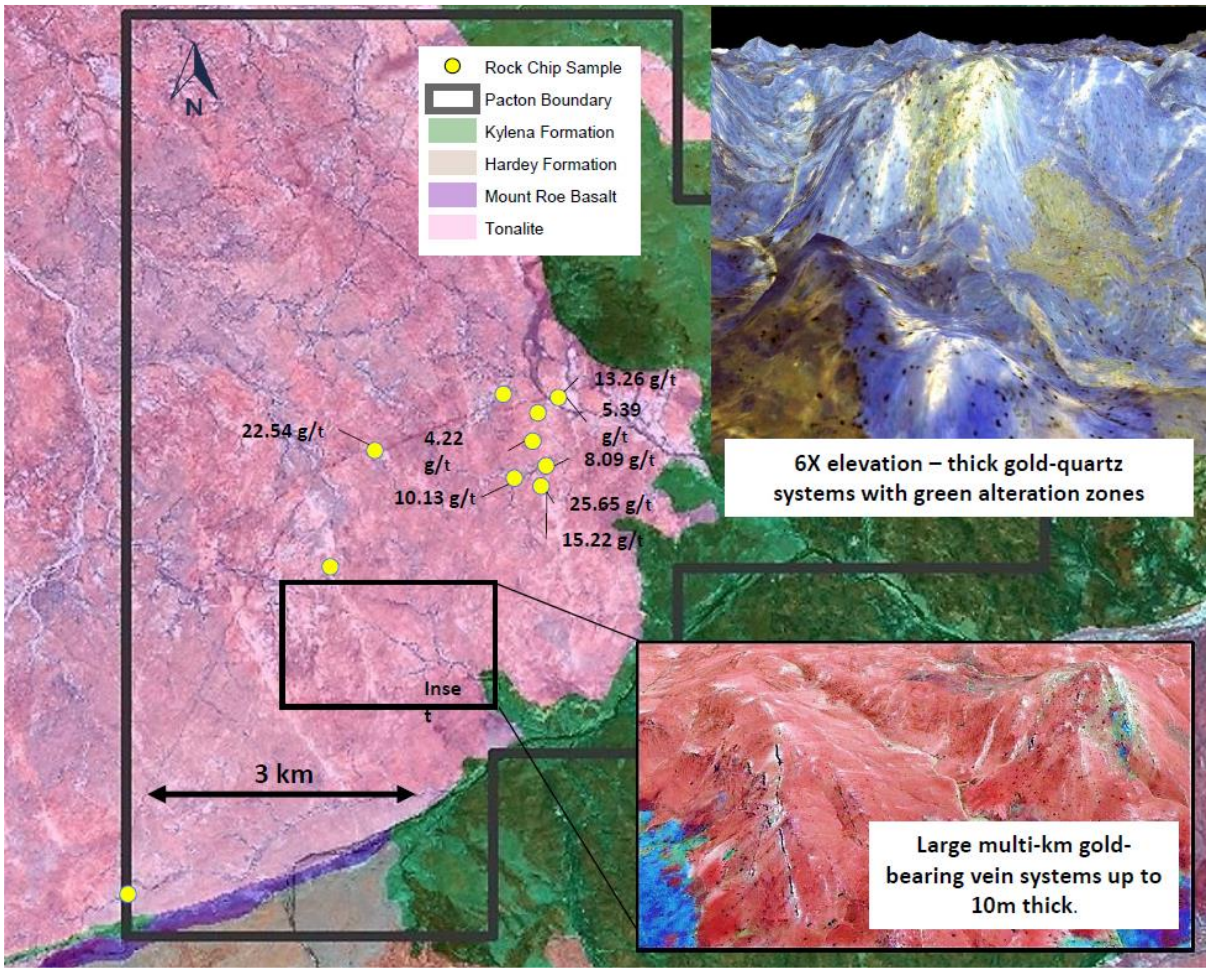


Figure 9.11: Satellite Image Pacton's Boodalyerrie Project (Pacton, 2020)

9.2.4 NORTIA PROJECT AREA GEOCHEMISTRY

A total of 231 historical surface geochemical samples have been collected from within the Nortia tenement. A soil sampling program was undertaken by Mount Stewart Resources Pty Ltd across the southwestern portion of the tenement during 2017- 2018.

The survey targeting a wedge of Coondamar Formation exposed in an ENE plunging anticline, sandwiched between the Golden Eagle Orthogneiss (AgKge) and a foliated and metamorphosed phase of the Bonney Downs Granite (AgKbdn). According to Chhabra (2018), historic sampling had shown elevated Tantalum values, but no details are given. No significant results were returned (Chhabra, 2018), with most gold values recording below detection (<1 ppb Au).

A maximum gold value of 6 ppb was obtained at two sample locations and no anomalous tantalum values were detected. Four BLEG samples collected from within the tenement during 2014-15 also returned gold assays below detection (<1 ppb Au).

Pulp samples from earlier rock chip and stream sediment samples that were collected north of the Nortia tenement were re-assayed by Mount Stewart Resources Pty Ltd. Anomalous values up to 109.2 ppm Ta and 439 ppm Sn were obtained from a cluster of samples near the far southwestern corner of the Nortia tenement, apparently near a Sn-Ta and lepidolite bearing pegmatitic unit within and adjacent to the Kurrana Granitoid Complex (Chhabra, 2018).

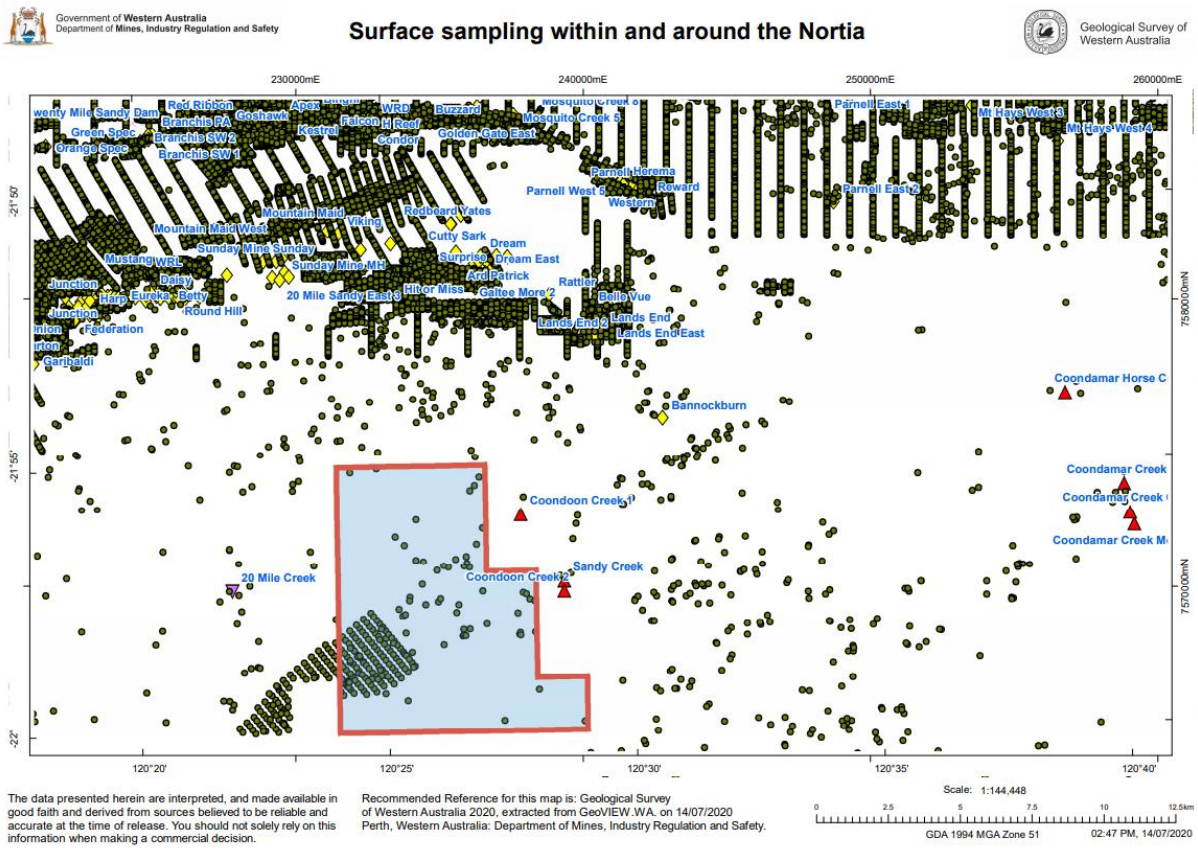


Figure 9.12: Surface sampling within and around the Nortia Project (Government of Western Australia, 2020)

9.2.5 BEATONS RIVER PROJECT AREA GEOPHYSICS

Most of the project area is covered by sediments of the Hardy Formation and shows little geophysical signature (Figure 9.16 on page 117). There is a NW trending dolerite dyke cutting through E46/1215 into E46/1280.

There is a magnetic high that occupies approximately the top half of E46/1280 and has base metal mineral occurrences (MINDEX) riming the margins of the magnetic high. These mineral occurrences have been recorded in MINDEX as mostly copper with minor zinc. There is no drilling data in the Government database.

The underlying geology of this portion of E46/1280 is the Bamboo Creek Member of the Hardy Formation. The Bamboo Creek Member consists of Rhyolite, rhyodacite and dacite in flows and subvolcanic intrusions; alkali feldspar and quartz phenocrysts; volcanic breccia, welded ignimbrite, with accretionary lapilli; resedimented pyroclastic deposits.

The geology however does not explain the magnetic high and further investigation is warranted.

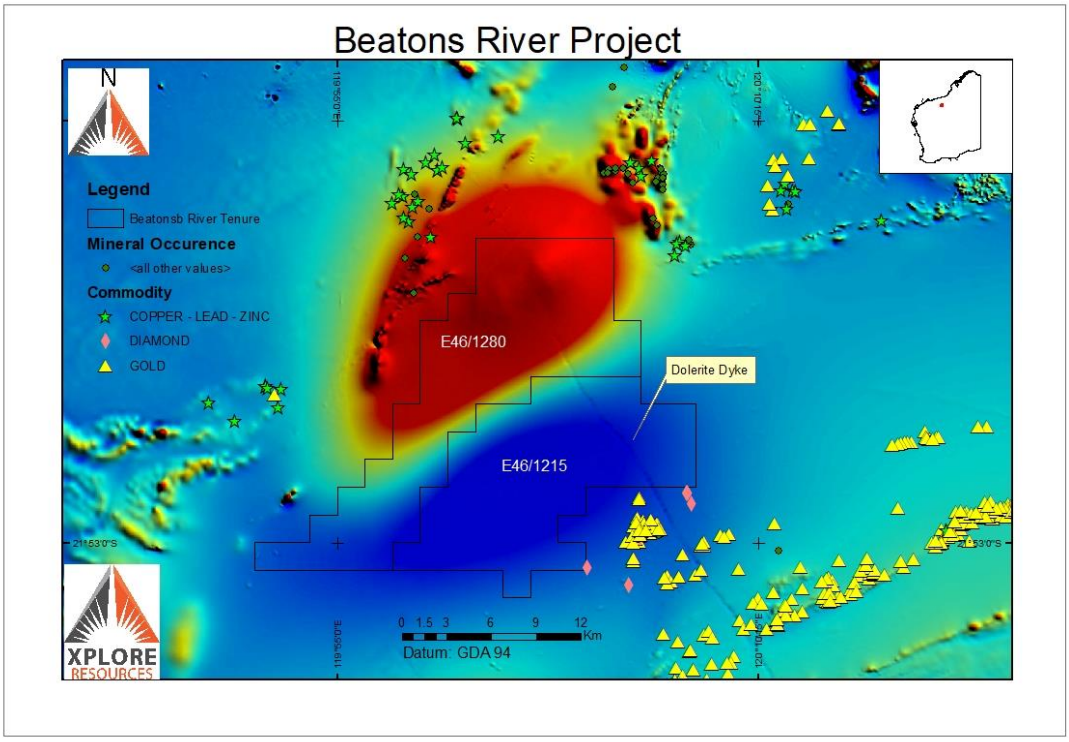


Figure 9.13: Magnetics over Beatons River showing MINDEX mineral occurrences

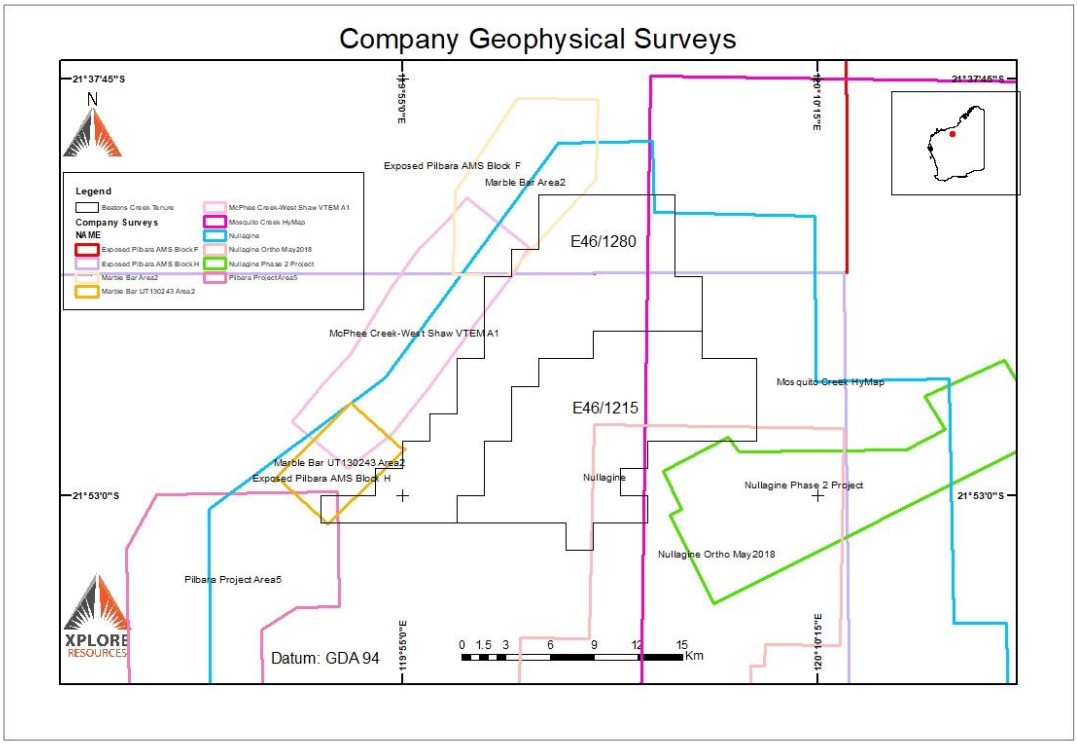


Figure 9.14: Company geophysical surveys over Beatons River tenure (E46/1215-1280) (Government of Western Australia, 2020)

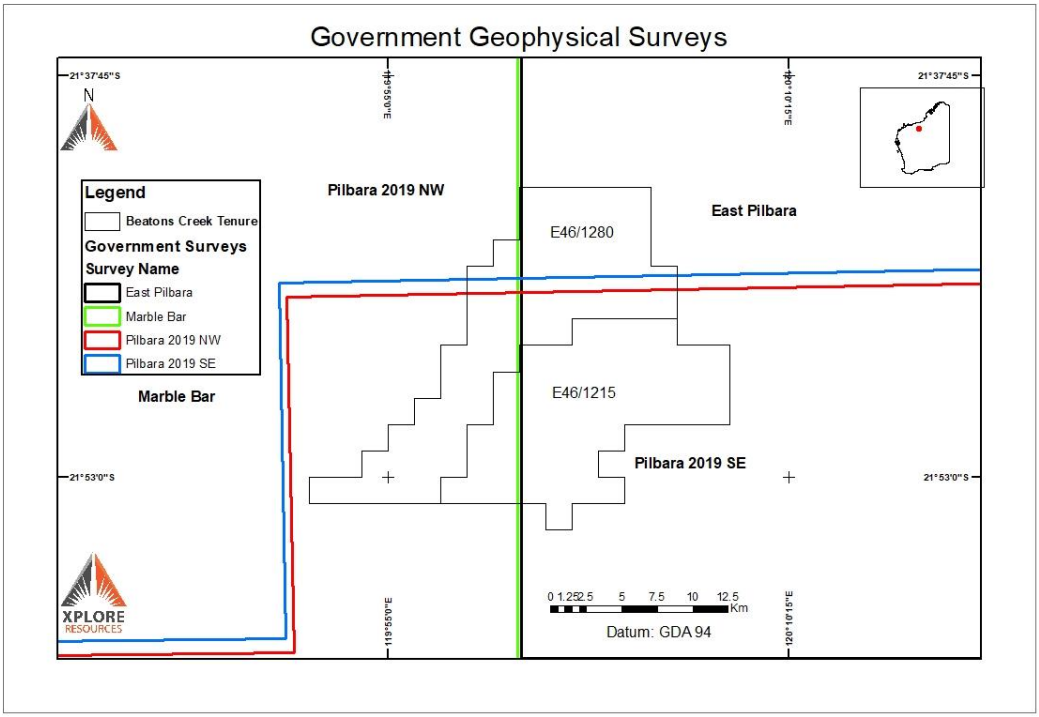


Figure 9.15: Government geophysical surveys over the Beatons River Tenure (E46/1215-1280) (Government of Western Australia, 2020)

Table 9.5: Company Geophysical Surveys that are crossing the Beatons River Tenure (Government of Western Australia, 2020)

Name	Status	Custodian	Methods	Size_Km	Release	Company	Contractor
Exposed Pilbara AMS Block F	multi - client	Western Geospectral	MSS	-9999	1/01/2100	Stockdale Prospecting Ltd	Kevron
Exposed Pilbara AMS Block H	multi - client	Western Geospectral	MSS	-9999	1/01/2100	Stockdale Prospecting Ltd	Kevron
Nullagine Phase 2 Project	multi - client	UTS Geophysics	MAG RAD DEM	5686	1/01/2100	Wedgetail Exploration NL	UTS Geophysics
Mosquito Creek HyMap	open file	GSWA	HSS	1620	3/10/2011	Northwest Resources Ltd	HyVista Corporation Pty Ltd
Nullagine Ortho May2018	confidential	Novo Resources Corp	ORT DEM	-9999	19/06/2023	Novo Resources Corp	Aerometrex
Pilbara Project Area5	confidential	Vaalbara Resources Pty Ltd	MAG RAD DEM	3469	24/11/2023	Vaalbara Resources Pty Ltd	MAGSPEC Airborne Surveys
McPhee Creek-West Shaw VTEM A1	confidential	Atlas Iron Limited	AEM MAG DEM	120	17/03/2024	Atlas Iron Limited	UTS Geophysics

Name	Status	Custodian	Methods	Size_Km	Release	Company	Contractor
Nullagine	open file	GSWA	MAG RAD	18600	31/08/2017	Alkane Exploration NL	Kevron
Marble Bar Area2	open file	GSWA	MAG RAD DEM	1665	19/09/2017	Atlas Iron Limited	UTS Geophysics
Marble Bar UT130243 Area2	open file	GSWA	MAG RAD DEM	668	21/09/2018	Atlas Iron Pty Ltd	UTS Geophysics

Table 9.6: Government Geophysical Surveys that are crossing the Beatons River Tenure (Government of Western Australia, 2020)

Name	Status	Custodian	Methods	Sizekm²	Release	Company	Contractor
Marble Bar	government	Geoscience Australia	MAG RAD DEM	44690	1/10/1996	Geoscience Australia	Australian Geological Survey Organisation
East Pilbara	government	Geoscience Australia	MAG RAD DEM	33500	10/12/1996	Geoscience Australia/GSWA	Kevron
Pilbara 2019 NW	open file	GSWA	GRA DEM	58573	4/07/2019	GSWA	Sander Geophysics Limited
Pilbara 2019 SE	open file	GSWA	GRA DEM	11172	4/07/2019	GSWA	Sander Geophysics Limited

9.2.6 CUPRITE EAST AND WEST PROJECT AREA GEOPHYSICS

There have been 12 geophysical surveys flown over the Cuprite Project. A list of the Government airborne Geophysical Surveys and Company airborne surveys are respectively shown below in Tables 9.5 and 9.6 and Figure 9.10 on page 111 and Figure 9.11 on page 112.

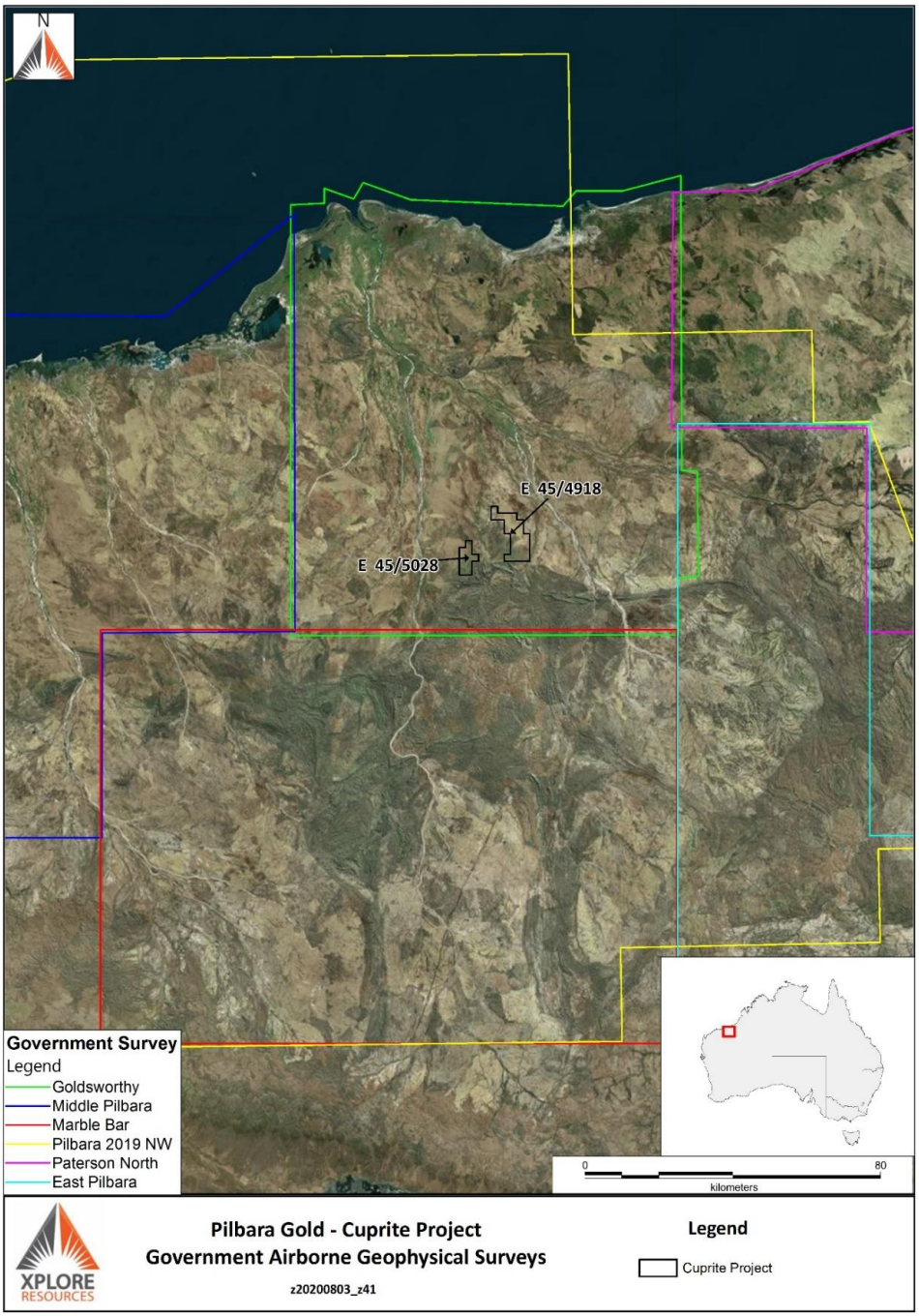


Figure 9.16: Cuprite Project, Government Airborne Geophysical surveys

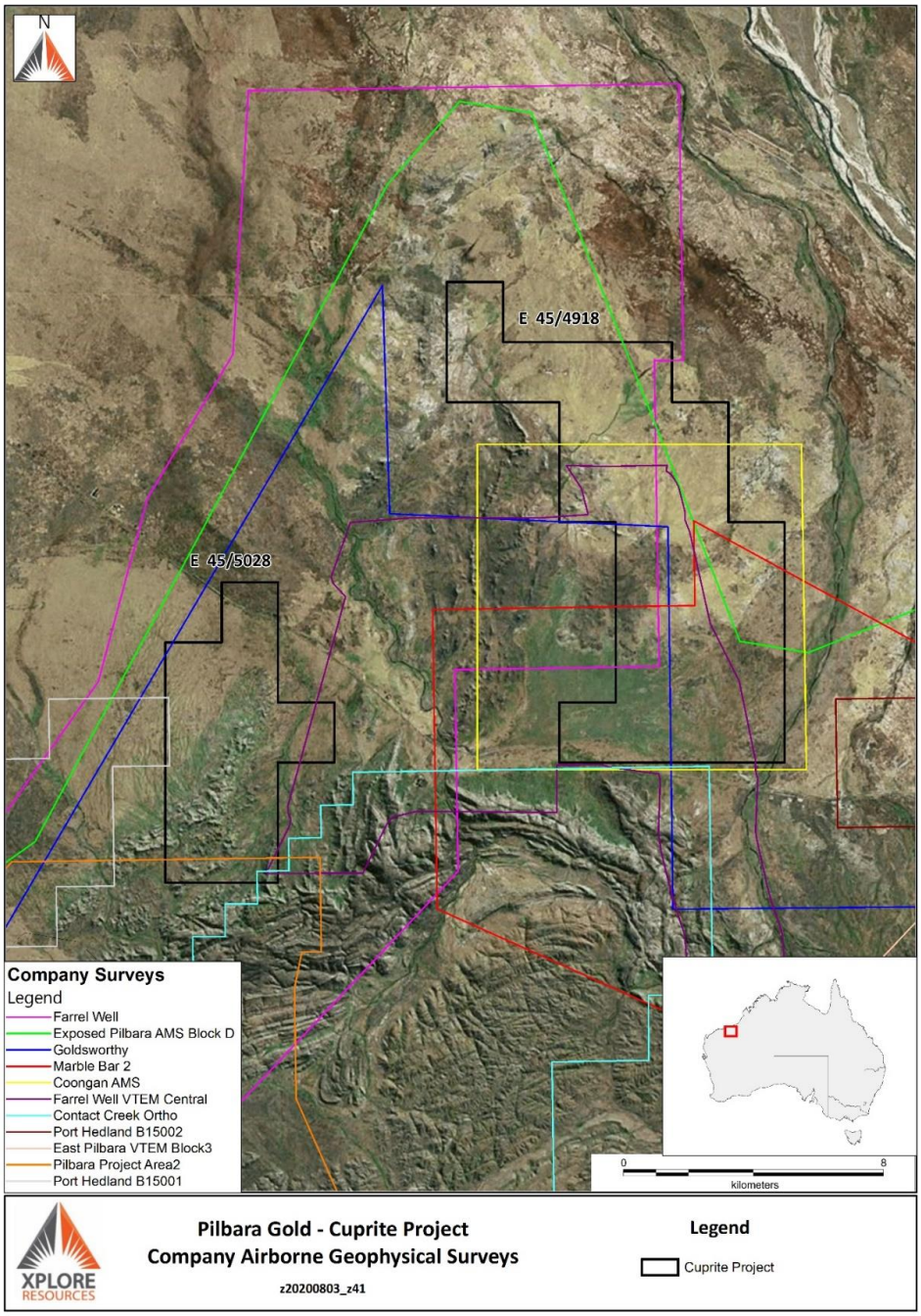


Figure 9.17: Cuprite Project, Company Geophysical Surveys

Table 9.7: Government Airborne Geophysical surveys over the Cuprite Project

ID Name	Date	Line Spacing	Line Direction	Type	Size (km^2)	Release Date	Company	Contractor
Goldsworthy	1/06/1996	400	180	MAG RAD	34700	9/11/2004	Stockdale Prospecting Ltd	Kevron
Pilbara 2019 NW		2500		GRA DEM	58573	4/07/2019	GSWA	Sander Geophysics Limited

Table 9.8: Company airborne Geophysical surveys over the Cuprite Project

ID Name	Date	Line Spacing	Line Direction	Type	Size (km^2)	Release Date	Company	Contractor
Marble Bar 2	1/08/1995	200	180	MAG RAD DEM	5347	1/01/2001	CRA Exploration Pty Ltd	Kevron
Farrell Well	4/03/2005	100	90	MAG RAD DEM	7434	18/03/2010	Atlas Gold Ltd	UTS Geophysics
Exposed Pilbara AMS Block D	6/11/1998			MSS		1/01/2100	Stockdale Prospecting Ltd	Kevron
Exposed Pilbara AMS Block D	6/11/1998			MSS		1/01/2100	Stockdale Prospecting Ltd	Kevron
Coongan AMS	14/08/1997			MSS		1/01/2100	Stockdale Prospecting Ltd	Kevron
Goldsworthy	2/06/1996	200	180	MAG RAD DEM	45953	6/01/2009	Stockdale Prospecting Ltd	Kevron
Port Hedland B15001	21/02/2010	100	90	MAG RAD DEM	1501	14/03/2015	Regency Bay Pty Ltd	UTS Geophysics
Farrell Well VTEM Central	20/09/2007	200	90	AEM MAG DEM	803	13/10/2012	Shaw River Resources Ltd	Geotech Airborne Limited
Contact Creek Ortho	31/07/2018			ORT DEM		29/08/2023	Novo Resources Corp	Aerometrex
Pilbara Project Area2	3/11/2018	50	180	MAG RAD DEM	13904	24/11/2023	Fastfield Pty Ltd	MAGSPEC Airborne Surveys

9.2.7 FORTUNA AND TYCHE PROJECT AREA GEOPHYSICS

A total of 5 private company surveys and 2 government surveys intersect the Tyche-Fortuna Project area Figure 9.18: Company Airborne Surveys within Fortuna and Tyche (Government of Western Australia, 2020)

Figure 9.14 on page 114 and Figure 9.15 on page 115). Of the company surveys there are two available on open file with the others available to purchase from the geophysical contracting companies Figure 9.9 on page110.

The government surveys were completed in 1996 and included magnetics, radiometric and digital elevation model surface and the 2018 surveys included gravity and digital elevation model (DEM). The Fortuna tenement area was surveyed by 4 company airborne surveys. Northeast portion of the tenement is not covered by these surveys (Table 9.10 on page 124).

These surveys include ortho-imagery, digital elevation model, magnetic, radiometric and seismic surveys and were done in 1998, 2006 and two of them in 2018.

The Tyche tenement area was surveyed by only 1 company airborne survey. It was done in 2005 and included magnetics, radiometric and digital elevation model surveys. This survey covers only western and southwestern portion of the Tyche tenement.

The northern, central and eastern portions of Tyche have not been surveyed by companies.

Table 9.9: Company Airborne Surveys in Tyche- Fortuna (Government of Western Australia, 2020)

NAME	STATUS	CUSTODIAN	METHODS	SIZE KM	RELEASE	COMPANY	CONTRACTOR
Mosquito Creek HyMap	open file	GSWA	HSS	1,620	3/10/2011	Northwest Resources Ltd	HyVista Corporation Pty Ltd
Pilbara Project Area4	confidential	WitX Pty Ltd	MAG RAD DEM	4,488	24/11/2023	WitX Pty Ltd	MAGSPEC Airborne Surveys
Exposed Pilbara AMS Block C	multi client	Western Geospectral	MSS		1/01/2100	Stockdale Prospecting Ltd	Kevron
Meentheena Ortho A1	confidential	Novo Resources Corp	ORT DEM		29/08/2023	Novo Resources Corp	Aerometrex
Nullagine South	Open File	GSWA	MAG RAD DEM	1,453	1/07/2005	Plenty River Mining Co NL	UTS Geophysics

The geological and geophysical interpretations made by Xplore Resources are based on the publicly available data from the GSWA.

The historical data shown on the geophysical imagery in this preliminary desktop study is presented on the publicly available GSWA merged magnetics data. This data represents a compilation of the publicly available geophysical surveys discussed above and is available from the GSWA (Government of Western Australia, 2020).

Table 9.10: Government Airborne Surveys in Tyche-Fortuna Project (Government of Western Australia, 2020)

NAME	STATUS	CUSTODIAN	METHODS	SIZE KM	RELEASE	COMPANY	CONTRACTOR
East Pilbara	government	Geoscience Australia	MAG RAD DEM	33,500	10/12/1996	Geoscience Australia/ GSWA	Kevron
Little Sandy Desert 2018 West	open file	GSWA	GRA DEM	52,000	20/09/2018	GSWA	Sander Geophysics Limited

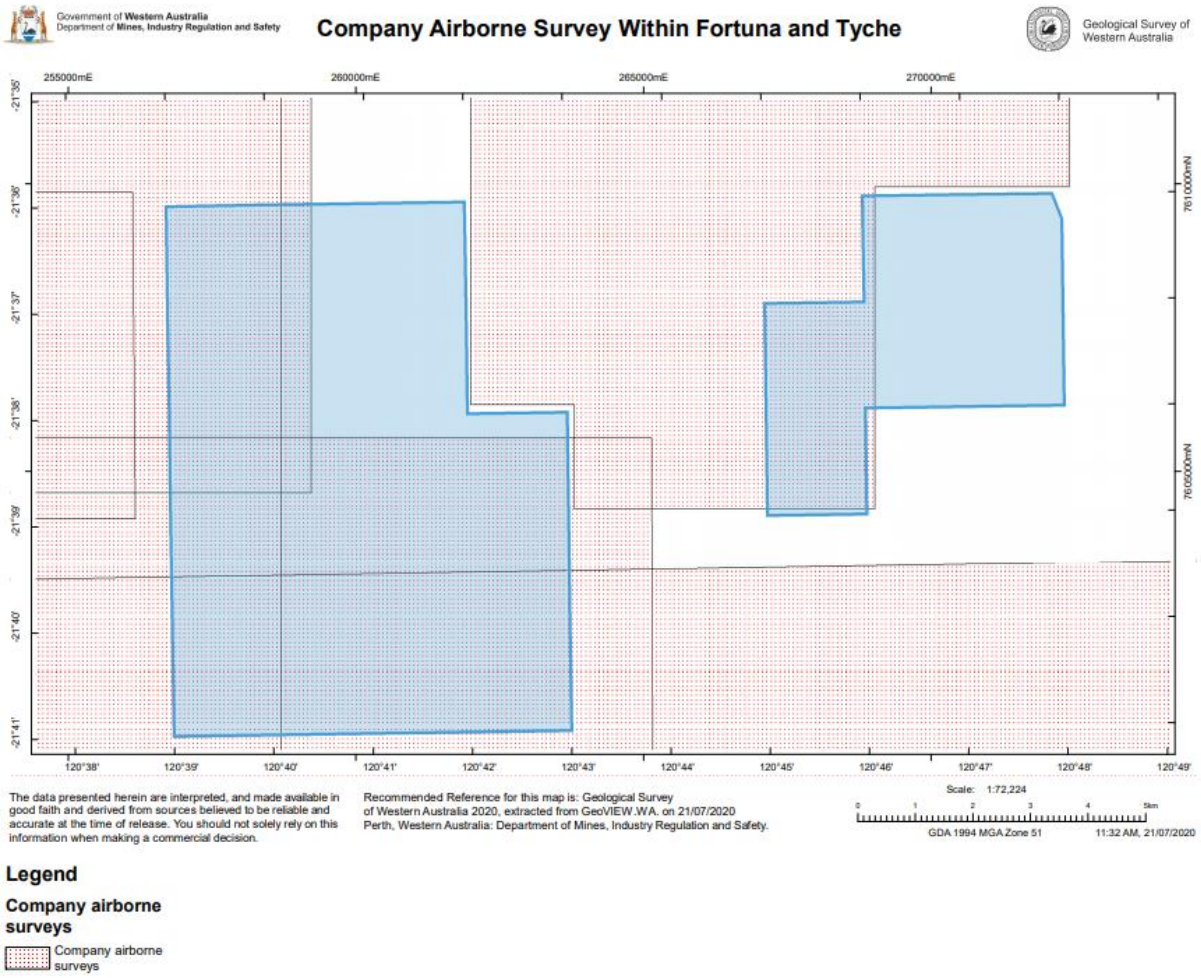


Figure 9.18: Company Airborne Surveys within Fortuna and Tyche (Government of Western Australia, 2020)

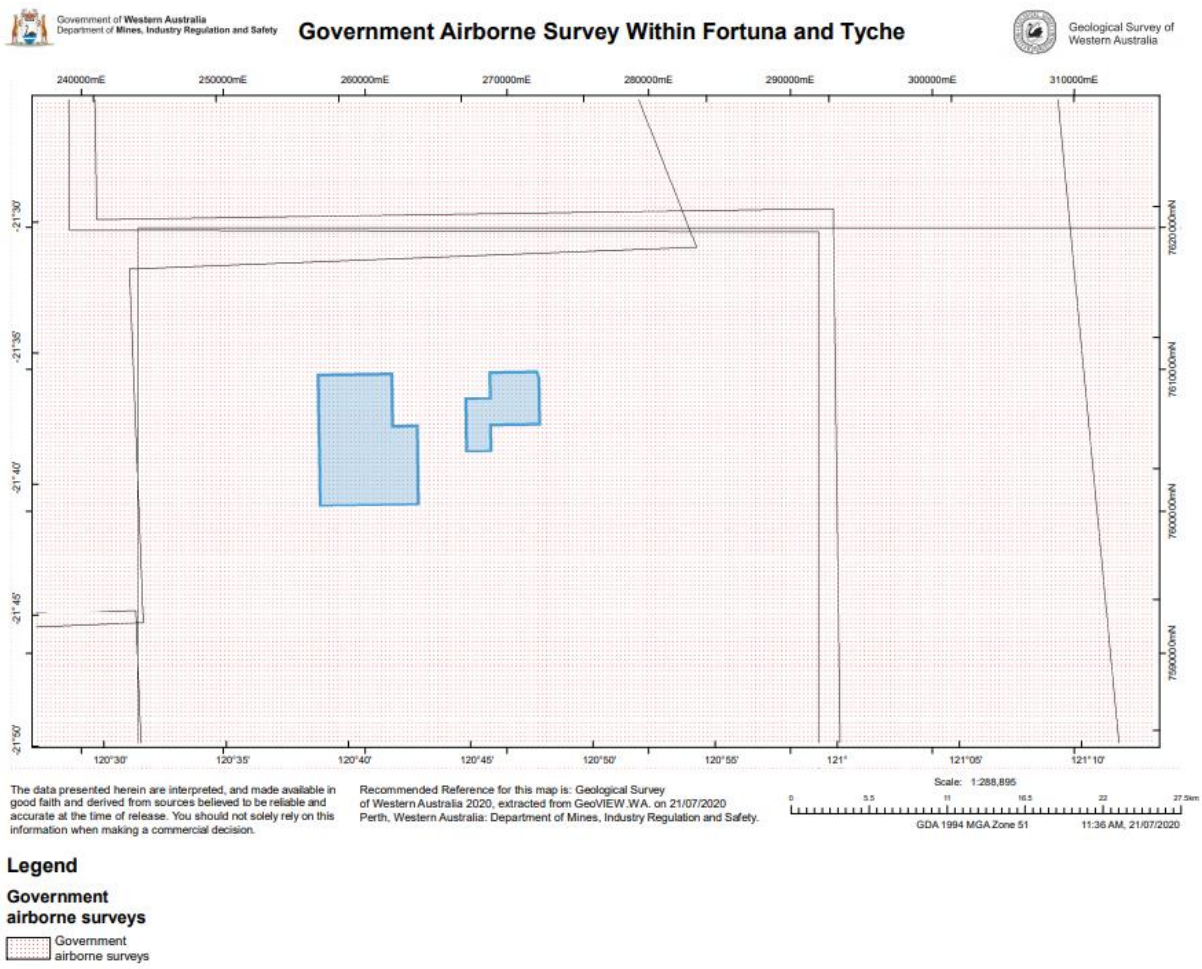


Figure 9.19: Government Airborne Surveys within Tyche and Fortuna (Government of Western Australia, 2020)

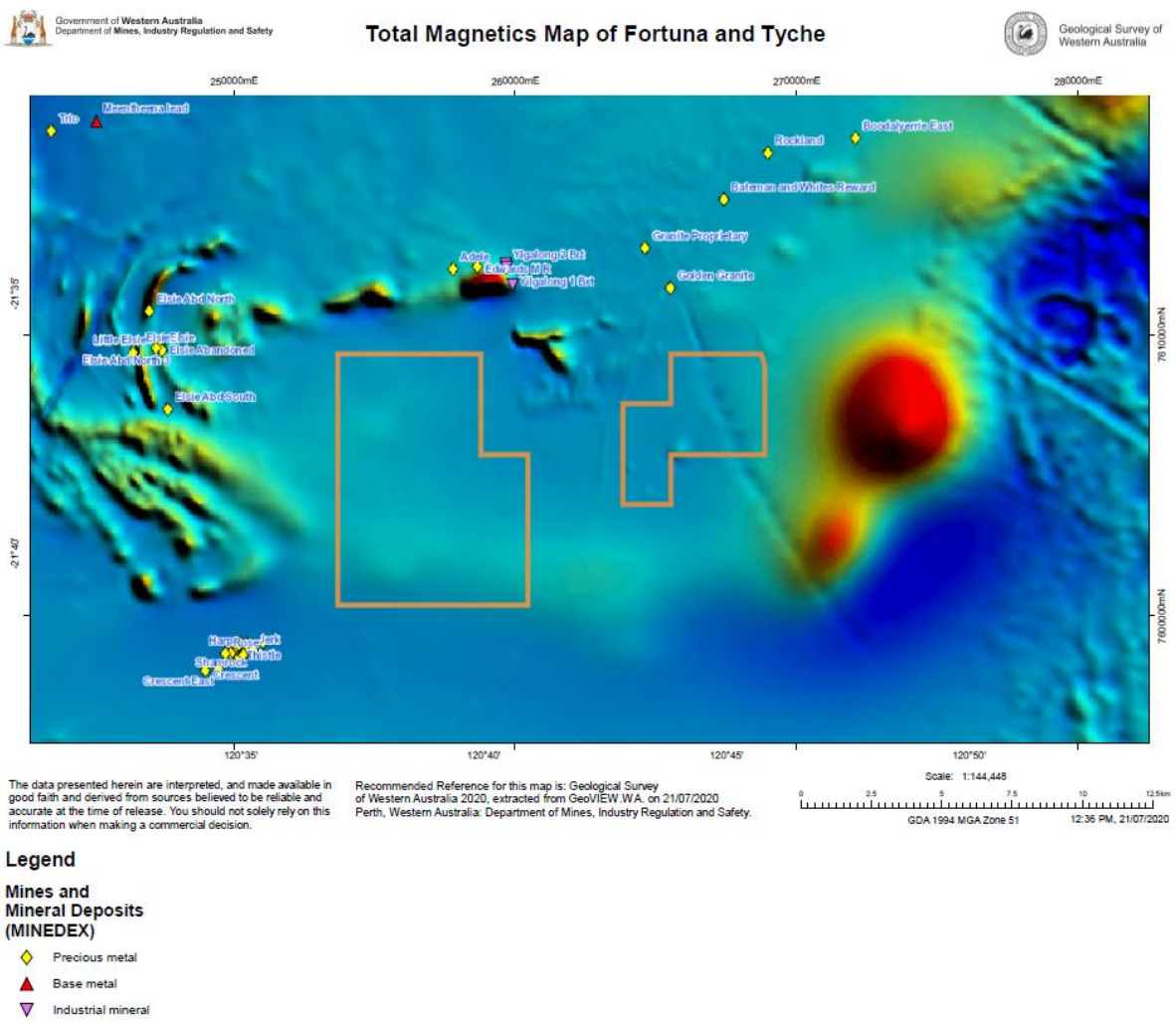


Figure 9.20: Total Magnetic Map of Fortuna and Tyche (Government of Western Australia, 2020)

9.2.8 NORTIA PROJECT AREA GEOPHYSICS

A total of three private company surveys and 3 government surveys intersect the Nortia project area **(**Figure 9.19 on page 122 and Figure 9.20 on page 123). These surveys include magnetic, radiometric, digital elevation model and seismic surveys (Table 9.10 on page 124).

The geological and geophysical interpretations made by Xplore Resources are based on the publicly available data from the GSWA.

The historical data shown on the geophysical imagery in this preliminary desktop study is presented on the publicly available GSWA merged magnetics data.

This data represents a compilation of the publicly available geophysical surveys discussed above and is available from the GSWA (Government of Western Australia, 2020).

Table 9.10: Airborne Surveys within Nortia (Government of Western Australia, 2020)

NAME	STATUS	CUSTODIAN	METHODS	SIZE_KM	RELEASE	COMPANY	CONTRACTOR
Exposed Pilbara AMS Block C	multi-client	Western Geospectral	MSS	-	-	Stockdale Prospecting Ltd	Kevron
Balfour Downs AMS Blk A	multi-client	Western Geospectral	MSS	-	-	Stockdale Prospecting Ltd	Kevron
Mosquito Creek HyMap	open file	GSWA	HSS	1620	3/10/2011	Northwest Resources Ltd	HyVista Corporation Pty Ltd
South Pilbara 2012 Area1	government	Geoscience Australia	MAG RAD DEM	129237	2/05/2013	GSWA	GPX Surveys
East Pilbara	government	Geoscience Australia	MAG RAD DEM	33500	10/12/1996	Geoscience Australia / GSWA	Kevron
Pilbara 2019 SE	open file	GSWA	GRA DEM	11172	4/07/2019	GSWA	Sander Geophysics Limited

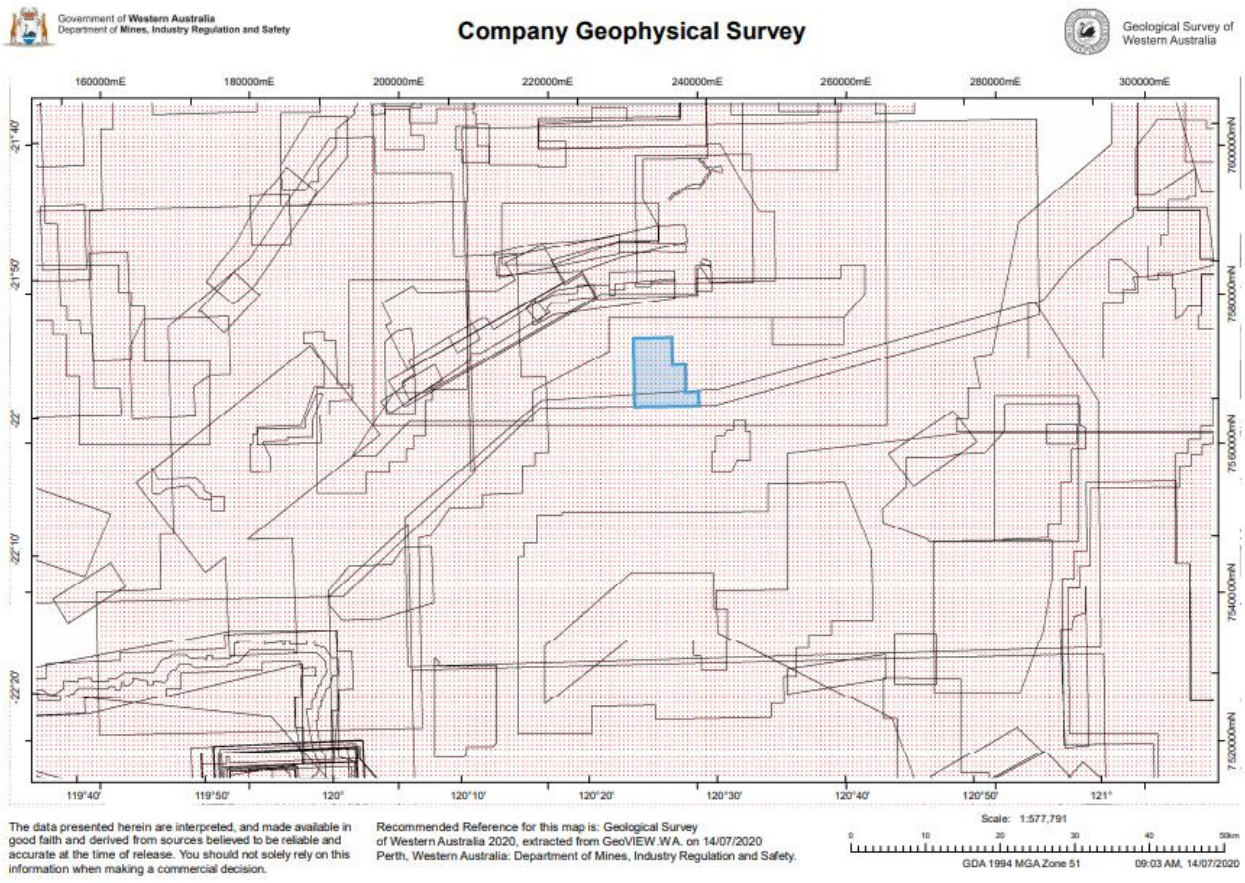


Figure 9.21: Company Airborne Surveys within the Nortia Exploration Area (Government of Western Australia, 2020)

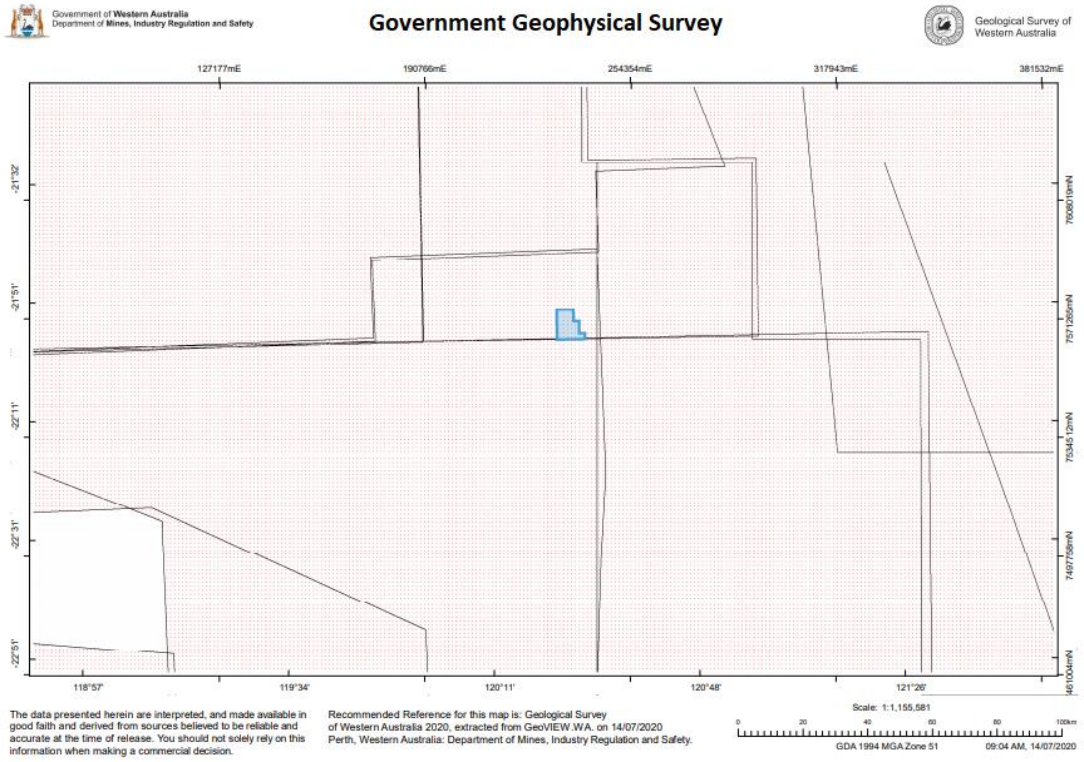


Figure 9.22: Government Airborne Survey within the Nortia exploration area (Government of Western Australia, 2020)

10.0 DRILLING

10.1 BEATONS RIVER PROJECT AREA DRILLHOLES

There has been limited drilling within the current tenure (Figure 10.1 on page 126) with many holes drilled to the east and south of the tenure on known gold deposits such as Beatons Creek and Millennium Minerals Nullagine Project.

In 1984 Australis Mining NL drilled two stratigraphic diamond holes BD-1 (319m) and BD-2 (700m) targeting placer gold mineralisation in the Hardey Formation which was thought to be derived from the auriferous Mosquito Creek Formation, the mid-fan facies being the prime exploration target similar to gold mineralisation at Beatons Creek (Proximal fan). However no significant gold mineralisation was intersected.

During 2015 Nullagine Gold Pty Ltd drilled five Reverse Circulation drill holes (BC15-01 to BC15-05) exploring for auriferous conglomerates similar to the Beatons Creek Conglomerate, holes were drilled to a maximum depth of 126m in dead tenement E46/524 currently covered by E46/1215, no significant gold results were returned.

However, the holes were drilled to the west of the outcropping Beatons Creek Conglomerate within E46/1215 (Figure 10.3 on page 131).One diamond drill hole 09BCID-1 was drilled on the southern edge of the current E46/1215 (92.6m) targeting conglomeratic gold mineralisation like Beatons Creek mineralisation.

No significant results were recorded. Although pyritic conglomerates were intersected. The hole may not have been deep enough and further interpretation of the stratigraphy intersected is recommended.

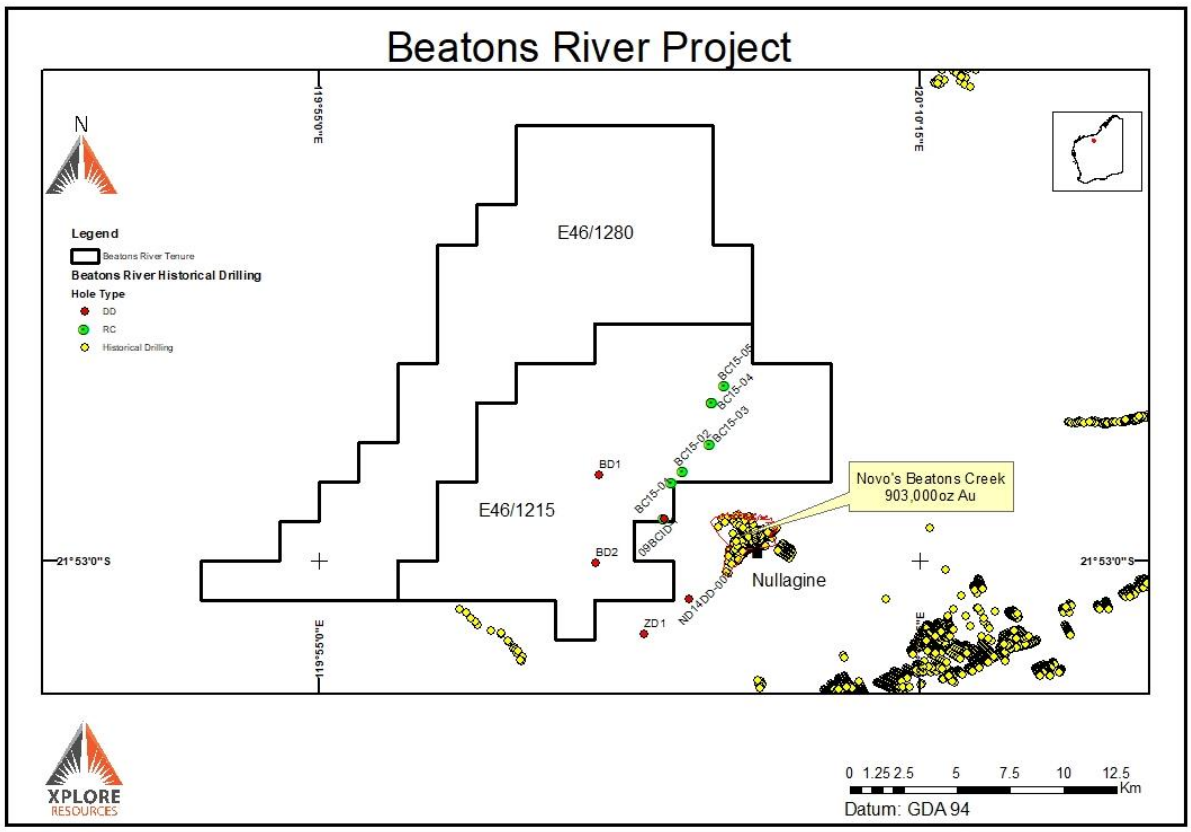


Figure 10.1: Drill Hole Location Beatons River Tenure and surrounds

10.2 CUPRITE EAST AND WEST PROJECT AREA DRILLHOLES

Many historical holes (RAB, percussion and RC) have been drilled inside and adjacent to the Cuprite tenements, with most of the holes targeting anomalous gold and base metals geochemistry.

WAMEX open file reports show 30 holes have been drilled, 12 holes in Cuprite East and 18 holes in Cuprite West**.**

A large number of holes have also been drilled at the nearby Dom's Hill and at other nearby prospects that are outside the Cuprite tenements.

Holes drilled within Cuprite East and Cuprite West are respectively listed below in Table 10.1 and Table 10.2.

Historical holes drilled in the Cuprite area are shown below in Figure 10.2 on page 127.

Significant drill hole intersections for holes drilled within the Cuprite Project and surrounding area are listed in Table 10.3. Drill hole locations are shown in Figure 10.3 on page 131.

Only one hole (KZ001, 4m @ 2.91g/t Au) with significant gold mineralisation has been drilled within the Cuprite tenure package, within the Cuprite West tenure (E45/4918).

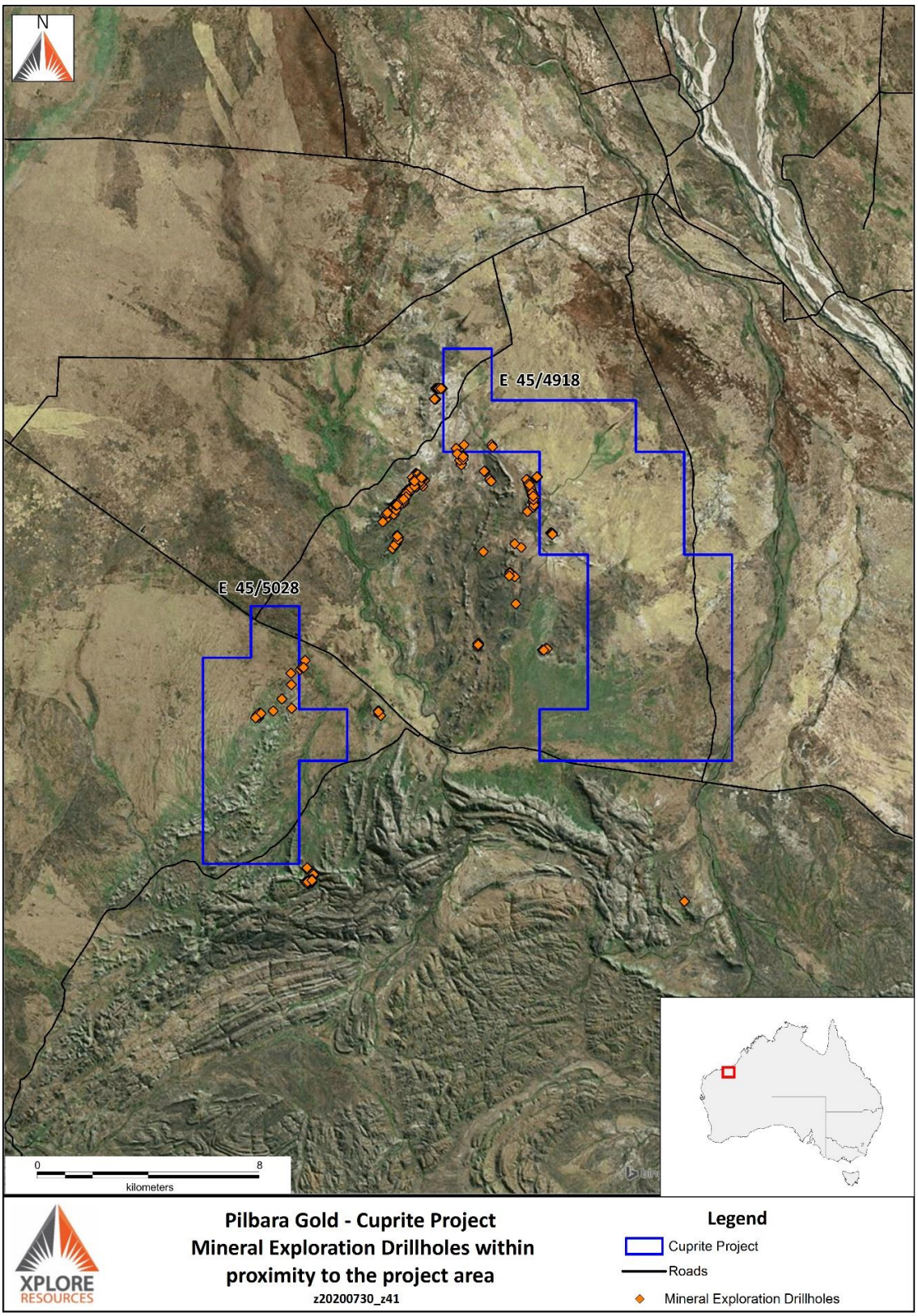


Figure 10.2: Historical drillhole locations, Cuprite East and West Project Area

Table 10.1: Drill Hole Summary – Cuprite East

HOLEID	COLLARID	HOLE TYPE	LATITUDE	LONGITUDE	OPERATOR	DEPTH	ANUMBER
E45/4919							
GRR170	3927861	RAB	-20.7600397	119.5530804	Kalamazoo Resources Pty Ltd	19	108779
GRR171	3927862	RAB	-20.75992945	119.5526005	Kalamazoo Resources Pty Ltd	19	108779
GRR172	3927863	RAB	-20.76006555	119.5524348	Kalamazoo Resources Pty Ltd	19	108779
GRR173	3927864	RAB	-20.76008583	119.553014	Kalamazoo Resources Pty Ltd	19	108779
GRR174	3927865	RAB	-20.76014497	119.5529229	Kalamazoo Resources Pty Ltd	19	108779
GRR175	3927866	RAB	-20.76025475	119.5527663	Kalamazoo Resources Pty Ltd	19	108779
GRR176	3927867	RAB	-20.76039868	119.5527688	Kalamazoo Resources Pty Ltd	19	108779
GRR177	3927868	RAB	-20.76045734	119.5531076	Kalamazoo Resources Pty Ltd	19	108779
GRR178	3927869	RAB	-20.76057066	119.5529559	Kalamazoo Resources Pty Ltd	19	108779
NERB023	1187991	RAB	-20.73210237	119.5322765	ATLAS GOLD LTD	40	71514
NERB024	1187992	RAB	-20.73146484	119.5320356	ATLAS GOLD LTD	40	71514
SA20RC002	273504	RC	-20.73262077	119.5197311	SHAW RIVER RESOURCES LTD	51	78384

Table 10.2: E45/5028Drill Hole Summary – Cuprite West

HOLEID	COLLARID	HOLE TYPE	LATITUDE	LONGITUDE	OPERATOR	DEPTH	ANUMBER
ANZACA	3930074	UNKN	-20.80910754	119.4626049	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYA	3930146	UNKN	-20.81985143	119.4513606	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYB	3930147	UNKN	-20.81845047	119.452087	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYC	3930148	UNKN	-20.81836212	119.4519511	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYD	3930149	UNKN	-20.81833655	119.451845	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYE	3930150	UNKN	-20.8182575	119.4516901	Kalamazoo Resources Pty Ltd	UNKN	A108778
IBBYF	3930151	UNKN	-20.81900692	119.4516926	Kalamazoo Resources Pty Ltd	UNKN	A108778
KZ001	1043528	RC	-20.81914924	119.4505809	PANDELL PTY LTD	100	A91892
KZ002	1043529	RC	-20.81946929	119.4509318	PANDELL PTY LTD	200	A91892
KZ003	1043530	RC	-20.81870809	119.4511212	PANDELL PTY LTD	150	A918921
KZ004	1043531	RC	-20.8198307	119.4502846	PANDELL PTY LTD	150	A91892
KZ006	831891	RC	-20.81673629	119.4626905	Great Sandy Pty Ltd	150	A91451
KZ007	831892	RC	-20.80546169	119.4624592	Great Sandy Pty Ltd	150	A91451
KZ008	831893	RC	-20.80421384	119.4657231	Great Sandy Pty Ltd	150	A91451
KZ009	831894	RC	-20.80351892	119.4663264	Great Sandy Pty Ltd	150	A91451
KZ011	1043532	RC	-20.81902038	119.4507517	PANDELL PTY LTD	150	A91892
KZ012	831896	RC	-20.81768499	119.4563579	Great Sandy Pty Ltd	150	A91451
KZ013	831897	RC	-20.81381327	119.4593682	Great Sandy Pty Ltd	150	A91451
KZ014	831898	RC	-20.80908962	119.462595	Great Sandy Pty Ltd	150	A91451

Table 10.3: Significant Drill Hole Intersections within the Cuprite Project & surrounding area

HOLE ID	DEPTH (m)	INTERVAL (m)	ASSAY (g/t Au)	LOCATION	ANUMBER
NERB008	4-5	1	7.44	0.2km W	A71514
NERB018	27-28	1	1.86	0.3km W	A71514
NERB019	20-24	4	2.00	0.2km W	A71514
	including 1m (23-24m) @ 4.03g/t Au				
NERB021	32-34	2	2.12	0.2km W	A71514
NERC002	38-39	1	14.4	0.2km W	A71514
NERC005	15-16	1	4.33	0.2km W	A71514
NERC009	20-24	4	1.88	0.2km W	A71514
DHRC0209	13-14	1	1..9	0.2km W	A71514
DHRC0204	32-37	5	5.32	2.3km W	A71514
	including 3m (34-37m) @ 4.69g/t Au				
DHRC0213	26-28		5.63	2.4km W	A71514
DHRC0213	28-32		1.86	2.4km W	A71514
	including 1m (29-30m) @ 6.62g/t Au				
DHRC0225	12-13	1	3.53	2.4km W	A71514
DHRC0230	27-32	5	5.32	3km W	A71514
	including 3m (27-30m) @ 7.61g/t Au				
DHRC0230	38-39	1	3.32	3km W	A71514
DHRC0230	40-41	1	3.24		A71514
DHRC0234	8-9	1	3.7	2.3km W	A71514
GRR028	18	Grab Sample	3.07	5km W	A108778
KZ001	8-12	4	2.91	In tenement	A103961

10.3 FORTUNA AND TYCHE PROJECT AREA DRILLHOLES

There have been no recorded, historical, exploration drilling in the current tenure area.

Approximately 10km NW of the Fortuna tenement lies the Mt Elsie Project where there has been extensive historical RAB and RC drilling targeting structurally controlled gold mineralisation with mafic/ultramafic rocks of the Euro Basalt Formation (Figure 10.3 on page 131).

A total of 418 mineral exploration drill holes (RAB, RC) were drilled between 1998 and 2005 by various companies.

A summary of significant RAB results is given below and RC results in Table 10.4 (Allmark, 2003).

Table 10.4: RC Drilling Intercepts Mt Elsie (Allmark, 2003)

Hole ID	Northing	Easting	Interval	Intersection
ERC005	7609378	250185	56 – 64	8m @ 0.52g/t Au
ERC006	7609465	250090	60 – 68	8m @ 0.13g/t Au
ERC007	7609495	250070	24 – 28	4m @ 0.14g/t Au
			36 – 40	4m @ 0.73g/t Au
			80 – 84	4m @ 0.33g/t Au
ERC008	7609445	250036	64 - 68	4m @ 0.25g/t Au
			76 - 80	4m @ 0.80g/t Au
ERC015	7609333	249077	84 - 88	4m @ 1.13g/t Au
ERC016	7609307	249084	28 - 32	4m @ 0.75g/t Au
ERC023	7608556	250575	36 - 48	12m @ 0.95g/t Au
ERC025	7608638	250635	0 - 4	4m @ 1.44g/t Au

Wedgetail Mining Limited completed 32 RC drill holes approximately 10km west-southwest of the Fortuna tenement over the Eastern Creek Mining Centre. These were drilled in 2007 and 2008 and target commodity was gold (Tuffin. T, et al., 2008). Table 10.5summarises significant intercepts.

Table 10.5: Significant RC drill Intercepts Wedgetail Mining Limited (Tuffin. T, et al., 2008)

Wedgetail Mining Ltd, Nullagine Project, Drilling Results (>1.00g/t Au)								
Eastern Creek								
Hole ID	MGA Coordinates				*Significant Intersections*			
	Easting (m)	Northing (m)	Dip	Azi_Mag	From (m)	To (m)	Interval (m)	Grade (g/t Au)
ECRC0009	253197.17	7598715.64	-90	360	19	21	2.00	3.26
ECRC0011	253203.64	7598733.03	-60	284	20	21	1.00	3.24
ECRC0012	253218	7598733.66	-70	284	29	30	1.00	2.13
ECRC0014	253223.61	7598769.59	-80	290	49	50	1.00	6.31
ECRC0017	253277.87	7598883.51	-70	284	24	25	1.00	18.50
ECRC0018	253277.87	7598887.78	-60	284	6	8	2.00	1.65
ECRC0019	253257	7598807	-48.5	249	35	36	1.00	11.30
ECRC0020	253258	7598807	-65	249	37	40	3.00	9.03
					58	59	1.00	6.25
ECRC0021	253336	7598999	-60	222	4	5	1.00	1.65
ECRC0022	253337	7599000	-55	251	2	3	1.00	2.62
ECRC0023	253275	7598943	-60	238	3	5	2.00	7.69
ECRC0025	253279	7598937	-60	232	17	18	1.00	8.68
ECRC0027	253267	7598851	-55	278.5	19	20	1.00	6.58

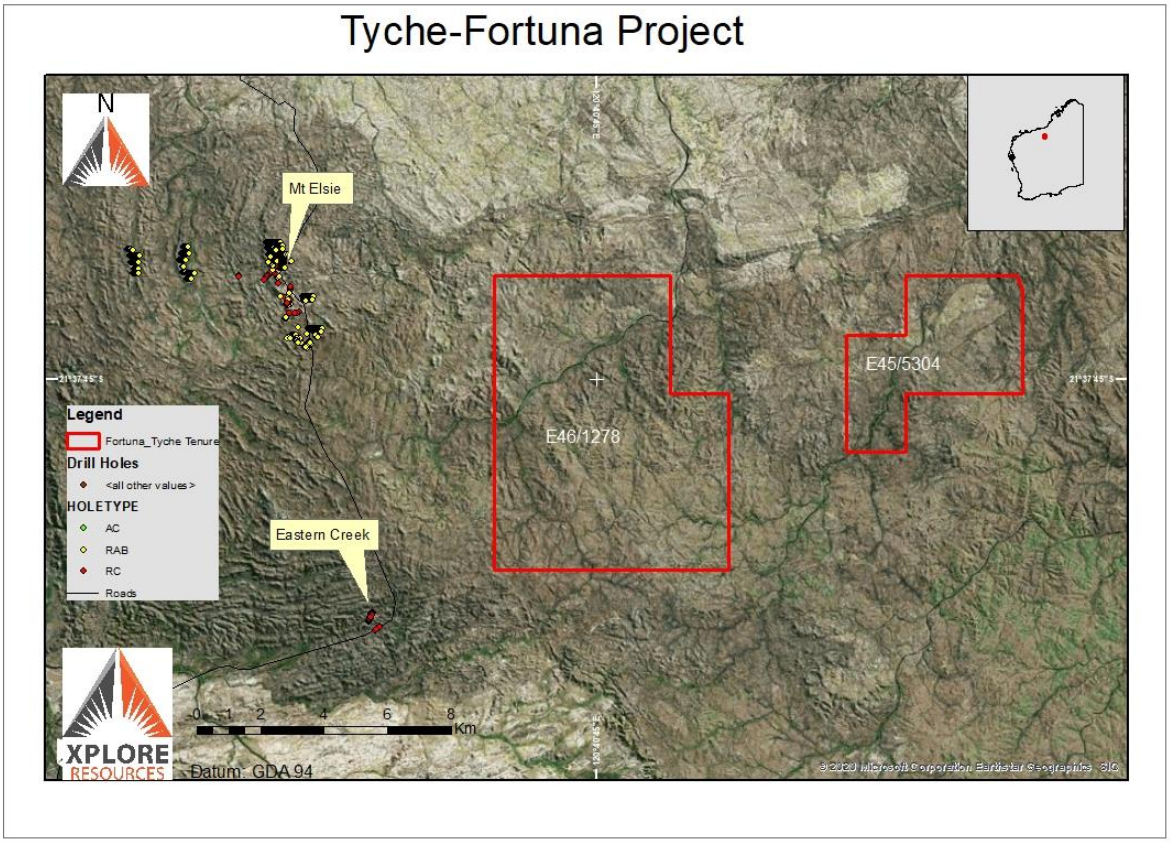


Figure 10.3: Near Tenure Drilling, Fortuna and Tyche Project Area (Government of Western Australia, 2020)

10.4 NORTIA PROJECT AREA DRILLING

There has been no recorded, historical, exploration drilling in the current tenure area. Nearby drilling outside of the tenement area did yield anomalous gold assay results.

A summary of significant nearby results is given in Table 10.4 in the previous Fortuna and Tyche section of this report.

There were 32 mineral exploration drill holes drilled approximately 2km west-southwest of the Fortuna tenement over the Eastern Creek Mining Centre. These were drilled in 2007 and 2008 and target commodity was gold (Figure 10.4 on page 132).

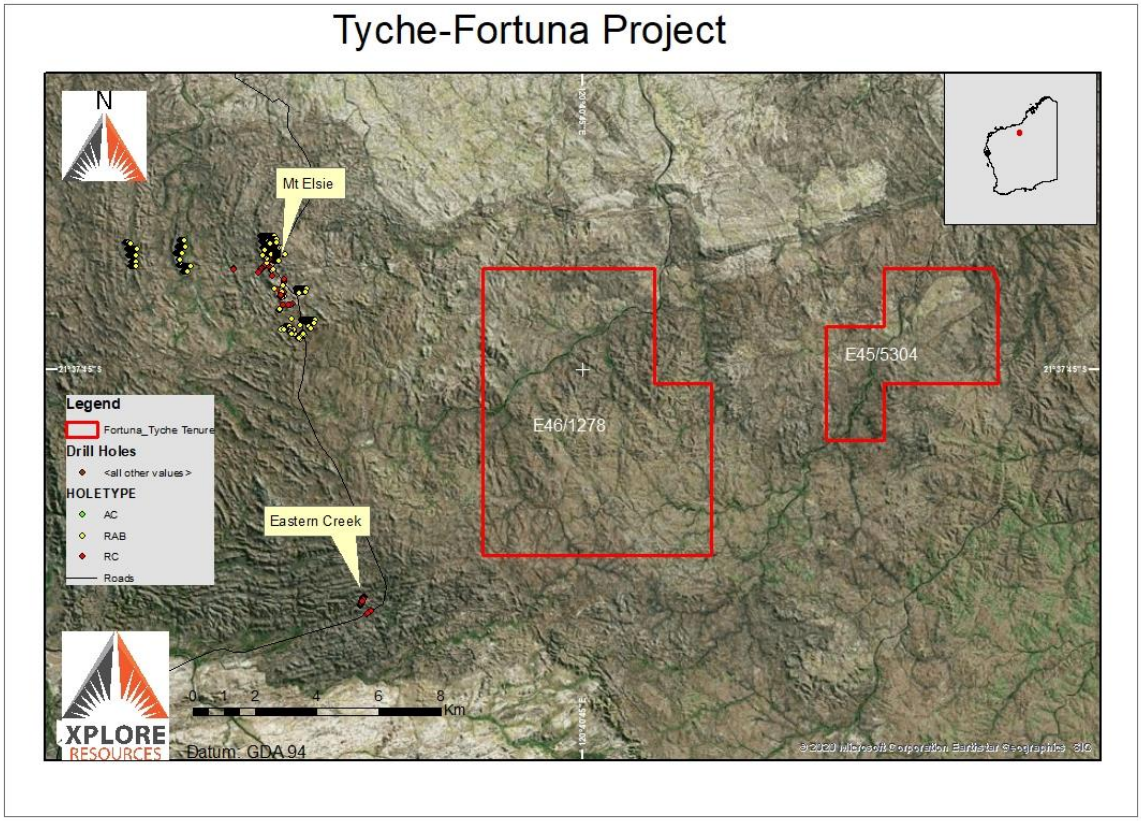


Figure 10.4: Near Tenure Drilling locations, outside of the Nortia tenement

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

This section details the methods used in sample preparation, analyses and security. As the new holder of the tenement package, Graphite Energy Corp has not had an opportunity yet to take their own samples such as stream sediment, rock chip, soil, costean or drilling samples.

As for all of the historical sampling that was done by other, unrelated companies over the years, there is little to no information recorded on how sample preparation, analyses and security were executed during the period of their own respective sampling and reporting.

To put this in a proper context, some background on the methods used in Australian States and Territories by each respective Mines Department on the recording and storage of historical, exploration data is warranted here.

In the case for all the respective State and Territory Mines Departments, there is mandatory, yearly reporting of all exploration activities conducted on every tenure whether it's mineral, coal or oil and gas.

This annual report data is submitted by each tenure holder and kept in a confidential status until that company relinquishes part or all of the tenement.

Once that data is off the confidential status, it becomes part of the public domain ("Open File") and can be accessed, viewed and downloaded via each Mines Department's digital portal by any interested party.

Since the digital age of reporting came into effect more or less in the late 90s, all records were submitted electronically but prior to that, all records were submitted via hard copy. In order to have all data readily accessible in digital format, all the hard copy data had to be digitised.

As a result of this digitisation process, some older, hard copy records from the 1950s to the 1980s were in very poor condition and coupled with the inevitable misplacement and loss of physical data in a few cases, the available open file dataset is not quite 100% complete.

Furthermore, given the cyclical boom and bust periods throughout the last 50 years in the Australian exploration and mining industries, the amount of data submitted yearly can vary significantly and during boom times, Mines Departments have struggled to vet each and every submission into their respective systems.

As a consequence of this, some companies inadvertently did not submit all of their exploration data. This only has significance where sample data was assayed but the original lab data was not submitted and/or there were samples assayed but not recorded at all.

Where this has relevance in sample data preparation, analyses and security is the fact that in general mineral exploration reporting throughout Australia, including Western Australia, it is not compulsory to describe these three topics in any detail within the confines of regular annual reporting.

Consequently, the comprehensive research and checking that has been done for the compilation of this report has found very little record of how these three topics were covered by each of the historic tenure holders.

It is a recommendation from this report that the Pilbara Gold Group ensure that they not only met their statutory obligations in reporting once they commence exploration work but also keep detailed records on sample preparation, analyses and security.

This will ensure future technical reporting, especially for public release, will comply with industry standards for the reporting of sampling techniques and security

12.1 DATA VERIFICATION

As stated in Section 11.0, Graphite Energy Corp has not had an opportunity yet to take their own samples such as stream sediment, rock chip, soil, costean or drilling samples.

The data verification process involved in the compilation of this report was solely based on the interrogation of all publicly available data (“Open File Data”) from historical records pertaining to the companies who have held tenure intersecting or in close proximity to the current tenement package now held by the Pilbara Gold Group.

Data verification involves the checking of all relevant quantitative and qualitative records associated with historical exploration programs. The type of data to be verified includes:

Assay data – preferably from an independent, certified analytical laboratory where acknowledged and accredited QA/QS is performed.

Locational data – co-ordinate data from either surveyed location and/or locations recorded by GPS or DGPS (Differential Global Positioning by Satellite).

Lineal, areal or 3D measurements – this includes the measurement downhole by the sampling in intervals from drilling data e.g. a record of 3.5m @ 6.7g/t Au or an areal measurement pertaining to a two dimensional area e.g. 1.5 square kilometres or a 3D measurement such as a volume or mass recorded in cubic metres and/or metric tons (tonnes) respectively.

Orientation or directional data – this usually pertains to drilling where such parameters as dip, dip direction or azimuth and geotechnical data measured and recorded from oriented diamond drilling core.

Qualitative data – this task is performed by reviewing the relevance of the descriptions and interpretations recorded in relation to the data highlighted or promoted by previous tenure holders.

Adjectives such as *significant, highly significant, high, very high, anomalous, very anomalous* and terms like *up to* and *as high as* can be sometimes misleading or even unwarranted and may need to be rephrased to better represent the significance of individual or group results or even the overall prospectivity of a project.

The workload for the task of data verification was delegated to experienced, senior geologists, each with 30+ years' experience, to do the data validation of each respective tenement.

This process involved checking each individual statement of assay results pertaining to exploration sampling carried out on historical tenure that either intersected or was in close proximity to the current tenure and cross referencing those reported assay results against recorded assay result data from an independent, certified analytical laboratory.

Wherever possible, historical sampling data with co-ordinates and assay data and any other descriptive data was uploaded to GIS software, in this exercise MapInfo was utilised, after the data had been validated by a senior geologist.

Subsequent maps and plans (or cross sections, long sections) are then generated for validation as well as the general interpretation of each plot of data and its relevance to the overall understanding of the mineralisation and geology of the areas of interest explored.

12.2 QUALIFIED PERSON'S OPINION

In consideration of the author's personal involvement during most of the data verification process that took place at Xplore Resources' Brisbane office as well as the author's own high level review of all the data available, the author considers that the requisite amount of data verification and validation has been performed for this report.

Furthermore, given the author's association with Xplore Resources over the last two years, the author is confident that the research and verification done by Xplore personnel have been done at a level consistent with current industry standards.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

As there are no resources or reserves within any of the four Project Areas, there is no data to be included in this section. However, the Beatons River Project Area has the potential to host conglomerate gold mineralisation in the same style and form as that currently being mined from the neighbouring Beatons Creek Gold Project held by Novo Resources.

The other three Project Areas do not have enough data to warrant any discussion until more is known about the type of mineralisation and metallurgical properties of mineralisation styles. Therefore, it would be appropriate to briefly discuss the Mineral Processing and Metallurgical Testing work that has been done to date on the Beatons Creek Gold Project by Novo Resources.

The following excerpts are from Novo Resources' 2019 NI 43-101 Report entitled *"Mineral Resources Update, Beatons Creek Conglomerate Gold Project, Pilbara Region, Western Australia"*.

"A significant quantity of gold recovery test work exists on Beatons Creek oxide material but it is difficult to collate the data into a single congruent dataset with comparable recovery results due to the various different test methods (Arrowsmith, Parker and Dominy, 2019). A typical overall recovery would be 94.6% with a gravity recovery of about 67.3% for the pre 2018 bulk sample results".

"The initial 42 results are encouraging and support the historical test data. The weighted average overall gold recovered to the gravity concentrate and leached from the gravity tail was 97.3%, with 58.3% recovered to the gravity concentrate."

"Petrographic and mineralogical analyses completed on samples of fresh drill core provide insight into the gold size, mineral association and deportment (Arrowsmith, Parker and Dominy, 2019). Key findings of the mineralogical analyses that provide some confidence that high gold extractions can be achieved from the Beatons Creek fresh mineralisation are:

- *Gold is present mainly as native gold from 1 µm to 1,000 µm in size.*
- *A significant proportion of the gold reports to the +150 µm fraction (high gravity recovery can be expected).*
- *The majority of the gold is liberated (free milling) and high leach recovery can be expected."*

"Mineralogical assessments of the Beatons Creek fresh mineralisation showed a strong association with gersdorffite, a nickel arsenic sulphide, as well as gold associated with chalcopyrite and grains of carbon. The six HQ diamond drill holes that have been used for metallurgical test work are located at Grants Hill (M1 and M2 reefs) and South Hill (CH1 and CH2 reefs) (Arrowsmith, Parker and Dominy, 2019)."

"All intersections are in fresh (sulphide) mineralisation within the open pit shell. Samples were selected from drill core stored in trays by identifying the true reef width based on buck shot pyrite geological markers (gold is associated with detrital pyrite (2mm to 65mm in diameter) resulting in true reef widths of 0.57m to 1.68m."

"A minimum mining width of 1m was applied and a minimum sample interval length of 1m was selected for those samples with a true reef width <1m. In addition, internal dilution from below the footwall and above the hanging wall was included in the selected interval length."

"Each set of three reef intersections were then blended to form four master composites (for each reef: M1, M2, CH1 and CH2) for recovery test work ranging from 50.6 kg to 66.5 kg. The following test work was undertaken:

- *Head grade of master composite;*
- *Three-stage GRG test work (on master composite);*
- *Kinetic leach testing (on tails); and*
- *Diagnostic testing (on tails)."*

*"Comminution test work shows that the Beatons Creek fresh material is competent with an average Bond ball mill work index for Grants Hill of 18.8 kWh/t. SMC test data indicates that the Beatons Creek fresh mineralisation is moderately competent with an average A*b of 47.8 and a range of 38.0 (hard) to 56.6 (soft)."*

"Test work also shows that the Beatons Creek fresh mineralisation is abrasive with an average of 0.26 (similar to the oxide material). The weighted average head grade for the M1 and M2 composites were 5.46g/t Au and 4.35g/t Au respectively, which compares well to the assayed head grade of 5.39g/t Au for M1 and 4.85g/t Au for M2.".

"Geochemical analysis on the Grants Hill composites indicates elevated levels (levels greater than three times the geochemical abundance index) of arsenic, mercury and antimony. Size by assay results indicate that the majority of the gold is in the +150 µm fraction, with 87.3% and 87.9% of the gold in the M1 and M2 composites residing in the coarsest fraction."

"The kinetic leach results for the Grants Hill composites indicates relatively fast leach kinetics with a minor impact of grind size on leach extraction. The average 24 hour leach extraction for all six tests (regardless of grind size) was 93.3%.

The results indicate a slight reduction in the gold concentration in solution over the leach profile and therefore the potential for pre-robbing cannot be ruled out."

"The diagnostic leach data on the gravity tails for the two Grants Hill composites indicates that the majority of the gold is cyanide soluble with 80% and 87.2% extracted at a low cyanide concentration for M1 and M2 composites respectively."

"Additional gold was extracted under more intense cyanidation suggesting that overall recovery from cyanidation for these two composites could be as high as to 92% to 93%. The remainder of the gold sample was not readily cyanide recoverable due to it being occluded, locked in silicates, refractory or sulphide solid solution gold."

14.0 MINERAL RESOURCE ESTIMATES

There have been no mineral reserve and/or mineral resource estimates done for any of the four Project Areas.

However, Mineral Resource Estimates for the neighbouring deposits to the Beatons River Project Area, namely Novo Resources' Beatons Creek Gold Project, Pacton Gold's Impact 5 Gold Project and Millennium Minerals' Nullagine Gold Project are included in the following section of this report i.e. Section 15 ADJACENT PROPERTIES.

15.0 ADJACENT PROPERTIES

15.1 BEATONS RIVER PROJECT AREA

The Beatons Creek Gold Project, near the town of Nullagine in Western Australia, is one of Novo Resources Pilbara Palaeoplacer gold projects and is directly adjacent to the Beatons River Project tenements discussed in this report.

At Beatons Creek, Novo is exploring for gold-bearing conglomerates within the Hardey Formation, part of the Fortescue Group, a thick sequence of ancient sedimentary and volcanic rocks. Historic mines near the town of Nullagine exploited pyritic gold-bearing reefs as early as the late 1800's. Otherwise, the area has seen only limited modern exploration.

Through a 100% interest in certain tenements and a joint venture agreement with the Creasy Group on others (70% Novo, 30% Creasy Group), Novo is undertaking systematic exploration for gold-bearing reefs across this approximately 160 square kilometre project, employing large diameter diamond drilling, 50 kg costean sampling and approximately 2 tonne bulk sampling to progress resource definition work.

An updated Mineral Resource estimate for the Beatons Creek gold project has resulted in an Indicated Mineral Resource of 457,000 oz Au and an Inferred Mineral Resource of 446,000 oz Au for a total 903,000oz Au at 2.53g/t Au (Novo 2019, Table 15.1).

Table 15.1: Total Mineral Resources open pit and underground.

Classification	Cut-off Grade (g/t Au)	Tonnes	Grade (g/t Au)	Ounces Troy Au
Indicated	0.50	6,645,000	2.1	457,000
Inferred	0.50, 3.5	4,295,000	3.2	446,000

Source: Novo Resources Corp NI 43-101 Technical Report 2019

The Nullagine Gold Project of Millennium Minerals Ltd is in the Pilbara region of Western Australia, approximately 185km north of Newman. Gold production from the Nullagine Project is sourced from six mining centres established over a +40km strike length.

The project is approximately 10km south from the Beatons River Project.

The Nullagine Project deposits are structurally controlled, sediment-hosted, lode-style gold deposits. They are all situated in the Mosquito Creek Basin that consists predominantly of Archean aged, turbidite sequences of sandstones, siltstones, shales and conglomerates.

The mineralisation was interpreted on cross-sections and modelled in three-dimensions using a 0.5g/t Au cut-off grade for open pits and a 2.0g/t Au cut-off grade for mineralisation that is planned to be mined using underground methods (Millennium 2018).

Following the implementation of a new mining strategy and aggressive exploration campaigns throughout 2017 and 2018, gold production has increased from an historical average of approximately 80,000 ounces per annum to a current production run-rate of 90 - 100,000 ounces per annum.

Production from Nullagine has traditionally been sourced from open pits, however mining commenced at the Company's first-ever underground mine at Bartons in late 2018 and a second underground mine was scheduled to be developed at Golden Gate in late 2019.

Exploration is focused on delivering higher-grade ore sources that will increase head grade and reduce operating costs Ore is processed at the 2Mtpa Golden Eagle CIL ore treatment plant, with the ore delivered from multiple ore sources to a 150,000 tonne capacity stockpile where a front end loader re-handles the ore into a ROM (run-of-mine) crusher feed bin.

Separate smaller stockpiles account for varying material hardness and grade, allowing for blending and process optimisation. A two-stage expansion of the Golden Eagle plant is currently underway to accommodate the treatment of sulphide ore.

Table 15.2: December 2018 Mineral Resource Estimate by Resource Category (Source Millennium Minerals (ASX: MOY)

Mineral Resource Category	Million Tonnes	Grade (g/t Au)	Thousand Ounces
Measured	5.69	1.6	287.6
Indicated	9.19	1.5	461.6
Inferred	7.97	1.6	410
Total	**22.85**	**1.6**	**1,159.1**

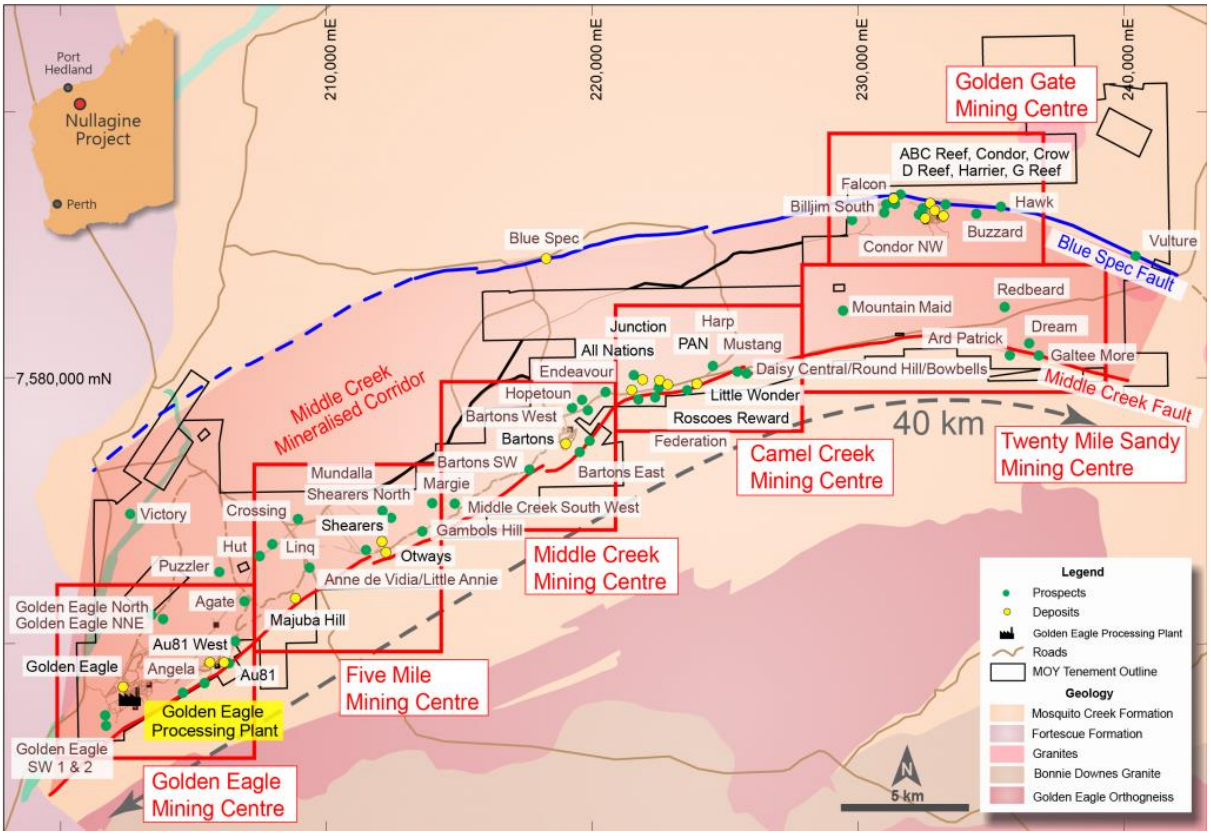


Figure 15.1: Millennium Minerals Operations Nullagine

Pacton Gold has acquired approximately 1,126km² of strategic conglomerate hosting exploration properties in the Pilbara. Their total land portfolio has now increased to approximately 2,227km², which equates to approximately an 18.6% increase in holdings when compared to the size of Novo Resources Corp. (TSXV: NVO) land holdings, of approximately 12,000km².

Previous exploration indicates at least 90km of prospective Fortescue Group conglomerates occurring at or near-surface on its granted licenses, to the west and east of Marble Bar as well as close to the Beatons Creek gold deposit (Novo) near Nullagine.

Pacton's Impact 5 tenement is located approximately 17km northwest of Novo Resources' Beatons Creek project and lies on the western edge of the Hardey formation plateau and is contiguous with the Beatons River Project's E46/1280 (Figure 15.2 on page 140).

Pacton has stated that they have established a stratigraphic equivalency between the exposed Impact 5 western plateau edge and the productive stratigraphy at Beatons Creek.

Moreover, the Hardey Formation within the Impact 5 tenement is intensely fractured with steep dipping faults and multiple networks of low displacement shears that collectively form a pervasive fracture network. The initial Impact 5 exploration program will consist of surface prospecting along the Hardey plateau's western edge and along dissected drainages.

A specific 70m thick stratigraphic interval will be investigated on the basis that it is interpreted to correlate with the Beatons Creek gold-bearing stratigraphy. Additionally, the intense fracture network will be sampled on surface, in drainages and along the western Hardey plateau edge.

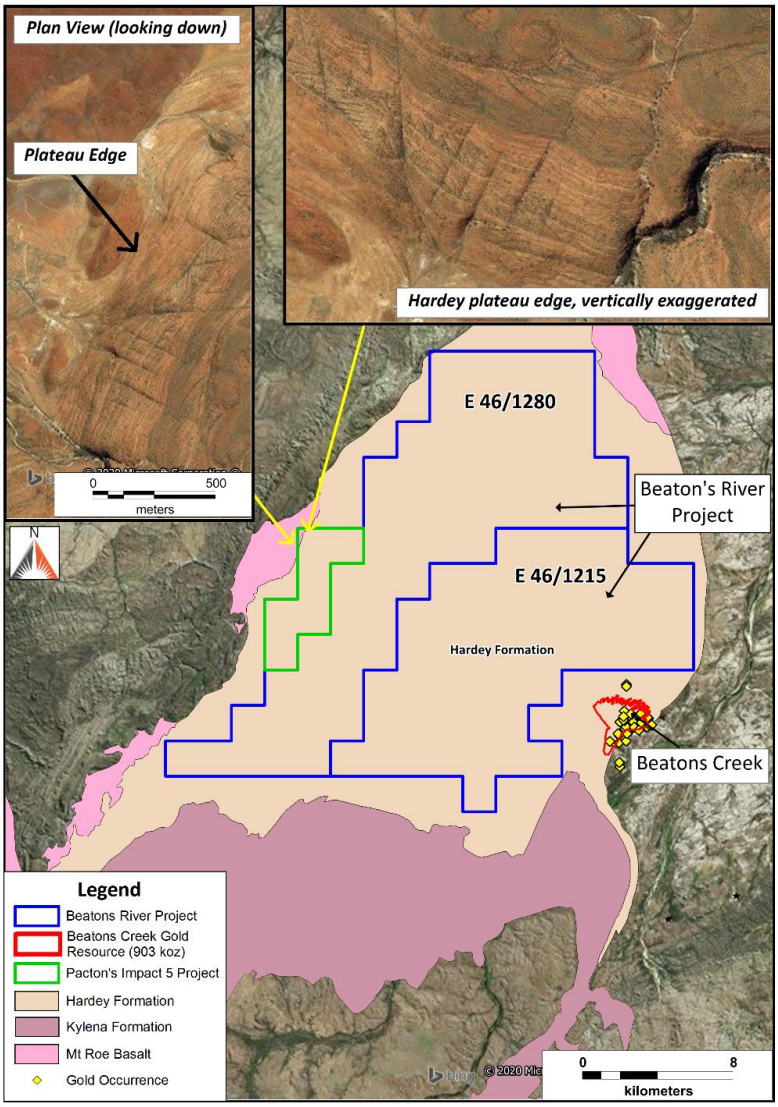


Figure 15.2: Pacton Gold Impact 5 Tenure adjoining Beatons River's E46/1280

The global demand for gold continues to grow buoyed on by a strong gold price (circa $1935 USD/oz as at late August, 2020). Nullagine is part of the Pilbara premier gold province and has attracted many junior exploration companies including several Canadian based companies. There are three listed companies working near the Beatons River Project:

- Novo Resources Group (TSX-V: NVO);
- Pacton Gold (TSX-V:PAC); and
- Millennium Minerals (ASX: MOY).

Table 15.3: Novo Resources Group (TSX-V: NVO), Key ASX Announcements

Key Announcements	Key Points	Date
Novo Signs Binding Terms Sheet with Mark Creasy and Consolidates 2,900km^2 of Prospective Pilbara	acquisition of Creasy Group's residual interest in 20 tenements acquisition of 100% ownership in 55 tenements acquisition of a 70% interest in 3 tenements	15-Jun-2020

Key Announcements	Key Points	Date
Tenure		
Encouraging results Beatons Creek fines	Testing of sub-6mm fractions of Beatons Creek conglomerate gold mineralization has yielded results exceeding our expectations	09-April-2020
Mechanical Sorting Tests Result in Significant Upgrades at Novo's Beatons Creek Project	has recently conducted laboratory-scale mechanical sorting tests on Beaton's Creek bulk sample material	29-Jan-2020
announce it is planning mechanical sorting test work on multi-tonne samples of gold-bearing conglomerate from its Beatons Creek project	Mechanical sorting of small particles of gold is seen as a potentially important breakthrough for Novo and its various nuggety gold projects throughout its large land holdings across the Pilbara.	26-Nov-2019
environmental approvals for mining the Beatons Creek conglomerate gold project	have been granted. Additionally, the final mining lease required to complete the Project, M46/532, has now been granted. All necessary tenure and Native Title agreements are now in place.	14-May-2019
Novo - Beatons Creek - NI43-101 2019	updated Mineral Resource estimate, Indicated Mineral Resource of 457,000 oz Au and an Inferred Mineral Resource of 446,000 oz Au	13-May-2019

Table 15.4: Pacton Gold (TVX-V: PAC), Key ASX Announcements

Key Announcements	Key Points	Date
Finalized initial 2019 exploration plans for three of its Pilbara orogenic and conglomerate gold projects in Western Australia.	Nullagine (Beaton's Creek) area Hardey formation conglomerate and fracture sampling. Most of tenements also contain the unconformably overlying, horizontal Fortescue Group gold-bearing Mount Roe and Hardey conglomerates.	24 Jan 2019
Pacton Gold Becomes 3rd Largest Land Holder in Australia's Pilbara Gold Rush and Significantly Expands its Gold-Bearing Conglomerate Portfolio	Acquisition of ~1,126km² of strategic conglomerate hosting exploration properties. Pilbara total land portfolio now increased to approximately 2,227km^2. Equates to ~18.6% increase in holdings when compared to the size of Novo Resources Corp. (TSXV: NVO) land holdings, of approximately 12,000km².	22 May 2018

Table 15.5: Millennium Minerals (ASX: MOY), Key ASX Announcements

Key Announcements	Key Points	Date
Millennium Minerals Delisted from ASX	ASX has decided that the company will be removed from the official list of the ASX Limited.	26-May-2020
Outstanding new high grade drill results at Golden Gate	Confirm the potential for next underground mine Results include D Reef 16m@7.06g/t Au ABC Reef 10m@5.06g/t AU	29-Jan-2020
Mill on track to develop major new high grade mining operation at Golden Gate	Mine development set to commence Q2 2019 Underpinning a strong uplift in head grade at Nullagine	06-March2019
More outstanding high grade drill results from Golden Gate	Mine development imminent Results include 10m@9.84g/t Au 5m@18.82g/t Au	17-April-2019
First gold delivered from sulphide ore at Nullagine	Stage 1 sulphide plant expansion delivers first gold production	26-June-2020

15.2 CUPRITE EAST AND WEST PROJECT AREA

At the effective date of this report, there are 13 surrounding tenements, owned by other individuals or companies that share a common boundary with the Cuprite Project.

Nine of the tenements are live (granted), while the other four are pending (application stage) (GeoVIEW.WA, 2020). A list of the tenements bordering each of the Cuprite tenements is shown below in Table 15.6 and Table 15.7 and their locations are shown in Table 15.8 on page 143.

Table 15.6: Tenements Adjacent to E45/4918 Cuprite East (GeoVIEW.WA, 2020)

TENEMENT	COMPANY	STATUS	GRANT DATE
E 45/3856	GREAT SANDY PTY LTD	LIVE	11/02/2013
E 45/4722	KALAMAZOO RESOURCES LIMITED	LIVE	14/02/2017
E 45/4887	KALAMAZOO RESOURCES LIMITED	LIVE	18/10/2017
E 45/4907	GIANNI, PETER ROMEO	LIVE	21/11/2017
E 45/5146	KALAMAZOO RESOURCES LIMITED	LIVE	16/10/2019
E 45/5687	SIPA EXPLORATION NL	PENDING	

Table 15.7: Tenements Adjacent to E45/5028 Cuprite West (GeoVIEW.WA, 2020)

TENEMENT	COMPANY	STATUS	GRANT DATE
E 45/3858	ATLAS IRON PTY LTD	LIVE	29/10/2012
E 45/4643	ATLAS IRON PTY LTD	LIVE	1/07/2016
E 45/4907	GIANNI, PETER ROMEO	LIVE	21/11/2017
E 45/4919	GREAT SANDY PTY LTD	PENDING	
E 45/4923	FASTFIELD PTY LTD	LIVE	3/10/2018
E 45/5487	GOLDEN MOUNT PTY LTD	PENDING	
E 45/5712	SIPA EXPLORATION NL	PENDING	

Recent ASX (Australian Stock Exchange) announcements by companies that have projects or tenements close to the Cuprite Project have been summaries as part of this report. Kalamazoo Resources' NL (ASX:KZR) announcements are likely the most significant as they share adjoining tenements and have an advanced prospect at Dom's Hill.

A summary of key announcements up to the effective date is provided in Table 15.8, Table 15.9and Table 15.10.

Table 15.8: Cuprite Project, Kalamazoo Resources NL (KZR) ASX Announcements

Date	ASX/TSX-V Code	Title	Announcement
8/7/20	KZR	Corporate Presentation	Corporate overview with no mention of the Dom's Project.
30/4/20	KZR	March 2020 Quarterly	No filed was undertaken at the Dom's Hill Gold Project during the quarter.
30/1/20	KZR	December 2019 Quarterly	New zone of gold nuggets discovered at Dom's Hill during metal detecting program. Gold nuggets were discovered at two locations within E45/5146 and five locations within E45/4722. No outcropping source for the gold nuggets has yet been identified.
15/1/20	KZR	Investment Presentation January 2020	Corporate overview of the company, with little mention of their Dom's Hill Project apart from "Field activities being planned for Q2 2020".

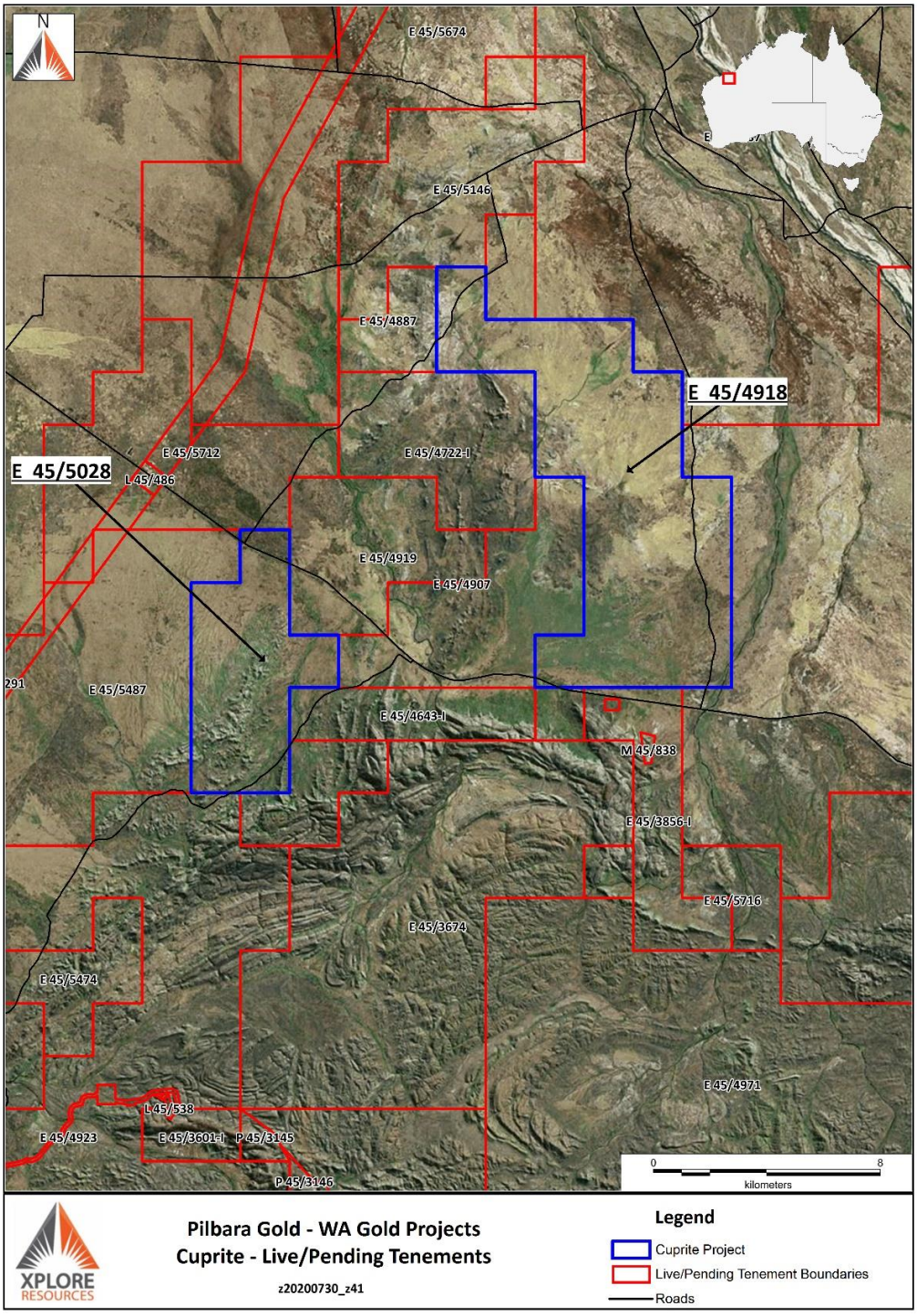


Figure 15.3: Tenements surrounding Cuprite East and West Project Area

Table 15.9: Cuprite Project, Novo Resources Corp (NVO) TSX Announcements

Date	ASX/TSX-V Code	Title	Announcement
15/7/20	NVO	Novo Signs Binding Terms Sheet with Mark Creasy and Consolidates 2,900km² of Prospective Pilbara Tenure	Acquisition of 20 tenements comprising 510km² and acquire ownership of an additional 2,390km² of highly prospective new tenure in the Pilbara region of Western Australia. The Transaction is subject to completion of definitive documentation and assignment of relevant third-party agreements as well as approval from the TSX Venture Exchange and other customary regulatory approval for transactions of this nature, including approval from the Australian Foreign Investment Review Board ("FIRB") for certain components of the Transaction.
10/7/20	NVO	Novo Completes Acquisition of Mt. Elsie Project	Announces that it has completed the acquisition of three exploration licences (the "Mt. Elsie Project") comprising an area of approximately 19km² located 75km north-east of the town of Nullagine, Western Australia and adjacent to numerous Novo wholly-owned tenements.
29/1/20	NVO	Mechanical Sorting Tests Result in Significant Upgrades at Novo's Beatons Creek Project	Nuggety gold occurring in Beaton's Creek conglomerates is finer grained (generally sub 1mm) than gold at Novo's Egina and Karratha projects (generally over 1mm). Nonetheless, initial laboratory-scale tests indicate an upgrade of gold into significantly reduced mass is achievable. • Test work was conducted on a 2.8 tonne split of crushed (-50mm) and screened Beaton's Creek bulk sample material. Analyses conducted as part of this sorting test work generated a calculated head grade of 5.72g/t Au for the bulk sample. The vast majority of gold reported to mechanically sorted concentrates in each of the three size fractions tested (*please refer to summary below*). An impressive 90.2% of gold was recovered in 54.5% of the mass of the +18/-50mm fraction, 68.8% of gold was recovered in 42.4% of the mass of the +6/-18mm fraction and 95.5% of gold was recovered in 20.3% of the mass of the +2.3/-6mm fraction. Material finer than 2.3mm, comprising 17% of the total mass of the bulk sample, was not tested due to excessive dust issues. Novo believes such material is treatable by means of gravity concentration. • Test results are considered indicative and Novo and Steinert see additional opportunity to optimise sorting conditions and parameters that may result in further efficiencies. Nevertheless, these tests indicate robust potential for upgrading nuggety conglomerate gold mineralisation and perhaps, a broader spectrum of gold mineralisation types. • A second 2.8 tonne split of the same bulk sample material has been delivered to TOMRA Sorting Pty Ltd.'s. mechanical sorting test facility in Castle Hill, New South Wales where it will soon undergo similar testing utilising various TOMRA mechanical sorters.

Table 15.10: Cuprite Project, Graphite Energy Corp (GRE.X) TSX Announcements

Date	ASX/TSX-V Code		Title	Announcement
16/7/20	GRE.X		Graphite Energy Corp. Name Change / Australian Goldfield/ Acquiring Pilbara Gold District Land Package in Western Australia	Details of a land acquisition agreement within the Pilbara Gold District in Western Australia and a name change to Graphite Energy Corp. The proposed acquisition included Beatons River, Cuprite West & East, Tyche, Fortuna & Nortia – delivers Graphite Energy Corp a sizeable prospective gold footprint across the Pilbara region in Western Australia

15.3 FORTUNA AND TYCHE PROJECT AREA

The nearby tenements indicate that other exploration and/or mining companies consider the area prospective.

The Boodalyerrie Project (E45/3586) is Pacton Gold's most easterly Pilbara tenement lies approximately 10km north of the Tyche tenure.

Pacton has stated that in addition to encouraging historic prospecting results, analysis of satellite image data (Figure 15.4 on page 146) indicates large areas of alteration within the

vicinity of the large quartz veins. This is interpreted as representing a stockwork of smaller, nested vein systems that present excellent, large, pervasive gold-bearing targets.

The Boodalyerrie tenement also contains over 20km of strike length along the contact of Fortescue Group rocks that unconformably overlie the tonalite pluton. The Fortescue Group Mount Roe formation and the directly overlying Kylena Formation are present.

Geological relationships indicate that the emplacement of the quartz veins precedes the deposition of the Mount Roe Formation. Consequently, the vein system is interpreted to probably extend in underneath the Mount Roe Formation.

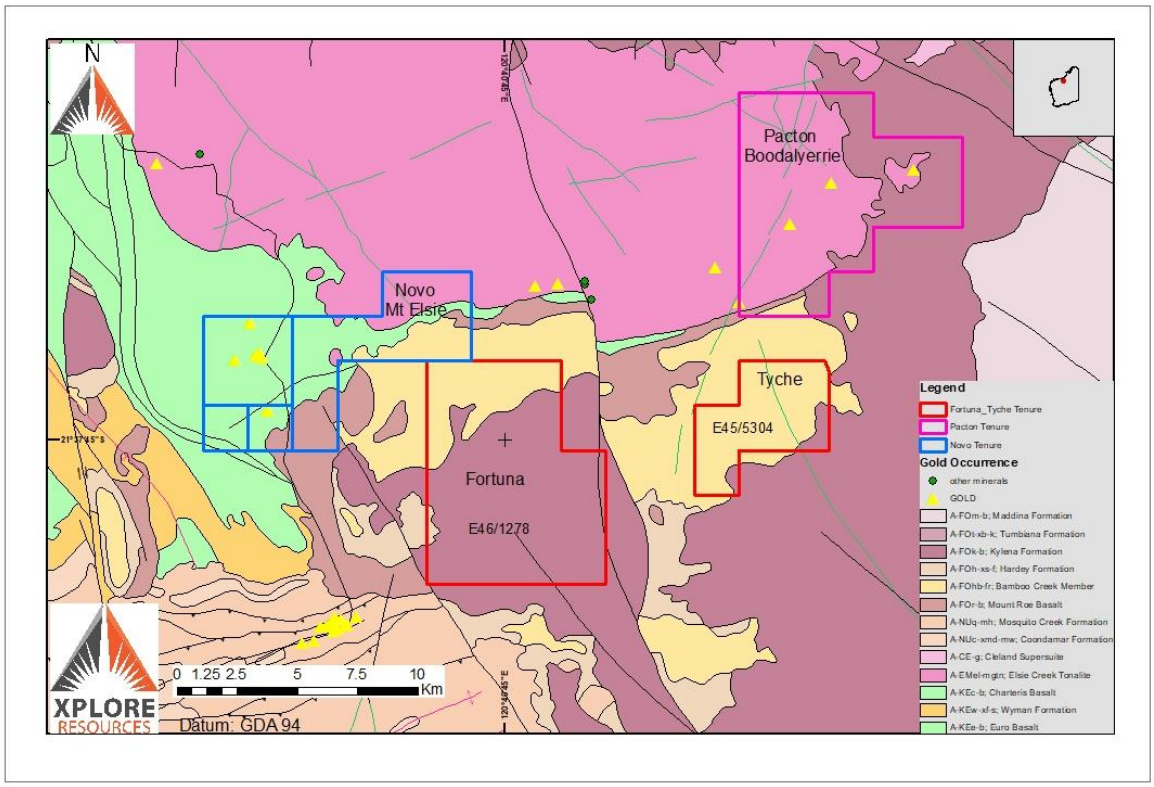


Figure 15.4: Nearby tenements – Fortuna and Tyche Project Area

Novo Resources Group has recently acquired three exploration licences (the "Mt. Elsie Project") comprising an area of approximately 19km^2 adjacent to numerous Novo wholly owned tenements (Figure 15.4).

Novo has stated:

"Numerous high-priority bedrock and alluvial gold targets have been identified by Novo staff at the Mt. Elsie Project. Novo plans to soon undertake work designed to generate drill targets for testing later this year. We see the Mt. Elsie Project as a new, important part of our strategy to build a future hub of production around our well-advanced Beatons Creek gold project near Nullagine."

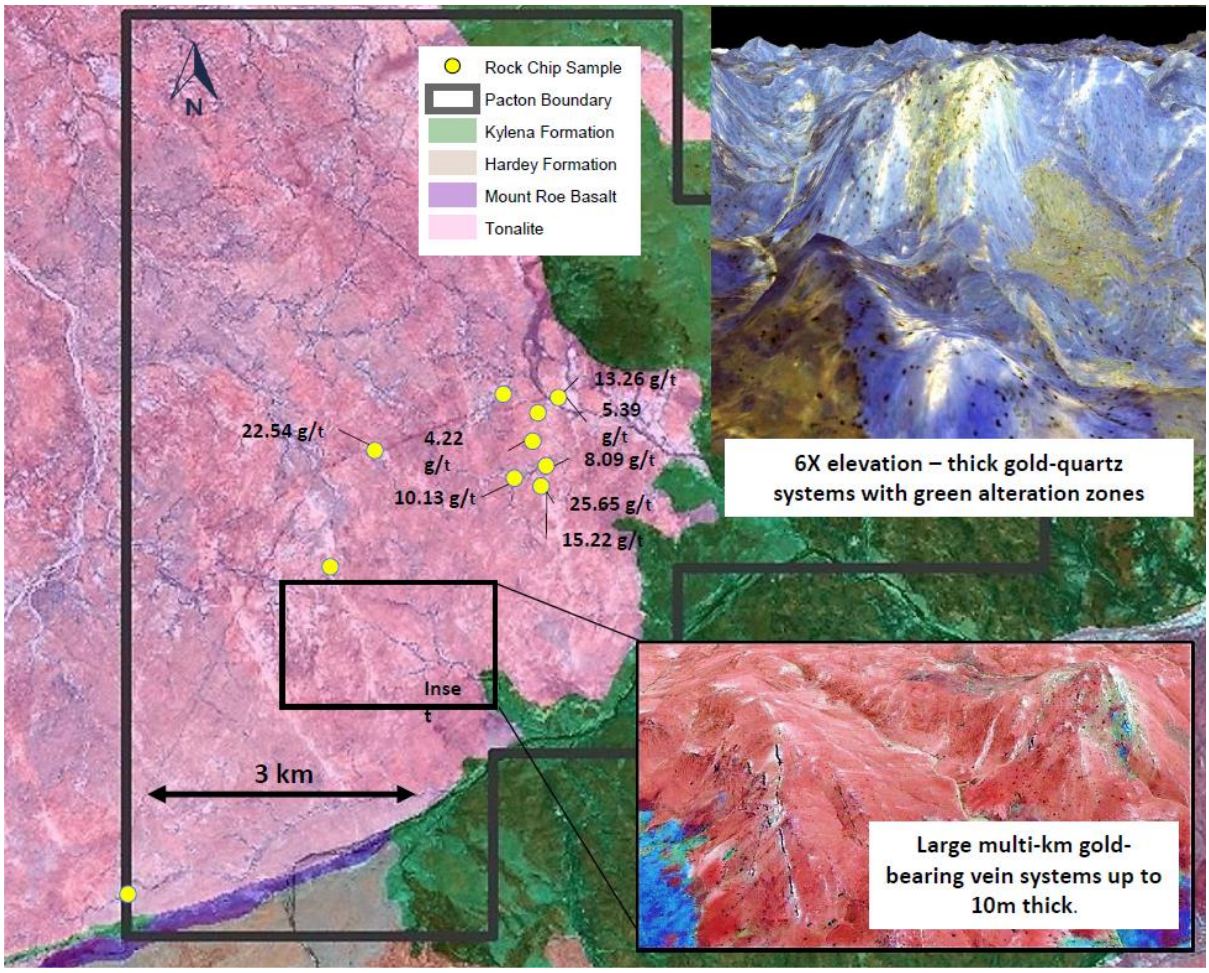


Figure 15.5: Satellite Image Pacton's Boodalyerrie Project (Pacton, 2020)

15.4 NORTIA PROJECT AREA

Apart from gold, the nearby tenements' surface sampling surveys focused on base metals, molybdenum, manganese and rarely iron.

There are a large number of gold projects approximately 2km north of Nortia. These occurrences sit in the Mosquito Creek Formation and this formation is in the Mosquito Creek Orogeny which is the same orogenic event as in the Nortia tenement.

This region should be monitored for developments in exploration, metallurgy and off-take agreements.

The following key ASX announcements for the one nearby peer company have been reviewed and are relevant to this report Table 15.11).

Table 15.11: Millennium Minerals Limited (ASX: MOY) Key Announcements (Australian Securities Exchange, 2020)

Key Announcements	Key Points	Date
Millennium Minerals Limited	An optimisation study initiated in June found ~20,000oz to be the optimum quarterly production rate for the Nullagine mining and processing operation based on sustainable operating parameters.	22-Oct-2019
Millennium Minerals Limited	Sustainable production of approximately 80,000ozs (CY2019 70-75koz).	12-Sept-2019
Millennium Minerals Limited	The Redbeard deposit is located within the Twenty Mile Sandy Mining Camp. This mineralisation trend was originally confirmed by a soil sampling programme that was carried out February 2017 and subsequent rock chip sampling carried out in the fourth quarter of 2017. An initial drill programme commenced in November 2017, with follow-up-fill RC drilling immediately carried out to generate a maiden MRE. The maiden Mineral Resource Estimate (MRE) for Redbeard was completed in January 2018, comprising an indicated and inferred Resource of 245,700t at 2.6g/t Au for 20,600oz.	28-Feb-2019
Millennium Minerals Limited	Successful exploration and growth programs deliver outstanding results, with +150,000oz added to Reserve base over CY2018, net of mining depletion of 98,900oz	04-Feb-2019

16.0 OTHER RELEVANT DATA AND INFORMATION

Due to the COVID-19 pandemic occurring during the compilation of this report, the lead author was not able to travel interstate from Queensland to Western Australia due to state and federal travel restrictions in Australia.

As a consequence of this, Xplore Resources managed to engage a Western Australian based Geologist, whom can act as a Qualified Person to complete site visit under the instructions and guidelines set out by the lead author.

In August 2020, Bryan Bourke, Resource Consultant Geologist and Nicholas Hoad, Field Assistant, carried out a five-day field reconnaissance of seven (7) tenements located in the East Pilbara region of Western Australia. An excerpt from their report is reproduced in part below.

Five tenements, Nortia – E46/1277, Fortuna – E46/1278, Tyche – E45/5304 and Beatons River E46/1215 and E46/1280 are located to the east and immediately adjacent to the Nullagine town site.

Two tenements are located to the NW of the Marble Bar town site, Cuprite East – E45/4918 and Cuprite West – E45/5028, are located about 60km to the NW of Marble Bar.

The reconnaissance involved visiting and traversing in part the tenements, establishing the mapped geology and locating access routes into each of the areas.

The field reconnaissance of the project tenements was carried out from the 7th to the 11th August 2020 primarily to locate access to each of the areas, confirm the regional geology and record any sites of any previous exploration activity or areas of prospectivity.

Table 16.1: Tenement Schedule for Pilbara Tenements

Tenement Nos.	Project Name	Date Applied	Date Granted	Expiry Date	Area (Blocks)	Area (Hectares-approx.)	Tenement Ownership
E46/1277	Nortia	17/07/2018	10/3/2020	9/3/2025	19	5,510	Pilbara Gold Group Pty Ltd
E46/1278	Fortuna	17/07/2018	6/7/2020	5/7/2025	18	5,202	Pilbara Gold Group Pty Ltd
E45/5304	Tyche	17/07/2018	5/3/2020	4/3/2025	6	1,734	Pilbara Gold Group Pty Ltd
E46/1215	Beatons River	18/10/2017	29/10/2018	28/10/2023	49	14,161	Great Sandy Pty Ltd
E46/1280	Beatons River	20/07/2017	28/07/2020	27/10/2025	56	16,184	Mineral Edge Pty Ltd
E45/4918	Cuprite East	1/5/2017	27/072020	26/07/2025	24	6,936	Great Sandy Pty Ltd
E45/5028	Cuprite West	3/10/2017	26/07/2020	26/07/2025	10	2,890	Great Sandy Pty Ltd

16.1 BEATONS RIVER, NULLAGINE – E46/1215 AND E46/1280

The two tenements comprising the Beatons River project, E64/1215 and E46/1280, are adjacent to each other and are located in close proximity to the Nullagine town site.

The Novo Resources gold project tenements border tenement E46/1215 to the south.

Both the Beatons River tenements are granted and together comprise 105 Blocks or approximately 30,345 hectares. The Nullagine – Marble Bar road traverses through both tenements along their eastern boundaries however throughout the tenements there are very few access tracks.

The physiography of the tenements varies from rugged hills with dendritic drainage, flat alluvial plain areas and severely dissected plateau. The southern areas of the tenements which are of exploration interest fall into of the latter category of the dissected plateau.

The Novo Resources Beatons Creek Gold Project has targeted the gold mineralisation with the Beatons Creek conglomerate member of the Hardey Sandstone Formation which is part of the Fortescue Group.

The geology of the two tenements comprises units of the Hardey Sandstone Formation with the northern part of the tenements comprising extensive areas of porphyritic rhyodacite of the Beaton Creek.

The only track located to access the tenements was an E-W orientated station track approximately 10km to the north of Nullagine off the Marble Bar road – 201355mE / 7585183mN.

Figure 16.16.1: Beatons River E46/1215 - Looking North

Photo Co-Ordinates: WSG 84 – 199938mE/7584568mN

Figure 16.2: Beaton River E46/1215 – contact between porphyritic dacite in foreground and meta-sediments - phyllite

Photo Location: WGS84 – 196173mE /7584989mN

This track was traversed for 10-12km across tenement E46/1215 however no evident tracks leading to the south of the tenement were located. A second traverse was undertaken within

the Novo Resources area in the south to gain access to the tenements, but the area is rugged and difficult to navigate.

The western tenement E46/1280 was not traversed during the field reconnaissance.

16.2 CUPRITE EAST PROJECT – E45/4918

The Cuprite East project area is located approximately 60km to the NW of Marble Bar. The Marble Bar – Port Hedland road traverses through the south east corner of the tenement and there are a number of station tracks that provide access to some of the areas within the tenement. The Cuprite East tenement is granted and comprises 24 Blocks covering an area of approximately 6,936 hectares.

Figure 16.3: Cuprite East E45/4918 – looking east, iron quartz outcrop

Photo Co-ordinates: WGS84 - 769335mE/7698427mN

Two areas were traversed – the central area of the southern part of the tenement and the NW corner. Access to the southern area was just off the Marble Bar road along a recently cleared station track – the entrance gate co-ordinates are 771181mE/9693501mN.

The southern tenement area is extensively covered with alluvium with outcrop being sparse. The area is covered by spinifex and grasses. The area is mapped as being underlain by the McPhee Formation comprising a thick sequence of metamorphosed mafic rocks.

The track was traversed to the area just to the north of Bond and Fisher Well (771175mE /7698545mN) where there a number of small outcrops of E-W orientated quartz outcrops. From this point a track was taken to the SW to intersect a further track to the north of the tenement.

The northern area of the tenement has relatively good outcrop however it is an area of geological complexity where there has been considerable folding and faulting.

There is some evidence of there being prior exploration with a 20m long costean (765014mE /7704132mN) in an area where there is a strongly sheared chert/mylonite outcrop. Much of the area is covered by spinifex with some areas lightly wooded**.**

16.3 CUPRITE WEST PROJECT – E45/5028

Cuprite West E45/5028 is located approximately 10km west along the Marble Bar – Port Hedland road from the Cuprite East project area. The co-ordinates for the track off the main road are 756863mE/7698568mN. The track has not been maintained however is accessible by 4WD and has a SW orientation.

Figure 16.4: Cuprite West E45/5028 – RC drill collar, Kalamazoo prospect

Photo Co-ordinates: WGS84 – 755073mE/7695943mN

The north part of the area is alluvium covered however to the south there are low hills extending into more rugged topography. About 3km from the main road an area of prior exploration drilling was located – Kalamazoo prospect area.

The area is alluvium covered with sporadic outcrops of foliated mafic and in the prospect area weakly ferruginous quartz veins about 1-3 wide. Three RC drill hole collars were located with the following co-ordinates:

- RCDH1 – 755021mE/7695853mN;
- RCDH2 – 755049mE/7695930mN; and
- RCDH3 - 733072mE/7695943mN

Figure 16.5: Cuprite West E45/5028 – Kalamazoo prospect drill target

Photo Co-ordinates: WGS84 – 755035mE/7695948mN

All three RC drill holes were orientated about 270º with an inclination of 60º.

The results of the drilling are not known however assays from the prospect are reported to have recorded "high-grade gold results of 55.5g/t Au and 56.6g/t Au".

To the north of the Kalamazoo prospect, about 2.1km, a further drill hole was located next to the track and adjacent to a sheared quartz /chert outcrop. The hole was vertical and from the drill spoil was drilled to a depth of 20m.

16.4 FORTUNA - E46/1278 AND TYCHE - E45/5304

These two tenements are located about 70km to the NE of the Nullagine town site and are accessed from the well-maintained Skulls Creek gravel road and then by well-formed secondary roads and tracks.

There are no tracks that traverse either tenement however careful 4WD vehicle access can be achieved to get close to the tenements. E46/1278 is a granted tenement and comprises 18 Blocks covering an area of 5,202 hectares. E45/5304 is granted and comprises 6 Blocks covering an area of 1,734 hectares.

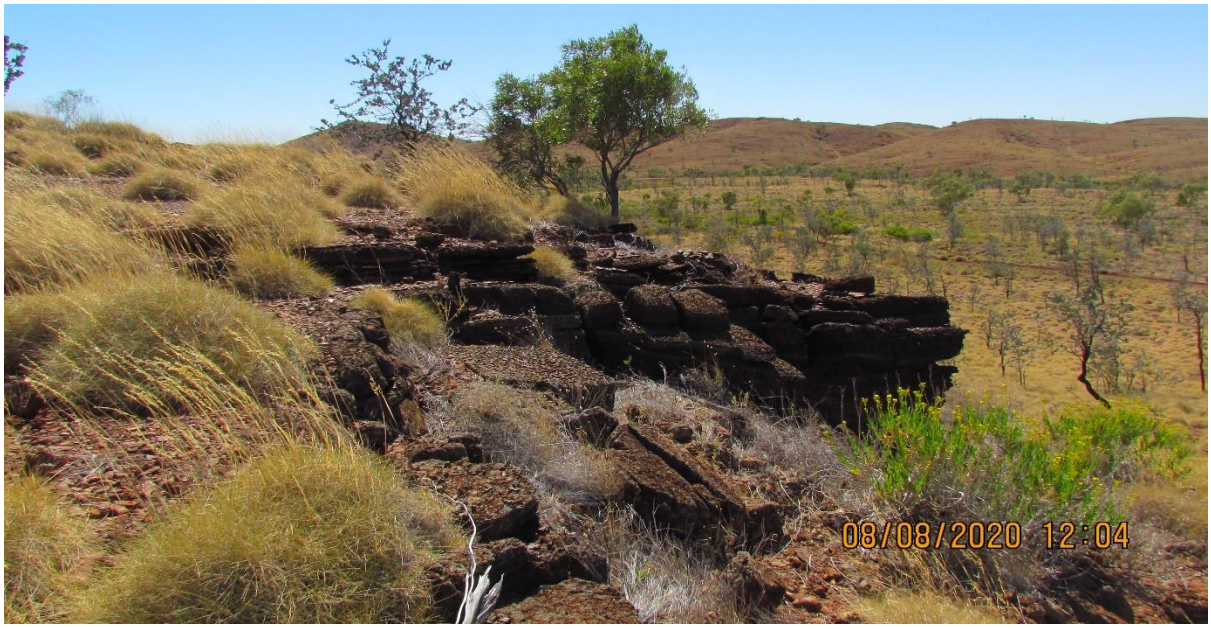


Figure 16.6: E46/1278 – Fortuna; Limestone dolomite outcrop looking north.

Photo Location: WGS84 – 263645mE, 7605354mN

The main geology E46/1278 comprises units of the Kylena Formation with lower units being a succession of basalt, mafic tuffs and probable komatiitic basalt. Other units include a thin unit of limestone dolomite, calcareous shale and siltstones and upper succession of tholeiitic basalt, basaltic andesite and andesite.

Much of the NW area of the tenement comprises porphyries of the Bamboo Creek Member. The porphyry is a dark grey–green rock with abundant phenocrysts of pinkish and green feldspar and quartz in a fine-grained ground mass.

A short field traverse was undertaken on the eastern boundary of the tenement.

Tenement E45/5304 – Tyche - is located 1.5km to the east of the Fortuna area and was accessed off the main track by traversing the relatively open ground by 4WD over a distance of about 2km.

The geology of this tenement has been mapped as comprising mainly the porphyry of the Bamboo Creek Member which is described above. A brief field traverse in the SW corner of the tenement was undertaken. No prior exploration activities were observed.

Figure 16.7: E45/5304 – Tyche; Outcropping porphyry

Photo Location: WGS84 – 267482mE, 7604504mN

16.5 NORTIA - E46/1277

The tenement E46/1277 is located about 30km ESE of the Nullagine town site and is accessed from the well-maintained Nullagine - Skull Springs gravel road (approx. 6km) then by the moderately maintained track to the SW corner of the tenement area.

Figure 16.8: Nortia, Western Tenement Boundary - Looking South

Photo Co-Ordinates: WGS84 – 231594mE, 7567187mN

There is a poorly defined track that traverses into the tenement from the main access track however this is not in a suitable condition for vehicle access. This track could be cleared with appropriate machinery.

The tenement is granted and comprises 19 blocks covering an area of approximately 5,510 hectares.

A walking traverse of about 2.3km was completed to the western boundary of the tenement. The predominant rocks of the tenement are the Archaean De Grey Group, Coondamar Formation units.

The meta-sandstone is interleaved with chloritic siltstone, chloritic –actinolite schist, phyllite and rare amphibolite. Granites and gneisses of the Kurrana Terrane flank the Coondamar Formation rocks.

There was no observable evidence of any prior exploration activities.

17.0 INTERPRETATION AND CONCLUSIONS

17.1 BEATONS RIVER PROJECT AREA

Detailed mapping, rock chip, soil and stream sediment sampling were undertaken in 2008 across the Beatons Creek Gold Project and also within the historical BC Iron Limited tenement E46/524 an area which now is covered by E46/1215 (Merhi 2009). Mapping was completed by Shango Solutions (Handley 2009, independent consultants).

Mapping of the Beatons Creek Gold Project resulted in a stratigraphic subdivision of the Beatons Creek Member. The stratigraphic subdivision was also used to map the Beatons Creek Member which outcrops within E46/1215.

Therefore, there is a direct correlation between the units in the mine stratigraphy and outcropping Beatons Creek Member within E46/1215.

A combination of stream sediment and rock chip sampling and mapping identifies horizons of economic interest such as sub-unit BC6, which contains the previously mined historical units A and B from the Beatons Creek Deposit.

The western portion of the Beaton's Creek Formation within E46/1215 is characterised by an approximate 50m thick conglomerate succession comprising lower small cobble (SC) to large cobble (LC) conglomerates overlain by very large pebble (VLP) to SC conglomerates.

Mineralisation increases upwards in the succession and is best developed in two laterally extensive cobble horizons containing scattered boulders. The lower cobble boulder horizons are potentially the stratigraphic equivalents of the A and B Horizons at the Beatons Creek Project tenure.

Figure 17.1: Left Outcropping Boulder conglomerate mapped unit BC6, E46/1215 (Handley, 2009), Right-Outcropping Boulder conglomerate Beatons Creek (Novo, 2020)

Figure 17.2: Left- Oxidised Buckshot pyrite (black spots) E46/1215 (Handley, 2009), Right- Oxidised Buck shot pyrite Beatons Creek Project (Novo, 2020)

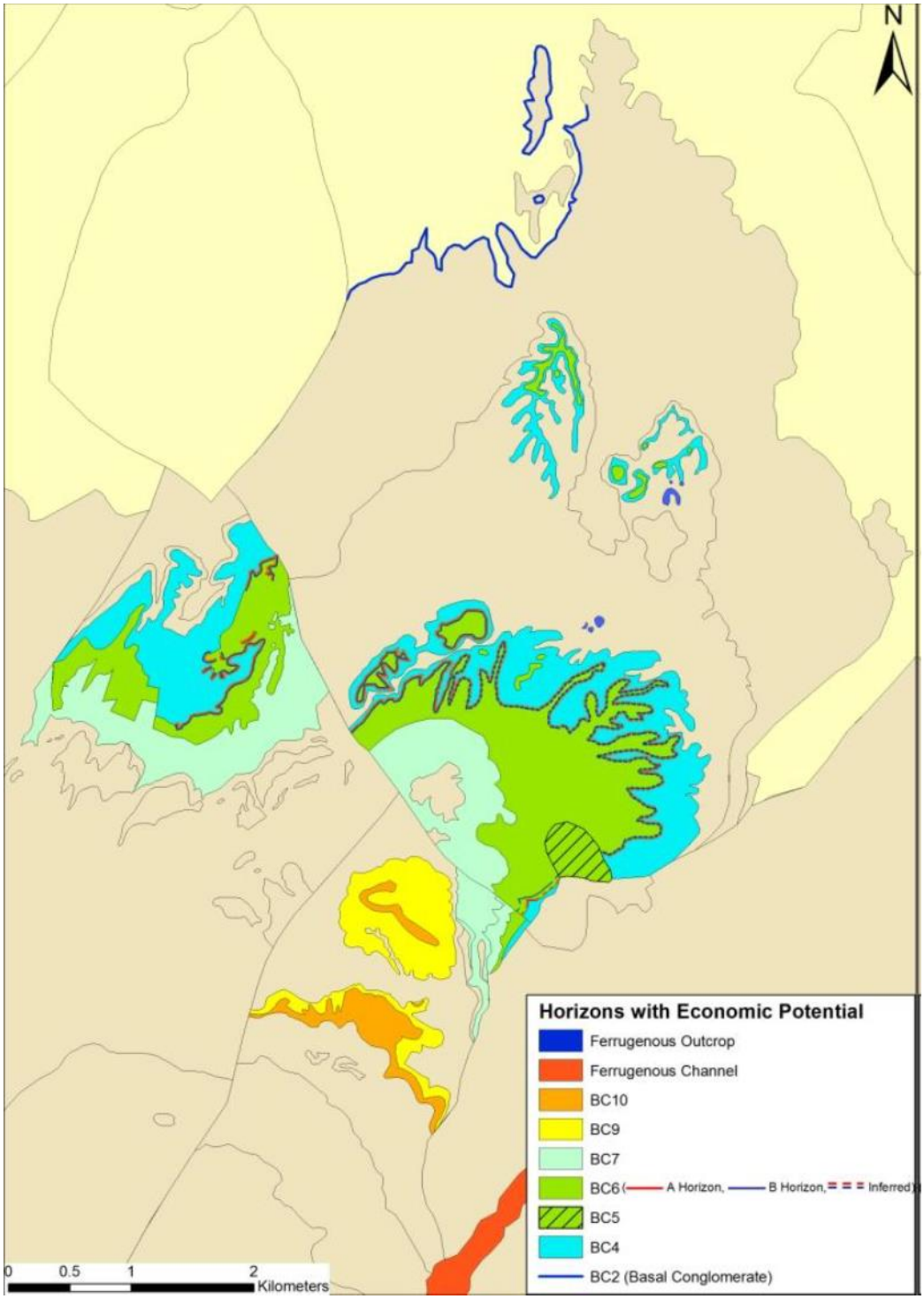


Figure 17.3: Mapping of Beatons Creek Member (Handley, 2009; Mehri, 2009) Modified by Xplore

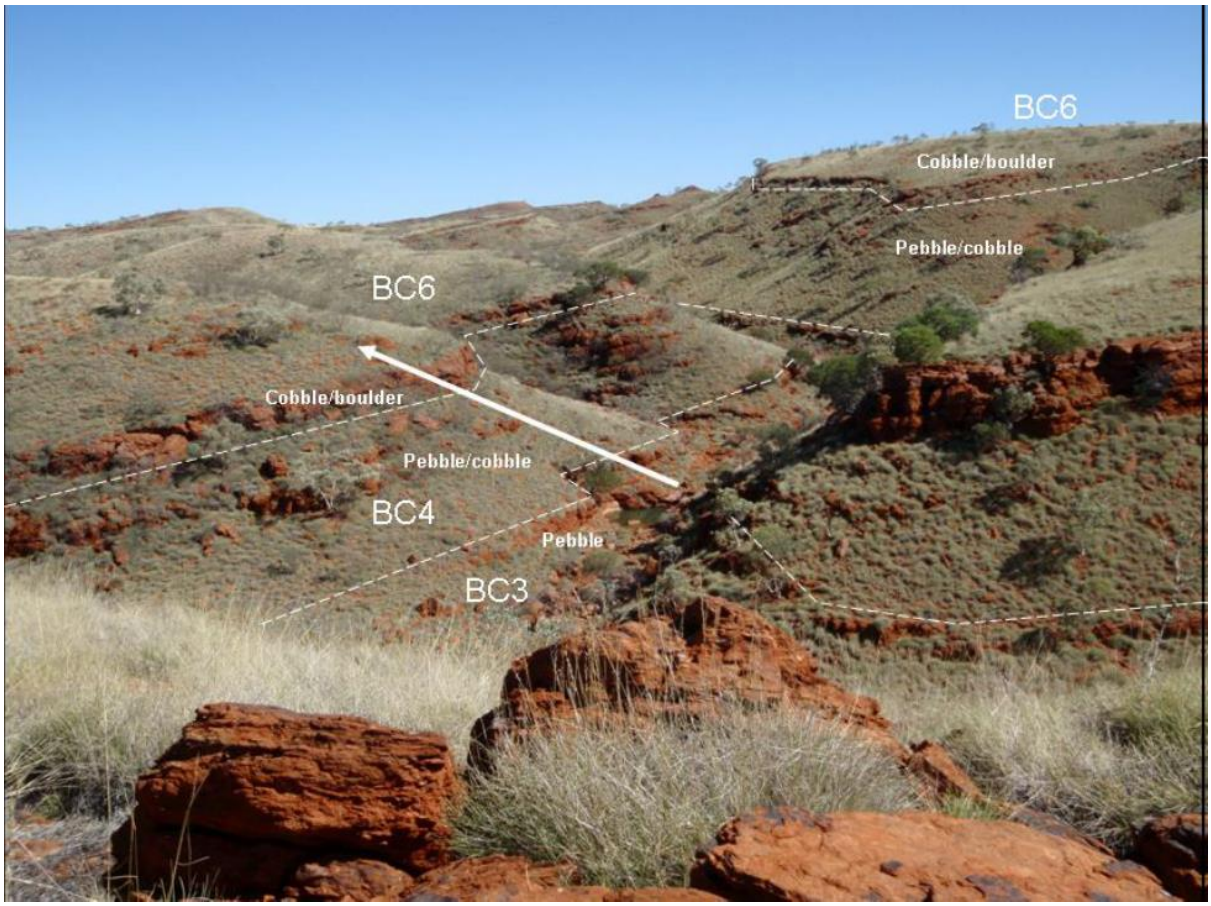


Figure 17.4: Deeply incised creek on the western rim of the Wedgetail highlands. Arrow indicates direction of upward coarsening E46/1215 (Handley 2009)

A review by Tim Blake (2019) of E46/1215 clearly defined two prospective and extensive unconformities within E46/1215. These gold prospective unconformities appear to be poorly tested by previous explorers.

Further exploration is now required to assess the unconformities by mapping, rock sampling and most importantly, soil sampling. The target will be auriferous conglomerates that may have developed along the unconformities.

Previous mapping and geochemical sampling within the southern margins of E46/1215 have delineated an area with elevated gold and prospective outcropping conglomerate units with a direct correlation to the mineralised conglomerate units within the Beatons Creek Gold Project.

Historical diamond exploration sampling has also shown the presence of gold within the tenure area. The source of this alluvial gold is yet to be explained.

17.2 CUPRITE EAST AND WEST PROJECT AREA

The Cuprite East and West Project covers a structurally complex area with a long history of deformation. The area contains numerous zones of alteration that are often restricted and structurally controlled.

Silica-fuchsite, silica-pyrite and propylitic alteration observed in the area is mostly structurally controlled and is indicative of potentially mineralising fluids (Crossing, 2007). Carbonate alteration of ultramafics and to a lesser extent mafics is widespread and appears to have no relationship with mineralisation.

Most of the known mineralisation in the area is structurally controlled and occurs in two main settings (Crossing, 2007):

- Mineralisation associated with large NE-SW to NNE-SSW trending structures sub-parallel to regional stratigraphy and the granite margins (prospects: Chevy, Dom's Hill, Singer, Anomaly 32, Anglia prospects); and
- Mineralisation associated with large NW-SE trending structures (prospects: Granites, NE Zone, Fordor, Phaeton).

The potential for the Cuprite Project to contain structurally controlled mineralisation is significant. As such the focus should be on the:

(ii) shear zones similar to the Chery-Dom's Hill area; and
(ii) the granite contact at or close to the Granites prospect.

These prospects are in areas of high strain and would be expected to be relatively attenuated and elongated, plunging along the axis of folding. In a high strain regime, there may be down-plunge potential and potential for repetition of similar deposits within the same structural environment (Crossing, 2007).

Similar structural and lithological settings in the project area are found elsewhere in the Pilbara region to control or influence gold mineralisation. These include:

- Terrane scale faults / shears of various orientations (NE, NW, ESE);
- Faults or shears along granite margins;
- A range of lithologies including the Warrawoona Group; and
- Strong competency contrasts between ductile mafic-ultramafic schists and unstrained mafic-ultramafic bodies and coarse epiclastic sediments.

The Cuprite area has a similar geological setting to known VMS deposits in the Pilbara region. The similarities according to Crossing (2007) include:

- Volcanics range from ultramafics to rhyolitic;
- Basalts are marine;
- Hydrothermal cherts are common;
- Intraformational granites occur as potential heat source; and
- Potential caprocks include thick sediments and unaltered basalts.

Crossing (2007), also states that an VMS deposit that do occur in the higher strain areas would be strongly attenuated and likely dislocated from the associated footwall alteration. Some komatiite flows and high magnesium basalts near Farrell are potential for komatiite hosted nickel sulphide mineralisation, such as Bamboo Creek (Archer, 2006).

The komatiite flows are associated with Ni-Cu anomalies and outcropping nickel gossans at the Farrell Well Nickel prospect.

Pilbara Gold Group was initially attracted to the district primarily because of its gold potential. This culminated in a number of tenements being applied for, including E45/4918 and E45/5208, which make up the Cuprite Project.

The Cuprite Project is located in the East Pilbara Granite-Greenstone Terrane, which comprises the eastern portion of the Archaean Pilbara Craton.

The geology of the project area is structurally complex, with a long history of deformation and it has a recorded history of exploration for several commodities including iron, nickel, uranium, base metals, copper and gold.

Since the late 1960s, there has been 3,603 surface geochemical samples collected from Cuprite East tenement and 1,514 surface geochemical samples collected from the Cuprite West tenement (GeoVIEW.WA, 2020).

Apart from the surface geochemical sampling, historical exploration included airborne and ground magnetic and EM surveys, geological mapping, petrological studies and RAB, RC and diamond core drilling.

It is concluded that there is adequate geological and geochemical evidence to rate the Cuprite tenements as prospective for gold and possibly VMS and komatiite hosted nickel mineralisation. Further exploration is recommended at the Kalamazoo prospect.

Recommended is a regional program that is designed to generate new exploration targets within the project area.

This would, at minimum, include a systematic and detailed review of historical exploration and a re-interpretation of available geophysical datasets and structural information.

In parallel field teams could be dispatched to the areas of anomalous mineralisation identified in the body of this report.

17.3 FORTUNA AND TYCHE PROJECT AREA

Tyche is underlain by two stratigraphic units of the Fortescue Group, the Hardey and Kylena Formations notably, the Hardy Formation is ubiquitous within the tenure, it has been mapped on the GSWA 1:100,00 map sheets across >90% of the project area.

However, this review has shown that the bulk of the Hardy Formation within the tenure is the Bamboo Creek Member (quartz-feldspar porphyry), therefore, the focus of the exploration has shifted to structurally vein hosted gold mineralisation.

The Kylena Formation, which overlays the Hardey Formation, sits on the eastern edges of the project and has been known to host elevated gold in quartz veins within basalt in the project region. Historical exploration reports have noted in the field (Malay, 1973) that:

"*Gold in quartz-sulphide and carbonate veins cutting the Kylena Basalt of the Fortescue Group. Two quartz veins cutting the basal part of the gently dipping Kylena Formation on Historical E45/1499 were located. These veins contain some carbonate bands and minor secondary copper and lead minerals. Maximum gold assay was 1.4g/t Au".*

"Detrital gold in the Hardy Sandstone at the base of the Fortescue Group. Prospecting work has located gold in two locations shedding from the Hardy Sandstone. At one of these locations' quartz pebbles weathering from a conglomerate were found to be gold bearing. At another locality soil derived from sandstone and conglomerate assayed up to 2g/t Au. This is comparable to other gold mineralisation at Beatons Creek at Nullagine".

"Gold in tuffaceous rocks and interflow sediments and limestone within the Kylena Formation. Samples of silicified cherty sediments associated with thin limestone units occurring as interflow bands within the Kylena Basalts contain anomalous gold values up to 0.4 ppm. Close to one of these areas a small area of pyritic tuffaceous material assayed up to 4.8 ppm Au".

The report also notes "*minor gold associated with quartz veining in the Fortescue Group rocks. Quartz veins cutting the Fortescue Group occur in a variety of settings and forms. Some minor gold and silver values are associated with some of these veins".*

The Fortuna project has similar geology to Tyche and is underlain by the same two stratigraphic units of the Fortescue Group: Hardey and Kylena Formations. The Hardy Formation is present across 22% (~12km²) of the tenure and is mainly the Bamboo Creek Member as well.

The tenure contains three fault zones mapped (GSWA) as well as photo lineaments that have the potential to be structural controls for shear zones and may contain breccia's and quartz veining related to the faulting.

17.4 NORTIA PROJECT AREA

The Pilbara Gold Group was attracted to the district because of its structure/shear hosted gold potential. This culminated in a number of tenements being applied for, including E46/1277, which make up the Cuprite Project.

The Nortia Project is located in the East Pilbara Granite-Greenstone Terrane, which comprises the eastern portion of the Archaean Pilbara Craton. The tenement area is under explored compared with other areas elsewhere in the East Pilbara and in particular with the Mosquito Creek area that is located immediately north.

Historical exploration in the immediate area of Nortia had focused on several NNW and N trending faults that are exposed approximately 1-1.3km east of Nortia, along Coondama Creek. The faults and associated splays contain zones of silicification that are infilled with quartz and chalcedony and copper-lead-zinc-silver mineralisation.

Geological mapping at a regional scale shows there are a series of similar faults in the Nortia tenement that be suitable hosts for gold and base metals mineralisation. These faults appear to have not been systematically explored and warrant further investigations including surface geochemical sampling and geological mapping.

It is concluded that there is adequate geological evidence to rate the Nortia tenement as prospective for gold, base metals and possibly pegmatite related mineralisation.

Further exploration aimed at targeting the main fault zones within the project area is recommended.

18.0 RECOMMENDATIONS

18.1 BEATONS RIVER PROJECT AREA

The review of the available data suggests that the Beatons River Project tenure (E46/1215-1280) area is prospective for gold mineralisation.

In order to confirm the resource potential of the gold mineralisation, there are several key recommendations that should be adhered to:

1. A database should be constructed to host all boreholes and geochemical samples from within tenure and peer deposits, with as much data encoded into the database from a variety of sources (ASX reports, core shed data, open file/publicly available reports etc).

2. A thorough review of earlier ASX announcements with cataloguing of all notable results from previous tenement holders should be added to the database.

3. All publicly available geophysical data (open file and purchased) over the tenure should be reviewed to identify any exploration targets/focus areas within the tenure as this desktop study has primarily focussed on gold, however other significant mineralisation has been noted within and near tenure.

4. All geophysical data should be reviewed and interpreted by a specialist consultant, familiar with the mineralisation style and local area.

5. Once the geophysical data should be reviewed and interpreted, further geophysical surveys should be considered to provide additional target information on the subsurface.

6. The near tenure drill core located in the Perth GSWA repository should be reviewed for lithology, key mineralisation target units as well as review the hy-logger scanner results.

7. A site visit with the purpose of:

   d. Reconnaissance across the entire project for conglomerate outcrop;

   e. Investigation for outcrop over the areas of anomalous stream and rock chip geochemistry; and

   f. Surface sampling of any conglomerate, subcrop or float: rock chip, soil etc.

8. Potential follow up with Aircore or RC drilling across anomalous corridors.

9. Potential follow up with Aircore, RC or Diamond core drilling when completing a more detailed assessment of anomalous drilling results.

10. In depth mapping of surface and drilling sampling results based on mineralisation targets.

18.2 CUPRITE EAST AND WEST PROJECT AREA

The review of all the available data suggests that the Cuprite East and West are prospective for gold, VMS and komatiite hosted nickel mineralisation and warrant further work.

In order to confirm the project's potential mineralisation and subsequent mineral resources, there are several key recommendations that are listed below:

6. Historical, company, geochemical sampling and drilling data should be verified against original assay data sheets/drill hole logs to confirm accuracy.

7. The adjusted geochemical data can be normalised or levelled using specialty software to take into account different analytical methods, digestion, sampling method, sieve size, etc.

8. An understanding of deposit ore controls and deposit characteristics such as metal zonation, mineralisation and alteration paragenesis and geochemical and geophysical signatures may help vector exploration.

9. Update earlier structural studies to identify important structural features that control mineralisation. Ideally performed by a specialist familiar with the mineralisation style and local geology.

10. The geochemical data base should be examined to determine if there are suitable pathfinder elements that may locate new anomalies and help vector towards mineralisation.

11. Publicly available geophysical data (EM and magnetic/radiometric) covering the project area should be reviewed in combination with the new structural information and normalised surface geochemistry to identify new target areas that may warrant further examination.

12. Geological reconnaissance of the project, along with ground investigations of target areas including detailed geological mapping and sampling.

13. Follow-up of priority areas with ground geophysical surveys such as magnetics, IP or EM, could be beneficial, with the results interpreted by a specialist familiar with the style of mineralisation being targeted and the local geological environment.

14. Ranking of potential areas are with the most promising, to be tested with appropriate explorations methods such as surface sampling, costeans, aircore drilling, RC drilling and/or diamond drilling.

18.3 FORTUNA AND TYCHE PROJECT AREA

The review of all the available data suggests that the Fortuna and Tyche Project tenure (E46/1278 & E45/5304) area is prospective for gold mineralisation.

In order to confirm the resource potential of the gold mineralisation, there are several key recommendations that should be adhered to:

1. A database should be constructed to host all boreholes and geochemical samples from within tenure and peer deposits, with as much data encoded into the database from a variety of sources (ASX reports, core shed data, open file/publicly available reports etc).

2. A thorough review of earlier ASX announcements with cataloguing of all notable results from previous tenement holders should be added to the database.

3. All publicly available geophysical data (open file and purchased) over the tenure should be reviewed to identify any exploration targets/focus areas within the tenure as this desktop study has primarily focussed on gold, however other significant mineralisation has been noted within and near tenure.

4. All geophysical data should be reviewed and interpreted by a specialist consultant, familiar with the mineralisation style and local area.

5. Once the geophysical data should be reviewed and interpreted, further geophysical surveys should be considered to provide additional target information on the subsurface.

6. The near tenure drill core located in the Perth GSWA repository should be reviewed for lithology, key mineralisation target units as well as review the hy-logger scanner results.

7. A site visit with the purpose of:

    a. Reconnaissance across the entire project for conglomerate outcrop;
    b. Investigation for outcrop over the areas of anomalous stream and rock chip geochemistry; and
    c. Surface sampling of any conglomerate, subcrop or float: rock chip, soil etc.

8. Potential follow up with Aircore, RAB or RC drilling across anomalous corridors.

9. Potential follow up with Aircore, RAB and RC or Diamond core drilling when completing a more detailed assessment of anomalous drilling results.

10. In depth mapping of surface and drilling sampling results based on mineralisation targets.

18.4 NORTIA PROJECT AREA

The review of all the available data suggests that the Nortia Project is prospective for gold and base metals mineralisation and warrant further work.

Recommended is a regional program that is designed to generate new exploration targets within the project area. This would, at minimum, include a systematic and detailed review of historical exploration and a re-interpretation of available geophysical datasets and structural information.

In parallel field teams could be dispatched to the areas of anomalous mineralisation identified in the compilation of this report.

In order to confirm the project's potential mineralisation and subsequent mineral resources, there are several key recommendations that are listed below:

1. A review of historical company reports to capture and digitise data that is not reported by GeoVIEW.WA.

2. Undertake a geological review of Nortia's exploration potential, including identification of target areas that justify follow-up investigations. The review to ideally be undertaken by an experienced geologist familiar with the local geology and should include a field visit and visit to nearby mineral occurrences.

3. Geological reconnaissance of the project, along with ground investigations of target areas including detailed geological mapping and sampling.

4. Follow-up of priority areas with ground geophysical surveys such as magnetics, IP or EM, could be beneficial, with the results interpreted by a specialist familiar with the style of mineralisation being targeted and the local geological environment.

5. Ranking of potential areas are with the most promising, to be tested with appropriate explorations methods such as surface sampling, costeans, aircore drilling, RC drilling and/or diamond drilling.

18.5 EXPLORATION BUDGET

The Exploration Budget proposed in 'Section 18.5 EXPLORATION BUDGET' is generated to cover 1 year of exploration activities, with due consideration of the minimum expenditure commitments associated with each tenure. The Exploration Budget is summarised in Table 18.1 and is designed to be reviewed in conjunction with assumptions presented after the table.

Table 18.1 Proposed Budget covering the next year of activities for the Pilbara Gold project areas

Item Number:	Proposed Exploration Activity	Estimated Cost (AUD$)
1	Beatons River – Finalise review of data in order to plan specific target areas for exploration to commence.	$30,000
2	Beatons River – Commence exploration by field mapping, rock chip and stream sediment/soil sampling of specific target areas delineated in Item 1.	$60,000
3	Beatons River – Based on the results from Item 2, survey in the areas appropriate for drilling and/or costeaning (trenching).	$20,000
4	Beatons River – Drilling of 6 highest priority areas as defined from Item 3, approximately 150 m deep each for around 1000 m of RC drilling at an all up cost of $120 per metre drilled.	$120,000
5	Beatons River – Assaying, mineralogical and metallurgical testing and reporting of drilling and bulk samples.	$90,000
6	Beatons River – Final Interpretation and Reporting of Results with Recommendations for Year 2 Budget.	$56,000
7	Beatons River – Finalise review	$20,000
	Sub-Total – Beatons River	**$396,000**
8	Cuprite East and West, Fortuna, Tyche and Nortia - Finalise review of data in order to plan specific target areas for exploration to commence. AUD$20,000 per area, with the exception of Cuprite East which is set at AUD$24,000.	$104,000
	Sub-Total – Cuprite East and West, Fortuna, Tyche and Nortia	**$104,000**
	Grand Total	**$500,000**

Assumptions to support the proposed Exploration budget presented in Table 18.1:

1. Given that the Beatons River project has the highest prospectivity and potential of the 4 Project Areas, the bulk of the first year's exploration budget, approximately 79%, will be spent on the Beatons River project.

2. The Proposed Budget is designed to generate exploration results in the quickest possible time in order to maximise continual market interest in the projects.

3. A more detailed exploration programme for Beatons River is presented in Items 1 through to 7, with the anticipated time to complete Item 1 from date of approval to be approximately two weeks.

4. The anticipated time required to complete Item 2 for Beatons River, including incorporation of assay results from the initial sampling done in the field programme outlined in Item 2 would be approximately five to six weeks from the commencement of fieldwork activities onsite.

5. The logisitics and set up lead time for the drilling in Item 4 for Beatons River would be mostly done in Item 3. The actual drilling time would be approximately seven to ten days, from when the drill rig has arrived onsite.

6. The costeaning or trenching stage in Item 5 could be executed in parallel to the drilling and would take approximately the same time as the drilling to complete.

7. The assaying, mineralogical and metallurgical testing and reporting stage of the drilling and bulk samples would take approximately three to five weeks depending on laboratory turn around times and availability, once the samples have arrived at the certified testing laboratory.

8. The final interpretation and reporting of all the results, including the recommendations for Year 2 Budget, should be completed within approximately two to four weeks.

9. The balance of funds is then allocated to the other tenures at AUD$20,000 per tenure, with the exception of the Cuprite East tenure which was higher at AUD$24,000 in order to accommodate the minimum exploration tenure requirements on a per tenure basis.

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19.4 NORTIA PROJECT AREA

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20.0 CERTIFICATE OF QUALIFIED PERSON

I, Matthew Francis Stephens, B. App. Sc, FAIG of Middle Ridge, Queensland, Australia, do hereby certify that:

I am a Senior Consultant Geologist with Xplore Resources with a business address at 12d/2-4 Flinders Parade, North Lakes, Brisbane, Queensland, Australia, 4509.

This certificate applies to the technical report entitled Independent Technical Report on the Pilbara Gold Group Project Areas, Pilbara region, W.A., Australia), dated September 13th, 2020 (the "Technical Report").

I am a graduate of the University of Southern Queensland, (B. App Sc., 1983).

I am a Fellow (FAIG) in good standing of the Australian Institute of Geoscientists, member # 4788.

My relevant experience is 37 years in metalliferous mining, development and exploration, including several years working in Archaean gold deposits in Western Australia and conglomerate (palaeoplacer) gold deposits in Queensland.

I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").

Due to the global COVID pandemic occurring during the period of the compilation of this report, travel between Australian States was restricted and I had to rely on locally based geologists to perform the site visit under my direction and guidelines.

I am responsible for all Sections of the Technical Report, with the exception of "Section 16.0 OTHER RELEVANT DATA AND INFORMATION" and the portion of "Section 20.0 CERTIFICATE OF QUALIFIED PERSON" which relates to the other Qualified Person's Statement for this report.

I am independent of Graphite Energy Corp as defined by Section 1.5 of the Instrument.

I have no prior involvement with the Properties that are the subject of the Technical Report.

I have read the Instrument and the technical report has been prepared in compliance with the Instrument.

As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Signed and dated this 2nd day of September 2020 at Brisbane, Queensland Australia.

"Original document signed and sealed by Matthew Francis Stephens"

Matthew Stephens, FAIG, B. App. Sc.
Senior Consultant Geologist
Xplore Resources

AUSTRALIAN INSTITUTE OF GEOSCIENTISTS

Supporting Geoscientists

Annual Membership Certificate 2020/2021

The Council of the Australian Institute of Geoscientists hereby certifies that

Mr Matthew Francis Stephens FAIG

(# 4788)

is a current, financial member of the Institute, as stipulated in the Articles of Association, has agreed to be bound by the Institute's Code of Ethics, and holds the membership level of Fellow.

Andrew Waltho
President

Beau Nicholls
Councillor for Membership

Current to 30th June 2021

Joining date: 14th September 2011

Australian Institute of Geoscientists
www.aig.org.au

Bryan Gerard Bourke, QP Statement

I, Bryan Gerard Bourke, BSc, MAIG of Perth, Western Australia, do hereby certify that:

I am an Independent Consultant Geologist with Bourke and Associates located at 14 Murray Avenue, Mosman Park, Perth, Western Australia 6012.

This certificate applies **in part** to the technical report entitled Independent Technical Report on the Pilbara Gold Group Project Areas, Pilbara region, W.A., Australia), dated September 13th, 2020 (the "Technical Report").

I am a Member (MAIG) in good standing of the Australian Institute of Geoscientists, member # 1380. (Copy of Certificate provided below). I have relevant experience (> 35 years) in exploration, mining and project development in the minerals industry including the Pilbara region of WA.

I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").

I am responsible for "Section 16.0 OTHER RELEVANT DATA AND INFORMATION" and this portion of "Section 20.0 CERTIFICATE OF QUALIFIED PERSON" which relates to the Qualified Persons Statement for this report.

Bryan Gerard Bourke, BSc, MAIG,
Independent Resource Geologist (Consultant)
Bourke and Associates,
Perth, Western Australia

Dated 20200902

AUSTRALIAN INSTITUTE OF GEOSCIENTISTS

Supporting Geoscientists

Annual Membership Certificate 2020/2021

The Council of the Australian Institute of Geoscientists hereby certifies that

Mr Bryan Gerard Bourke MAIG

(# 1380)

is a current, financial member of the Institute, as stipulated in the Articles of Association, has agreed to be bound by the Institute's Code of Ethics, and holds the membership level of Member.

Andrew Waltho
President

Beau Nicholls
Councillor for Membership

Current to 30th June 2021

Joining date: 11st March 1999

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21.0 UNITS OF MEASURE, ABBREVIATIONS AND ACRONYMS

Table 21.1 Units of Measure

Term	Abbreviation
Above mean sea level	AMSL
Acre	Ac
Ampere	A
Annum (year)	a
Billion	B
Billion tonnes	Bt
Billion years ago	Ga
Centimetre	cm
Cubic centimetre	cm^3
Cubic feet per minute	Cfm
Cubic feet per second	ft^3/s
Cubic foot	ft^3
Cubic inch	In^3
Cubic metre	m^3
Cubic yard	yd^3
Coefficients of Variation	CVs
Day	d
Days per week	d/wk
Days per year (annum)	d/a
Dead weight tonnes	DWT
Decibel adjusted	dBa
Decibel	dB
Degree	°
Degrees Celsius	°C
Diameter	Ø
Dollar (American)	US$
Dollar (Canadian)	Cdn$
Dry metric ton	Dmt
Foot	Ft
Gallon	gal
Gallons per minute (US)	gpm
Gigajoule	GJ
Gigapascal	GPa
Gigawatt	GW
Gram	g
Grams per litre	g/L
Grams per tonne	g/t
Greater than	>
Hectare (10,000m^2)	ha
Hertz	Hz
Horsepower	hp
Hour	h

Table 21.2 Abbreviations and Acronyms

Term	Abbreviation
Bankable feasibility study	BFS
Department of Indigenous Affairs	DIA
Differential GPS	DGPS
Western Australian Government Department of Minerals and Petroleum	DMP
Memorandum of understanding	MOU
Novo Resources Corp	Novo
Reverse circulation	RC
Rotary air blast	RAB
Magnetics	MAG
Radiometrics	RAD
Multi Spectral Scanner	MSS
Digital Elevation Model	DEM
Hyper Spectral Scanner	HSS
Airborne Electromagnetics	AEM
Gravity	GRAV