

APPENDIX 1

EL43/2006 Gowrie Park – Eastern Sector Report on Prospect Reconnaissance for Work Program Planning

K Morrison August 2007

(See Digital File EL432006_200803_03_Appendix1.pdf)

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Introduction

An excursion to five areas designated to have potential for first round gold exploration during the 2007-2008 summer field season was conducted from August 27-31, 2007. The aim was to supplement existing understanding of the geology and historic mining and exploration in these areas and to gather information on infrastructure and issues of exploration logistics and environmental factors, sufficient to complete an appropriate work program in the near future. In addition to documenting observations from the five priority areas some comment is made on the regional scale geology in relation to mineralisation style and further prospect generation potential.

The field trip was based at the village of Gowrie Park, where four self contained cabins, a rental house and individual room backpacker style accommodation is available. Motel and potentially rental house accommodation is also available at Sheffield, about 20 minutes drive to the north of Gowrie Park and the nearest regional town where all the normal retail, trade and earthworks services used in exploration are available. All field locations visited are accessible all year round via gravel forestry roads, with some 4WD requirement, within 30 minutes drive of either Gowrie Park or Sheffield.

Star of the West Area

A cluster of old workings exists across the contact between a quartz feldspar porphyritic coherent volcanic (probable rhyolite lava) and a sequence of non volcanic quartz muscovite sandstones and siltstones. The contact is more complex than shown on the 1:25000 Gog sheet but there is plenty of outcrop to support fact mapping. In the vicinity of the three mapped DEPOSITS symbols, four substantial adits, nine shafts and winzes, with depths estimated by drop time to be in the range 5-25 metres, and several small trenches and aligned pits were located. It is likely that more workings exist nearby and this will be a safety issue for both the work program and actual field work. A “forward scout” is needed when gridding in such areas and all workings must be heavily flagged.

The workings are collared in both the rhyolite and the sediments and are directly upslope from the DEPOSITS alluvial site in Minnow River. Minor sericite and possible silicification were noted in the rhyolite but the target of the early miners appears to be quartz veining, minor amounts of which occur in and were sampled from both mullock heaps and outcrop. The main veining style appears to be sets of parallel quartz veinlets and fine ferruginous fractures hosted in brittle rhyolite with a characteristic blocky outcrop expression. There is no obvious explanation for the anomalous soil results overlying sandstone/siltstone at the northeast end of the single CRAE soil line, but it would be easy to test the ground for repeatability and extension.

Field conditions are excellent for gridding, soil sampling and mapping and suitable for RC percussion drilling if needed. North of Star of the West Road, ground cover is recently thinned half grown pine plantation which is currently suitable for sampling

and mapping with GPS and compass survey control and without the need for cutting. Although there is plenty of pine slash material on the ground (photo 1) it is easy to traverse the ground and access good quality C-horizon soil, with a mattock rather than an auger. South of the road (upslope), where most of the known workings are located, ground cover is wet sclerophyll native forest on a relatively dry northerly slope. The bush comprises a mixed stringy bark and swamp gum over storey and a diverse species small tree and scrub under storey consisting mainly of silver wattle, blackwood, dog wood, Cyathodes, Banksia, Bursaria, Bedfordia, Macquarie Vine, manferns and abundant bracken (photo 2). The bush is reasonably easy to traverse for reconnaissance work but would certainly need cut and pegged grid lines for a soil survey. The undisturbed forest soil is a shallow duplex type with a well developed C-horizon rich in decomposed rock fragments, typically at 30-40 cm depth (photo 3). Both the topography and rock properties look suitable for RC percussion drilling, with an excavator in the 10-20 tonne range needed to build an access road and pads. Depending on soil and mapping results and target locations, it may be possible to do some drilling from existing roads and tracks.



Photo 1 Recently thinned pine plantation suitable for compass and GPS gridding without cutting, northern part of Star of the West prospect.



Photo 2 Native forest, southern part of Star of the West prospect.



Photo 3 Duplex soil profile in native forest, northern part of Star of the West prospect.

Gregorys Road Area

Prospectivity in this area depends on the geology around three DEPOSITS sites on the Gog sheet, described here as the south, east and west sites. No signs of hard rock mine workings or evidence of early prospecting were detected at the south and east sites and only possible small scale alluvial scratchings were seen at the west site, despite an entire day spent searching the bush at the three sites. Nevertheless there is some encouragement from the rocks.

The south site as mapped is actually just outside EL 43/2006 but occurs at the margin of a mafic intrusive which extends into the EL. Outcrop is scarce in this area but there is sufficient surface float and subcrop in soil to enable useful mapping. The mafic intrusive was confirmed from float near the junction of Gregorys and Garden of Eden Roads (inside the EL), where it looks like equigranular dolerite in contact with quartz sandstone and deeply oxidised felsic volcanoclastics. Near the western edge of the intrusive two float samples of quartz–Mn oxide-black tourmaline breccia were observed, and these rocks may correlate with reported gold bearing samples from previous exploration. Although the positive signs are subtle it would be easy to run some soil and mapping lines across the intrusive and determine whether a prospect exists. Ground cover in this area is mature pine forest with a fairly clear and open floor, so no line cutting is needed. Good quality ferrisol soils with very little A-horizon beneath the pine litter, and common rock fragments in the C-horizon to aid mapping, occur across the site (photo 4).



Photo 4 Ferrisol soil profile in mature pine forest, Gregorys Road prospect.

The east site also occurs in an area of open mature pine forest with similar (but less mafic input) soils to those at the south site. Good outcrop exists at the east site and although no sign of old diggings was detected, the site straddles a contact between

quartz phyric resedimented polymict volcanoclastic conglomerate and a coherent feldspar quartz fine black ?pyroxene phyric dacite (perhaps a crystal pyroclastic or a lava). Locally the coherent volcanic is silicified and contains traces of pyrite. This rock type was sampled and is the only sulphide occurrence seen on the excursion. The location is also ideal for low cost soil/mapping traverses without the need for cut grid lines.

The west site is located on the bank of a north flowing creek draining Owen Conglomerate on Gog Range. Newly established pine and eucalypt forests are planted on both sides of the creek, which flows through a strip of preserved native forest about 100 metres wide. The creek is incised into rhyo-dacitic volcanics with porphyritic textures and the valley floor contains boulders and cobbles of water worn Owen Conglomerate, some of which look as if they may have been removed from the creek as over-size rejects from small scale alluvial prospecting. Tags and flagging from modern day stream sediment sampling are also visible along the creek (eg A114105 – perhaps Aurion?). Nothing to justify more work was seen.

North Gog Area

This area (photo 5) is the most difficult to evaluate as both the geology and the exploration logistics present challenges. The area is accessed via Belstone and Bottom Roads with a large turning/parking area at the end of Bottom Road (photo 6) conveniently located on the Greatland-Newcrest EL boundary, a location ideal to base further gridding. Some discrepancies exist in this area between actual current roads and those shown on the map, but GPS surveying of current roads could be easily done in combination with mapping the road cuttings geology.



Photo 5 Looking north across West Gog and North Gog, with farm land on Tertiary basalt near Paradise in the distance.



Photo 6 Parking area and typical native forest at the West Gog-North Gog boundary.

Ground conditions at North Gog comprise a flat sinuous valley floor containing Minnow River and abundant Owen Conglomerate derived talus and coarse sediment, flanked by fairly steep slopes composed of the target rocks with varying thicknesses of overlying Owen talus extending down slope from the prominent talus capped east-west trending spur shown on the Gog sheet. In general decent soil samples could be taken below the 400 metre contour around this spur as long as the talus is excluded from the sample (photo 7). Some pre planned sample sites would need rejecting on inspection but with appropriate field quality control a decent survey would be achievable (photo 8). A North Gog soil survey would need a cut line grid. Ground cover is a mosaic of native forest and coupes of young pine and eucalypt plantation with heavy native scrub competition (photos 9 & 10). The amount of cutting necessary (and possible compensation) can be significantly reduced if lines parallel to the rows of trees can be tolerated. Tree row orientation varies between coupes to suit the aspect. The area is suitable for both diamond and RC percussion drilling, with no public environmental obstacles apparent. Destruction of plantation to construct drill roads and pads would involve compensation but Gunns and Forestry Tasmania are usually very reasonable, especially with people in the mining industry.



Photo 7 Good quality C-horizon soil derived from volcanics despite the surficial layer of talus, North Gog prospect.



Photo 8 Example of soil profile contaminated throughout by talus and not suitable for sampling, North Gog prospect.



Photo 9 North Gog prospect area from Bottom Road.



Photo 10 North Gog prospect area from Belstone Road. The tall eucalypts in the distant centre sit on the talus capped spur which masks much of the prospect.

Priority 5 Area

This is an area of active forestry operations on steep ground accessed by fording Minnow River and joining Short Spur Road (photo 13). Cambrian andesitic volcanics are well exposed in road cuttings with varying thicknesses of overlying Quaternary talus and remnant regolith derived from Tertiary basalt. No evidence of early prospecting was seen and the DEPOSITS site indicated on the Gog sheet is for construction materials, so there is no support for further work on that target.



Photo 11 Young pine plantation, Priority 5 area. Orientation of tree rows is a factor when planning a soil survey.

Regional Setting and Overview of Prospectivity

The Gog 1:25000 geology sheet shows that the Cambrian volcanic rocks are folded in a syncline trending east-west to the east of a position near the Fire Tower prospect, but taking a more northerly trend to the west of that position. The folded volcanics are in the structural footwall of a south to southwest dipping thrust contact with folded Owen Conglomerate and conformable younger Ordovician-Silurian sedimentary rocks. This regional scale thrusting and folding is typical of the Devonian deformation in western Tasmania, which also produced the penetrative cleavage so obvious in the finer grained clastic rocks seen in the Gowrie Park area.

Documented gold prospects in the area of interest (Gregorys Road, Fire Tower, West Gog and Star of the West) are distributed at roughly 3 km spacing and close to the syncline axis. At West Gog-North Gog, bedding strike and dip suggests that the simple syncline is distorted in an area around the flexure controlling the change in fold axis strike. It is also apparent that the three sites with demonstrated gold mineralisation (Fire Tower, Star of the West and West Gog) tend to group about this flexure zone, implying a degree of cross cutting structural control on mineralisation. At Gregorys Road (south and east DEPOSIT sites), Star of the West and West Gog evidence of mineralisation coincides with contacts between units of more brittle volcanics and more ductile sediments or volcanoclastics. The stratigraphy at Fire Tower is not known to the writer but is clearly important to this inference.

It is reasonable to assume that gold and base metals have been sourced from the Cambrian volcanics but no evidence was seen during the reconnaissance for broad scale volcanogenic hydrothermal alteration. In general an effective way to test a

predicted link between faults and mineralisation is with aeromagnetics, especially if flight line density is about 40-50 metres. It is assumed that flying a new high resolution survey is not an option at present but existing magnetic images should be examined and perhaps reprocessed to enhance any linear trends which could represent new targets to check on the ground.

Regardless of how accurate the above comments prove to be, there are unexplored gold occurrences within the EL and the ground and infrastructure conditions would facilitate a very cost effective program of soil, mapping and rock chip surveys to determine the worth of drilling.

TABLE 1: EL 43/2006 Gowrie Park Reconnaissance August 2007

Register of Field Sites (AGD 66 datum, by hand held GPS)

Sample ID	Site ID	Prospect	Easting	Northing	Description
NTR072	Rock chip sample 1	Gregorys Road east	449790	5406463	quartz feldspar ?pyroxene phyric coherent volcanic, traces pyrite
NTR073	Rock chip sample 2	Star of the West	445370	5409288	composite vein quartz chips, shaft mullock, sandstone host
NTR074	Rock chip sample 3	Star of the West	445369	5409279	quartz feldspar porphyritic rhyolite lava
NTR075	Rock chip sample 4	Star of the West	445320	5409298	quartz feldspar porphyritic rhyolite lava
NTR076	Rock chip sample 5	Star of the West	445343	5409224	quartz feldspar porphyritic rhyolite lava
NTR077	Rock chip sample 6	Star of the West	445349	5409177	quartz feldspar porphyritic rhyolite lava, fine veinlets, sericite speckling
NTR078	Rock chip sample 7	Star of the West	445137	5409203	quartz feldspar porphyritic rhyolite lava, minor quartz veining
NTR079	Rock chip sample 8	Star of the West	445137	5409203	quartz feldspar porphyritic rhyolite lava, fine limonitic fractures
NTR080	Rock chip sample 9	Star of the West	445151	5409211	quartz feldspar porphyritic rhyolite lava
NTR081	Rock chip sample 10	Star of the West	445247	5409172	quartz feldspar porphyritic rhyolite lava, fine veinlets
NTR082	Rock chip sample 11	Star of the West	445529	5408987	quartz feldspar porphyritic rhyolite lava, fine veinlets
NTR083	Rock chip sample 12	Star of the West	445498	5408977	composite vein quartz chips, shaft mullock, rhyolite host
NTR084	Rock chip sample 13	Star of the West	445498	5408977	composite vein quartz chips, shaft mullock, rhyolite host
NTR085	Rock chip sample 14	Star of the West	445498	5408977	quartz feldspar porphyritic rhyolite lava, shaft mullock
	Car park-turning circle	North Gog	443313	5406997	base for field work, Bottom Road at EL boundary
	Bedding strike.dip*	North Gog	443587	5407103	cleaved siltstone, 250.55 NW
	Talus -soil contact	North Gog	442804	5407577	reasonable soil available for sampling on average below 400 m contour
	Shaft	Star of the West	445370	5409288	5 m deep, in quartz muscovite sandstone siltstone
	Shaft	Star of the West	445369	5409279	a/a, next to adit mullock heap
	Trench-centre	Star of the West	445382	5409287	Az 200, 20 m long, in rhyolite
	Adit	Star of the West	445371	5409266	well made, stable, dry, Az 190, height 2 m, in rhyolite
	Adit	Star of the West	445343	5409224	well made, dry, collapsed 20 m in, Az 190, height 2.5 m, in rhyolite
	Adit	Star of the West	445399	5409345	partly collapsed entrance, minor non acid drainage, Az 210, in siltstone/sandstone
	Shaft	Star of the West	445349	5409177	20 m deep, in weakly altered rhyolite with veinlets
	Shaft	Star of the West	445345	5409178	20 m deep, in rhyolite
	Winze	Star of the West	445322	5409179	20 m deep, in rhyolite
	Shaft	Star of the West	445314	5409177	6 m deep, in rhyolite
	Trench-centre	Star of the West	445243	5409240	Az 195, 40 m long, in rhyolite
	Shaft	Star of the West	445251	5409264	20 m deep, in rhyolite
	Adit	Star of the West	445530	5408981	well made, partial entrance collapse, dry, Az 268, height 2 m, in rhyolite
	Trench-centre	Star of the West	445534	5408982	Az 265, 10 m long, in rhyolite
	Shaft	Star of the West	445498	5408977	10 m deep, in rhyolite
	Shaft + winze	Star of the West	445493	5408978	5 m deep, in rhyolite