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TENEMENT INFORMATION

EL 24/87 (Rapid River) of 159 km² (Figure 1 & Appendix 1) was granted to Pasadena Pty. Ltd., Betoota Pty. Ltd. and Echelon Pty. Ltd. on 19 September 1987. The area consists of 93 km² of Crown Land and the balance of State Forest. It includes 150 km² of the Savage River and 1 km² of the Norfolk Range Australian Heritage Act Interim Listings.

SUMMARY OF PREVIOUS EXPLORATION

Historical

Gold, osmiridium and magnetite were discovered by Sprent in 1876 in the Savage, Whyte and Heazlewood Rivers on his traverse south from the Arthur to the Pieman River. Middleton discovered payable alluvial gold in the creek which now bears his name in 1879, and at the height of the resulting Pieman gold rush, gold was proven in almost every creek running into the Donaldson, Whyte and Savage Rivers. Some of the richest alluvial gold was found in 1879 in Obsidian Creek and other west-draining creeks immediately west of the present Savage River townsite. During the resulting Long Plains gold rush between 1879 and 1882, the search for reef gold yielded the quartz-carbonate-gold veins at Specimen Reef, and quartz-gold veins in schist on the Golden Ridge near Obsidian Creek. The Golden Ridge field produced an estimated 20,000-30,000 ounces. A feature of the area was the large number of nuggets (up to 8 oz) and the coarsely crystallised gold (Julen, 1981, pp 23-26). Most of the production was alluvial gold.

In the Savage River and tributaries, alluvial gold was commonly associated with osmiridium (Reid, 1921). Reid (ibid, p. 15) also reports on the occurrences of alluvial diamond in the district. Octahedral gemstones up to one-third of a carat (66 mg) were described near Donaldson, and occurrences are known east to the Savage River. Interestingly, Reid (ibid, p. 15) records diamond in thin sections of peridotite from Bald Hill. !?

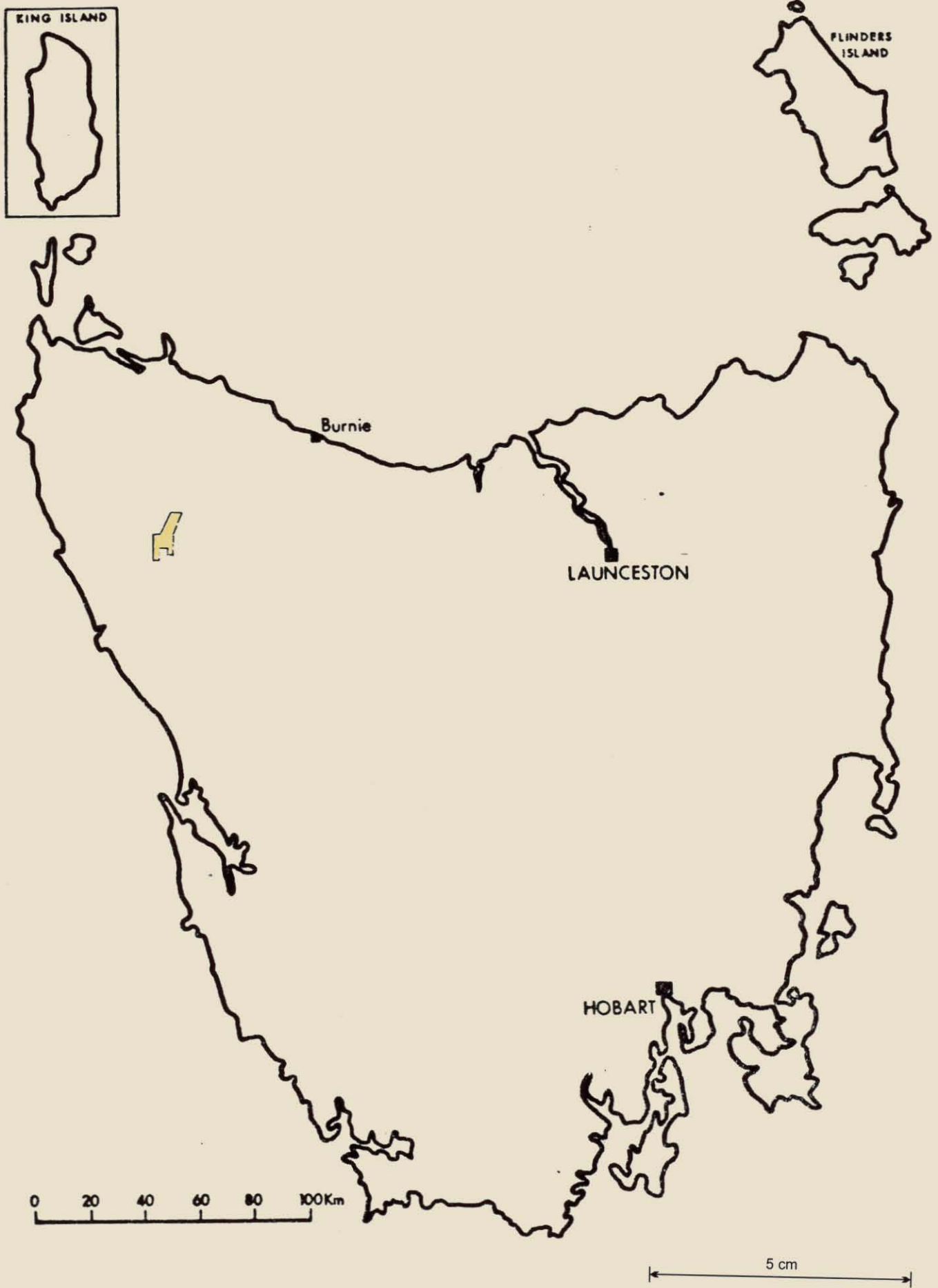


Figure 1. Location Map - EL 24/87, Rapid River.

Adits and tunnels in the Savage River magnetite deposits were first dug about 1880 in an unsuccessful search for gold and copper. Apart from magnetite, minor base metal sulphides were reported. Reid (1924) later estimated magnetite reserves at 20m tonnes but the deposit was considered inaccessible and the ore refractory. Later, some exploratory trenching was done in 1926. During 1955-61 the Department of Mines commissioned a BMR aeromagnetic survey, and conducted geological mapping, ground magnetometer and drilling surveys. Smelting tests in 1959-62 proved successful.

Recent Exploration

The southern third of the present EL was originally included in EL 4/61 held by the private explorer Industrial and Mining Investigations Pty. Ltd. (IMI), and the balance in EL 1/79 originally held by Geopeko, and later by CRA Exploration Pty. Ltd. (CRA).

IMI starting exploring in 1961 and by 1963 had entered an agreement with Pickands Mather for an economic assesment of the Savage River magnetite deposits. Savage River Mines started production in 1968 on a lease excised from EL 4/61, which IMI continued to explore.

Since 1979, IMI has investigated the gold, diamond, tin, base metal magnetite, platinum and magnesite potential of the area around and south of the present Savage River Mine and township leases. IMI carried out surface mapping, stream sediment and rock chip geochemistry, aeromagnetics, and prospect drilling at Specimen Reef and Golden Ridge (gold) and Main Creek (magnesite). Results were generally discouraging.

In a relinquishment report on part of EL 4/61 covering the southern third of the present EL 24/87, Shannon (1985) briefly described the Precambrian geology and structure of the Arthur Lineament and presented the results of stream sediment and gridded soil surveys for base metals, gold, platinum and diamonds. A varied provenance was indicated from the mineralogy of heavy minerals in the stream sediment samples; in decreasing order of abundance species included spinel,

garnet, topaz, pyroxene, zircon, rutile, tourmaline, cassiterite, haematite, gold and "metallic silvery nuggets" (osmiridium?). IMI as the public company Savage Resources has relinquished all but 15 km² (in three small areas) of the original EL 4/61.

CRA relinquished the area now covered by most of EL 24/87 in September 1987 (Funnell, 1987). Geopeko as original holder regarded the Arthur Lineament as prospective for stratiform tungsten mineralisation in basic volcanics. Later, CRA thought the Lineament might be a basic volcanic rise in the Precambrian basement, prospective for lead-zinc massive sulphides. Exploration included airborne magnetics and radiometrics, ground follow-up of anomalies, mapping and stream sediment sampling in search for base metals, tungsten, gold and platinum. No significant mineralisation was found.

EXPLORATION PHILOSOPHY AND SUMMARY OF EXPLORATION IN YEAR 1

Philosophy

The licence holders' exploration philosophy is that:

- (a) Primary base metal and gold and platinum mineralisation is associated with, or underlies, magnetic anomalies in the Precambrian rock along the Arthur Lineament.
- (b) Primary quartz + gold reef deposits similar to Specimen Reef and Golden Ridge prospects may occur along the Lineament.
- (c) The area is prospective for alluvial gold and platinum group metals, principally in sub-basaltic and inter basaltic Tertiary gravels.

Summary of Exploration in Year 1

Activity in Year 1 included:

- (a) literature review
- (b) compilation of a 1: 25,000 regional interpretative geological map of the EL based on available data, to be used as a basis for further exploration and formulating exploration concepts.
- (c) Reconnaissance geological mapping to confirm broad rock types and relationships and assist map compilation.
- (d) Minor grab sampling, and assaying for base metals and gold.

DETAILS OF REGIONAL SURVEYSRegional Geological Map Compilation and Interpretation

Appendix 2 is an interpretative geological map of EL 24/87, based on previous mapping by IMI (Annett, *et. al.*, 1986), aeromagnetic and regional geological interpretation by CRA (Clementson; 1985, 1986), Department of Mines published map sheets, a photointerpretation of the Arthur-Pieman district by Carey (1981), discussions with N.J. Turner of the Tasmanian Mines Department, and recent geological reconnaissance and interpretation by the licence holders. Annett *et. al.*'s (1986) formation names have been retained in the Savage River area, and extended north to inferred units.

Geology

In the Savage River area, greenschists, amphibolites and associated volcanics (including the Bernafrai Volcanics) and interbedded sediment of the Bowry and Timbs Formations may represent metamorphosed and deformed submarine mafic volcanics. The amphibolites of the Bowry Formation host the

Savage River stratiform volcanogenic, magnetite-pyrite-silicate deposits, subeconomic stratiform magnesite ores, and the Specimen Reef gold-quartz-carbonate ores.

Regional facings are to the east. The Bowry and Timbs Formations underlie the Oonah Formation to the east, and in turn overlie the Mt Donaldson Formation further west.

Mt - Donaldson Formation

The Bowry Formation with its contained amphibolites is the most prospective unit in the district for base metals and gold. It extends at least seven kilometres north of Savage River (and underlies parts of the southeastern extremity of EL 24/87) where it may be faulted against the Oonah. The magnetite deposits of the Keith River northeast of EL 24/87 are hosted in correlates of the Bowry, and N.J. Turner (pers. comm.) suggests the formation extends the length of the Lineament.

*Longback Subgroup
& Ankerberg Group*

Amphibolites in the Timbs Formation may also be prospective. Near the Savage River Mine, the unit is thin and faulted out against older volcanics of the Longback Subgroup. However, as Carey (1981) points out, faulting along the Lineament is mainly transcurrent, with sinistral shear and displacements up to perhaps 10km. Relatively therefore, the Timbs Formation may have been displaced SSW but is interpreted to extend up to 10km into EL 24/87. It may extend much further. Strong aeromagnetic anomalies are associated with this rock type, mainly due to amphibolites and the Bernafrai Volcanics. (Pyritic black shales (Plate 1) also have strong magnetic signatures.)

An elongate fault slice of Lower Parmeener glaciomarine sediments up to 1.5 km wide separates the Bowry and Timbs Formations in the extreme southeast of the EL near Savage River. This belt is interpreted to widen slightly to the NNE through the EL and may extend a considerable distance along the Lineament.

Structure

The Arthur Lineament is the locus of a series of major *en echelon* or roughly parallel deep-seated transcurrent faults, some with sinistral movement.

Carey (1981) traced the Pieman, Donaldson and Whyte faults NW from the Pieman Heads area. Turner (1988, pers. comm.) continues the Pieman Fault (parallel to an extended Henty Fault) at least as far as the Arthur River. North of Savage River, at the prominent bend in the Lineament, the Pieman Fault joins the Lineament and appears to fault out the Longback Subgroup. Carey (1981) also discussed the significance of the Balfour and Arthur Lineaments in relation to known mineralisation. The former is a fault-delineated NNW-SSE trending corridor several kilometres wide showing strong dextral movement, containing all the known base metal (mainly copper) mineralisation north of the Pieman. Carey (*ibid.* p 6) suggests it may be offset about 10km to the NNE where it abuts against the Arthur Lineament, continues SSE to be further sinistrally offset against the Henty fault system (itself parallel to the Arthur Lineament and extends down the western side of the West Coast Range to host the base metal deposits of the region.

The most conspicuous feature of the region is therefore the divergence of trends - NNE and NNW - well delineated by magnetic anomalies. The Balfour Lineament is parallel to the present coast and to later fractures thought to separate Tasmania from Victoria Land. Carey (*ibid.*, p 6) suggests it extends toward King Island.

Pre-Tabberabberan movement along the Arthur Lineament is therefore probably younger than that along the Balfour Lineament. The mafic volcanic rocks of the Bowry and Timbs Formations are regarded by several workers as the locus of submarine volcanism in the Late Precambrian (c 700ma) which developed along the western edge of a sample extensional elongate coastal rift basin separating and underlain by, the

Precambrian Rocky Cape Group. Leaman (1988) has developed this idea. He suggests the rift was the ancestral Dundas Trough, and that later, more easterly volcanism in the Middle Cambrian produced the Mt Read volcanic trend. Late Cambrian and Devonian movement has created "the illusion of a trough bend" (*ibid*, p 21).

Movement on the Pieman fault system in the Arthur Lineament is at least as young as Lower Permian Group rocks, and may have acted as a locus for Tertiary volcanism.

Implications for hard-rock prospectivity

Volcanics and amphibolites of the Bowry and Timbs Formations may extend intermittently along the Arthur Lineament to the NW coast of Tasmania as exemplified in the Keith River magnetite. The magnetic signature of these rocks as Carey (1981) indicates, should show later episodes, including Tertiary surface basalts. Geological reconnaissance also suggests the extensive lava flows are at least locally very thin.

Some of the amphibolites and related rocks may contain base metals plus gold. The area is also prospective for stratiform? iron ores + sulphides similar to the Savage River, and probably Blythe River and Dial Range type iron occurrences. The Ironcliffs deposit on the western edge of the Dial Trough contain anomalous gold and base metals.

The central west of the EL is prospective where the Pieman Fault is interpreted to impinge on the Lineament and fault out the Bernafrei Volcanics.

The area may be a structural locus for remobilised Precambrian or later mineralisation.

Tertiary History and Implications for Alluvial Prospectivity

Recent and Quaternary alluvials have been thoroughly explored for gold and platinum group metals, but the Tertiary gravels from which they were presumably derived are unexplored. Carey (1981) recognised their prospectivity for heavy residual minerals. Mostly, the gravels (with sands, clays and conglomerates) are sub-basaltic and possibly locally interbasaltic.

An interesting section of sub-basaltic quartz gravel and sand is exposed on the Savage River Pipeline Road just outside EL 24/87 at [528186] (Plate 2). Inspection of the heavy mineral residue (Appendix 4) confirmed the wide range of species previously established by IMI in the Savage River area. Diamond is an unconfirmed addition to the list. IMI sought diamonds without success, but in the 1880's small (1/8th to 1/3rd carat) specimens were obtained from gold and osmiridium-bearing alluvials near Mt Donalson. McIntosh Reid (1921, p 15) reports diamonds from peridotite at Bald Hill.

Sub-basaltic gravels are known at several localities in the region, and it is likely they are much more extensive. They may be similar in age and origin to the very widespread Tertiary deposits of the north and northwest coast, and of the gravels near Strahan. The very close association between thin, extensive sheets of clear Precambrian-derived quartz gravel and basalts was remarked upon by Johnson (1888, p 280). Carey (1981) suggested the west coast gravels are part of the coastal periplane (Henty Surface) which he suggests is a wave-cut Cretaceous to mid-Tertiary surface, since uplifted.

Suitable facies in the as yet unmapped Tertiary gravels on the EL are prospective for gold, platinum group metals and diamonds.

CONCLUSIONS AND RECOMMENDATIONS

The EL is prospective for:

- (a) stratiform base metals and gold in amphibolites beneath shallow basaltic cover
- (b) alluvial gold, platinum group metals and diamonds in favourable facies within sub-basaltic or unmapped Tertiary gravels.

PROPOSED FUTURE EXPLORATION

Future exploration may include:

- (a) Detailed reassessment of available geophysical data, especially airborne magnetics, gravity and radiometrics, to delineate possible northerly extensions of the Bowry Formation amphibolites, and the central west of the EL near the Pieman Fault - Lineament junction.
- (b) Photointerpretation and regional mapping, with special emphasis on the Precambrian rocks and Tertiary gravels.
- (c) Rock chip and stream sediment sampling.

It is anticipated that several of the larger creeks will allow restricted summer access, but generally much of the EL is inaccessible. Some track cutting for walking may be required for regional mapping - possibly in Year 3. It is not anticipated that vehicle tracks will be required in Year 2. Some of IMI's old 4WD tracks may be upgraded.



Plate 1. Black slate, Pipeline Road [596350].



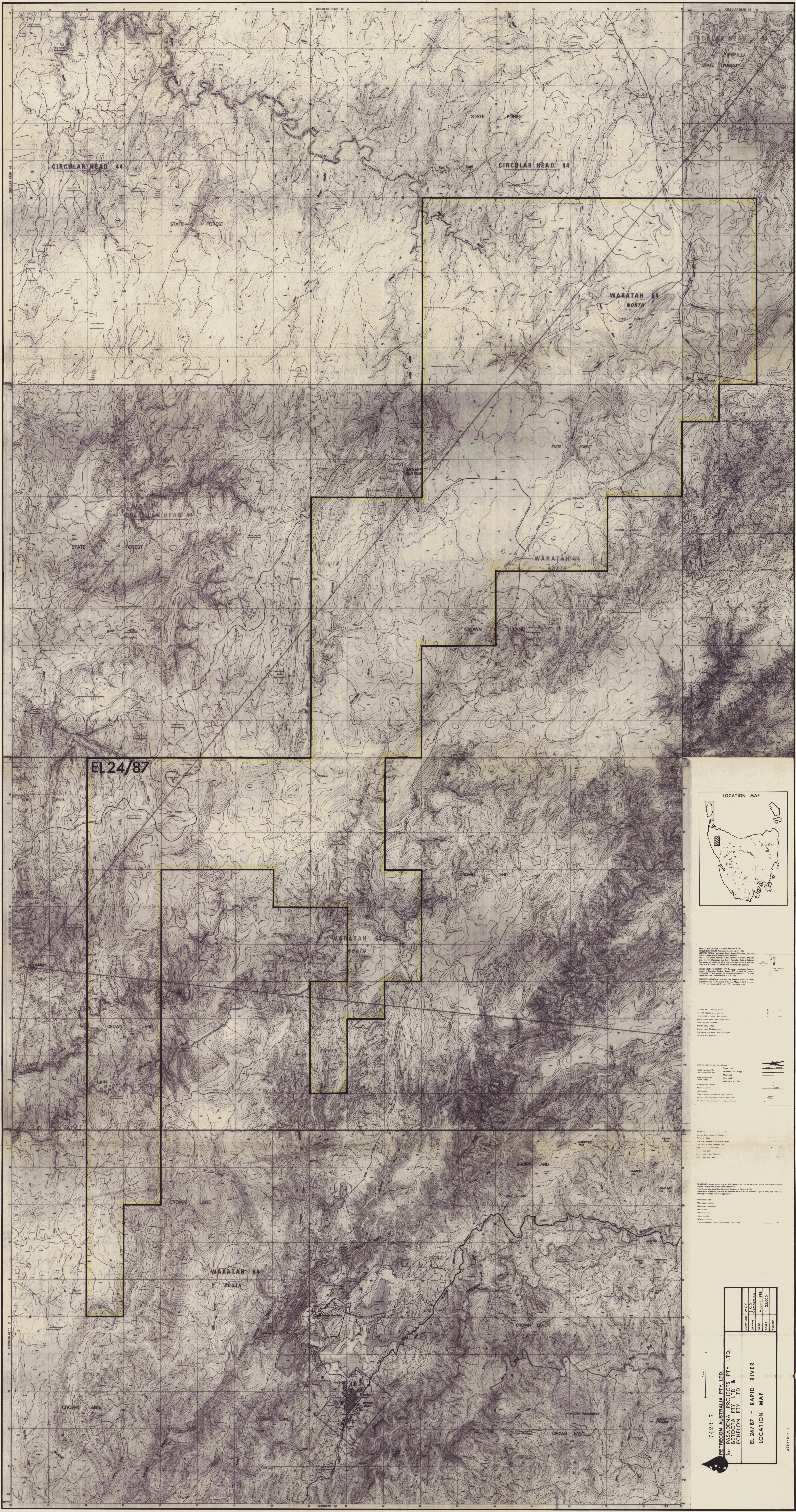
Plate 2. Tertiary sub-basaltic gravels and sand, Pipeline Road [528186].

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LEGEND

Boundary lines shown in black on this map are not shown on the original map. Boundary lines shown in red on this map are not shown on the original map. Boundary lines shown in blue on this map are not shown on the original map. Boundary lines shown in green on this map are not shown on the original map. Boundary lines shown in purple on this map are not shown on the original map. Boundary lines shown in brown on this map are not shown on the original map. Boundary lines shown in pink on this map are not shown on the original map. Boundary lines shown in grey on this map are not shown on the original map. Boundary lines shown in white on this map are not shown on the original map.

NOTES

1. This map is a location map only and does not show any other information. 2. The map is not to scale. 3. The map is not to be used for any other purpose. 4. The map is not to be used for any other purpose. 5. The map is not to be used for any other purpose. 6. The map is not to be used for any other purpose. 7. The map is not to be used for any other purpose. 8. The map is not to be used for any other purpose. 9. The map is not to be used for any other purpose. 10. The map is not to be used for any other purpose.

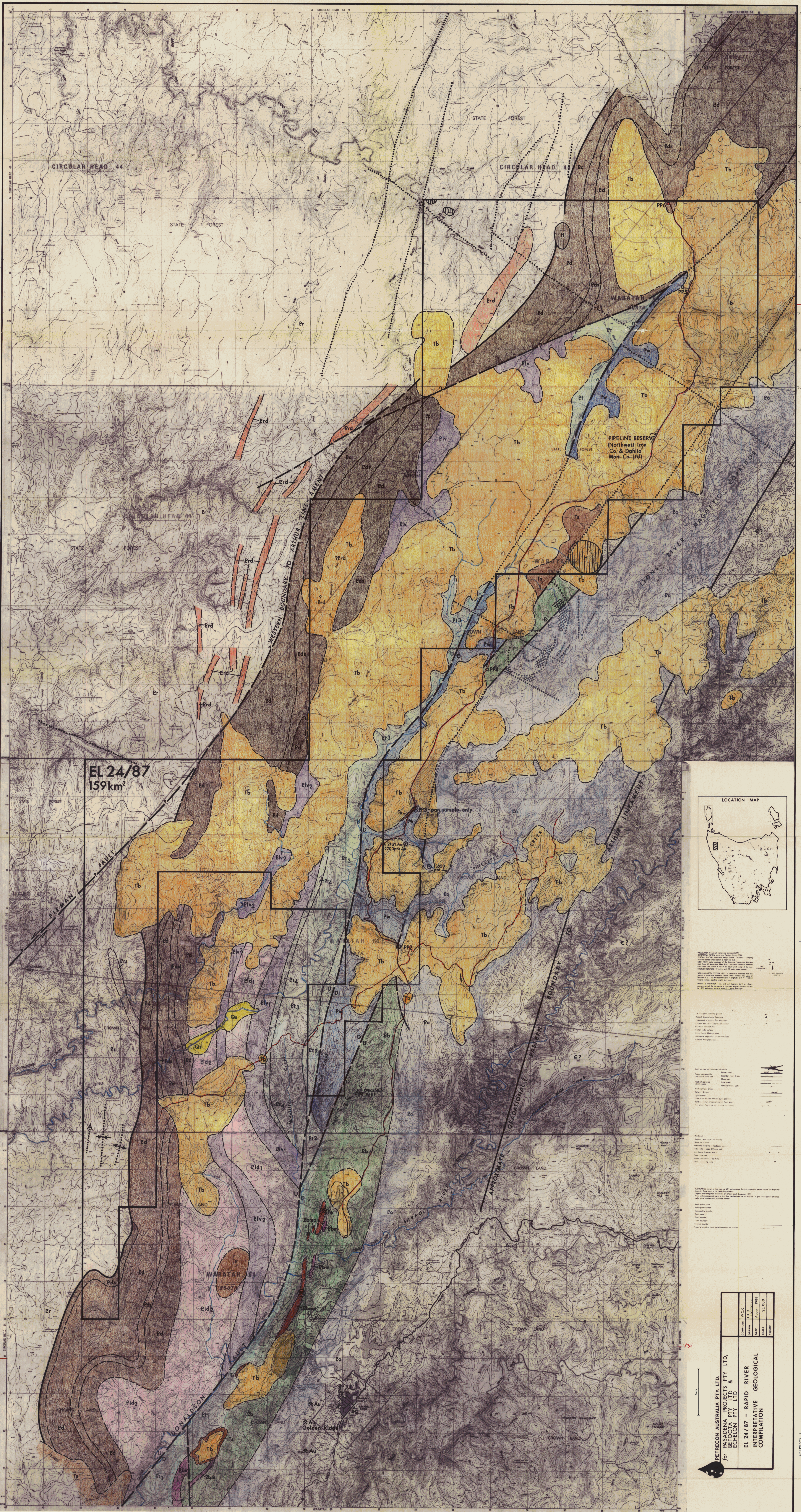
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PETREC AUSTRALIA PTY LTD, for PASADENA PROJECTS PTY LTD, for PASADENA PTY LTD & EACHELON PTY LTD	
EL24/87 - RAPID RIVER	LOCATION MAP
DATE	11/2008
BY	PT/000
FOR	PT/000

2297

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LEGEND

Geological boundaries:

- Geological boundary - approximate, inferred
- Fault, predominantly strike-slip, relative movement indicated - approximate, inferred
- Pseudo-interpreted lineament
- Plunge of fold axis, synform, antiform, inferred from photo-interpretation

Other symbols:

- ⊗ Fe ⊛ Au Operating mine (Savage River), abandoned prospect (position approx.)
- ⊞ Vegetation anomaly
- ⊙ 0.21 g/t Stream sediment gold anomaly (g/t or ppt bulk cyanide leach)
- ⊞ Magnetic anomaly
- Pipeline road, 4WD track

PETROBRASIA PTY. LTD.		W.C.C.	
for PASADENA PROJECTS PTY. LTD.		S.C.D.	
for ECHERON PTY. LTD.		Project 1958	
EL 24/87 - RAPID RIVER INTERPRETIVE GEOLOGICAL COMPILATION		1:25,000	

<p>QUATERNARY</p> <ul style="list-style-type: none"> Qa Alluvium <p>TERTIARY</p> <ul style="list-style-type: none"> Tb Basalt, minor pyroclastics Ts Quartz gravel conglomerate, sand and clay - sub-basaltic, interbasaltic 	<p>PERMO-CARBONIFEROUS</p> <p>LOWER PARMEER WYNWARD TILLITE</p> <ul style="list-style-type: none"> Pw Tillite, mudstone with ice-raftered clasts, varved sandstone <p>PRECAMBRIAN</p> <p>WHITE GROUP CONAH FORMATION</p> <ul style="list-style-type: none"> Wc Schistose quartzite, graphitic schist, mica-chlorite pelite, minor green tuff <p>BOWY FORMATION</p> <ul style="list-style-type: none"> Bw Greenschist amphibolite, sandstone with magnetite (Bm) and magnetite-pyrite (Bmp) <p>TIMBS FORMATION</p> <ul style="list-style-type: none"> Tm Greenschist sandstone, amphibolite (P1), quartz-rich greenschist (P2), greenschist, phyllite and amphibolite (P3), mudstone and turbiditic sandstone (P4) 	<p>LONGBACK SUB-GROUP - slate, dolomite, volcanics</p> <ul style="list-style-type: none"> Elv Volcanics, mudstone, phyllite, tuff, amphibolite Elv1 is Tunnelace Volcs, Elv2 is Bernafai Volcs <p>Dolomite (to south) and slate (to north)</p> <ul style="list-style-type: none"> Eld1 is Doodle Dolomite & Corima Slate, Eld2 is Savage Dolomite <p>MT DONALDSON FORMATION</p> <ul style="list-style-type: none"> Ed Black phyllite and sandstone, some resistant sandstone beds (Eds) <p>ROCKY CAPE GROUP</p> <ul style="list-style-type: none"> Undifferentiated, doleritic dykes indicated Edr, prominent sandstone beds indicated Efs 	<p>Geological boundary - approximate, inferred</p> <p>Fault, predominantly strike-slip, relative movement indicated - approximate, inferred</p> <p>Pseudo-interpreted lineament</p> <p>Plunge of fold axis, synform, antiform, inferred from photo-interpretation</p> <p>Operating mine (Savage River), abandoned prospect (position approx.)</p> <p>Vegetation anomaly</p> <p>Stream sediment gold anomaly (g/t or ppt bulk cyanide leach)</p> <p>Magnetic anomaly</p> <p>Pipeline road, 4WD track</p>
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APPENDIX 3

ANALYSIS OF PRECAMBRIAN ROCK CHIP SAMPLES

SAMPLE	GRID REF	DESCRIPTION	Au	Pt	(ppm)				
					Cu	Pb	Zn	Ni	As
PP2	524151	PC quartz - chlorite mica schist	<	<	25	5	70	35	3
PP4	548224	PC quartz - chlorite mica schist	<	<	<5	<5	65	15	1
PP5	600327	PC? Pm? clean quartz sandstone	<	<	<5	<5	90	20	1
PP6	696350	PC pyritic black shale	<	<	45	10	25	20	8

< = less than detection level *which was?*

APPENDIX 4

HEAVY MINERAL IDENTIFICATION

TERTIARY GRAVEL PAN CONCENTRATE Co-ords 528186

The panned concentrate was looked at as a whole under a binocular microscope then the "tail" was collected and mounted in epoxy. The top surface was polished and examined optically. The brightest grains were examined with the electron microprobe to detect PGM. No PGM were detected but the operator noted high values of Sm, Nd, and Ce in the monazite grains.

There are at least fourteen different materials in the sample and they have been grouped into three categories; common, less common, rare.

(i) COMMON (in order of abundance)

- (a) Ragged quartz sand grains
- (b) Rock fragments
- (c) Octahedral to rounded chromite
- (d) Magnetite

(ii) LESS COMMON

- (a) Monazite
- (b) Ilmenite
- (c) Rutile
- (d) Olivine
- (e) Zircon

(iii) RARE

- (a) Pyrite
- (b) Garnet
- (c) Micrometeorite ←
- (d) Cassiterite (?)
- (e) Tourmaline (blue)
- (f) Sponge spicule

The sample has obviously been derived from very diverse source rocks. The rounding of many of the grains indicates a long sedimentary history. Common angular chromite and olivine indicates the close presence of ultramafic rocks and further investigation of minerals associated with these could be undertaken.