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MEMORANDUM

To: **David Thomas**

Cc: **Jeff Elliott**

Date: **November 4, 2009**

From: **Graham Jeffress**

Re: **Fraser Range South Project – Reconnaissance Visit Report**

CSA Global undertook a rapid reconnaissance trip to Norseman Gold's Fraser Range Project tenements to:

1. Reconnoitre access routes to various parts of the project area;
2. Assess the ease of access of the country;
3. Visit the areas of interest identified from the geophysical and geochemical reviews completed by CSA Global;
4. Repeat, and if possible, collect infill sites, for areas with anomalous gold in calcrete (originally collected by BHP in the early 1990s); and,
5. Ground truth the desktop regolith interpretation completed by CSA Global.

The project area was visited from 31st October 2009 to 2nd November 2009. Over 750km were travelled in this period to address the trip objectives as outlined above. GPS track logs were captured during the route as well as a series of waypoints recorded at locations of interest such as outcrops sampled, photo points, old drill holes located, track junctions and the camp sites. The tracks and waypoints are available as MapInfo format files. Figure 1 shows the tracks used.

The northern project tenements were reached via the sealed Fisheries Road from Esperance to Condingup and thence via the Parmango Road that runs northeasterly past the heritage site of Duralinya joins up with the Balladonia Road. The Parmango Road is currrently being significantly upgraded into a multilane sheeted gravel road. Tracks running off the Parmango Road presumably see very occasional recreational use and are significantly overgrown and commonly blocked by fallen timber. Not all tracks shown on the

published 1:250.000 topographic sheets still exist, though most can be located after a fashion. Tracks were mainly created by coal explorers in the early 1980s.

The southern tenements can be reached, with difficulty, from the Parmango Road, but are better accessed from the long NE trending Mount Ney Road, which runs up to the old Splinter Project area.

The northern tenements all fall within unallocated Crown land. Approximately 86km^2 (7.5% of the total project area and 18.7% of the southern tenement block) of the southern licences are over freehold cropped land with the balance over unallocated Crown land.

The entire project area, with the exception of some broad acre farmed regions in the southernmost tenements, is covered by thick woodlands. The composition of the woodlands varies from place to place but essentially comprises mallee species with an extensive understorey.

A total of 14 areas of interest were identified for inspection based on geophysical targets and areas of interpreted “greenstone affinity” (see Isles 2009, SGC Memo to CSA Global) and the anomalous gold in calcrete sites (>10ppb Au or highlighted by Ca-normalised Au in calcrete). These areas, labelled “A” to “N” are shown in Figure 2.

The common theme with the woodlands is the thickness and general impenetrability of the thickets. Most tracks are very overgrown and frequently blocked by wind fallen trees. Whilst there are small clearings present throughout the woodlands they are small, disconnected and uncommon. The margins of playa lakes provide the best areas of vehicle access but they are usually located away from areas of interest. Apart from cleared lines and recently traversed or regularly used tracks, vehicle access is impossible without significant damage to tyres and bodywork due to fallen trees, intergrown mallee and the general close spaced and entangled nature of the understorey and larger Eucalypt species (see Figure 3, Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, Figure 9 and Figure 10).

Access on foot is the only reliable way of getting about, short of using tracked equipment or equipment with the capability to clear a path and remove stakes, such as front end loaders. Commonly the woodlands are too thick even for motorbikes, and quad bikes would have much the same problems as larger 4WD vehicles. Helicopter access would likewise be very difficult, due the general absence of clearings large enough to land, apart from the areas where playa lakes occur.

Unfortunately most of the areas of interest, including the calcrete gold anomalies, were unable to be visited due to the access difficulties. Sites (or areas nearby) D, G, H, J, L and N were able to be visited. The remaining sites were in areas of scrub too thick to be reached using the routes used on the visit. Review of Digital Global imagery in GoogleEarth confirmed that the tracks used by CSA in our visit were the only ones present.

No repeat or infill calcrete samples were collected due to the access issues (the closest we were able to get was over 8km from the sites of interest).

BHP reports on WAMEX record that a bobcat with an auger attachment was used for BHP’s calcrete sampling. BHP’s sampling started in the northwest and moved down to the area covered by NGL’s licences, so access to those areas may have been easier than the route

selected by CSA Global. However, discussions with former BHP staff (Muhling, pers. comm.) involved in their calcrete sampling work in the area in 1999/2000, revealed that they had “basically destroyed” two Landcruisers in their programme and that the bobcat they used was only effective for infill work - for wider spaced samples it suffered the same access issues of the larger vehicles.

Ground truthing of the CSA Global regolith interpretation was completed in a limited sense during the reconnaissance trip.

There is very little topographic variation, with the country presenting a gently rolling aspect apart from the inselbergs of granite. Interpreted palaeochannels zones show no obvious differences to the areas interpreted as shallow basement. Variations in soil colour, from orange to grey to white, are the most obvious regolith features observed. More reddish/orange sands appear correlated with shallow granitoids.

The ground surface is pervasively covered by a dark ‘crust’, a few centimetres thick, of lichen-like material which binds the surface together and obscures the underlying material. This layer, together with the thick vegetation canopy, renders remote sensing techniques for regolith mapping more problematic.

Playa lakes generally seem to have a dune on the western/northwestern edges of material blown from the lake surface. The lack of drainage and topography provided very few opportunities to assess the underlying regolith beneath the ubiquitous surface sand. Calcrete is very widespread, with material exposed on ridges and rises generally massive to nodular in form.

Outcrop is very rare, with all the main outcrops reliably captured on the air photo interpreted published 1:250,000 scale geology. However, at the end of the traverse where we were trying to reach the anomalous calcrete areas, we did discover an area of subcropping gneiss/granitic gneiss. This location is on the margin of an interpreted palaeochannel, in an area where the CRAE coal exploration found shallow basement. It is an area where calcrete sampling is considered potentially useful – hence the failure to repeat the previous Au anomalous calcrete samples is quite frustrating. Of some note at this location was a small area of float comprising a brittlely deformed/sheared/brecciated ?granitic/gneissic material with goethitic veinlets forming a stockwork/network. Hints of boxworks in the iron oxides suggest pyrite (triangles) and possibly chalcopyrite (ladders). Figure 11 shows the composite grab sample of this material collected for assay.

Conclusions and Recommendations

- The desktop regolith interpretation is still considered to be valid.
- The underlying gold prospectivity of the project area (the northern ELs in particular) is considered to warrant evaluation.
- The access, whilst difficult, is not significantly more problematic that other regions were exploration is successfully undertaken, for example the tropical savannah woodlands of the Northern Territory or the jungles of Indonesia and PNG.
- Grid access using a front end loader is recommended – a loader is capable of fast traversing (compared to a dozer), enables a good view of the terrain, can "float" the bucket above the ground surface, removing stakes but leaving roots intact and the bucket can also deal with overhanging branches and trees above 2m, as well as clearing a vehicle track, and additionally, loaders are commonly available on farms reducing the potential mobilisation and operating costs.
- This approach is environmentally friendly and likely to facilitate POW approval compared to more "robust" approaches.
- Alternatively if you have a mechanically sound vehicle with body work that can be further damaged it could be fitted with solid tyres and maybe some additional scrub bars and used to undertake the sampling without requiring extensive track clearing.
- Tracks to areas of interest and "grid trees" in those areas can be cleared using this approach – either calcrete sampling or aircore drilling can use these access tracks – with only a minimal initial environmental 'footprint".
- The repeat and infill calcrete sampling around the BHP Au anomalous calcrete samples should be completed.
- Reconnaissance lines of aircore over prospective geology should also be planned together with calcrete sampling, as discussed in CSA's previous memorandum.
- Geochemical sampling contractors such as Pathfinder or AusEx Exploration Services should be contacted for quotes on collecting calcrete samples.
- Possible contractors, including local farmers, Esperance based contractors or the contractors working on the Parmango road, able to clear the main access routes into the areas of interest should be identified and their rates and availability determined.
- The possible access routes should be planned and an estimate of the likely costs calculated.
- DMP's environment group should be contacted to flag any issues that will need to be addressed by successful POW applications.

- Review of the BHP work suggests that the BHT potential of the Norseman ground has only been poorly tested by their work. Whilst an airborne EM survey would be a good tool to use to specifically target the massive sulphides of BHT systems, calcrete and aircore drilling are equally effective.

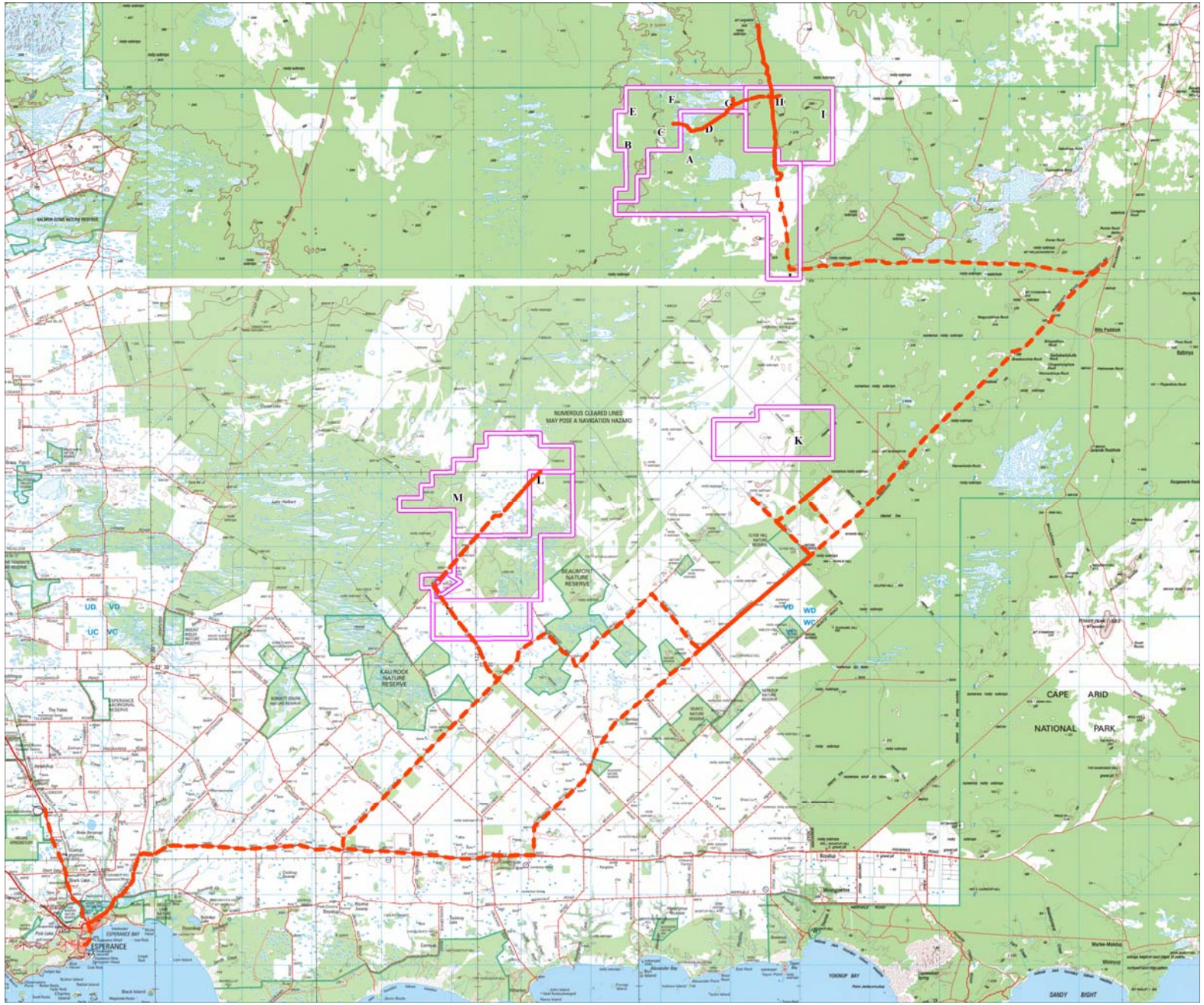
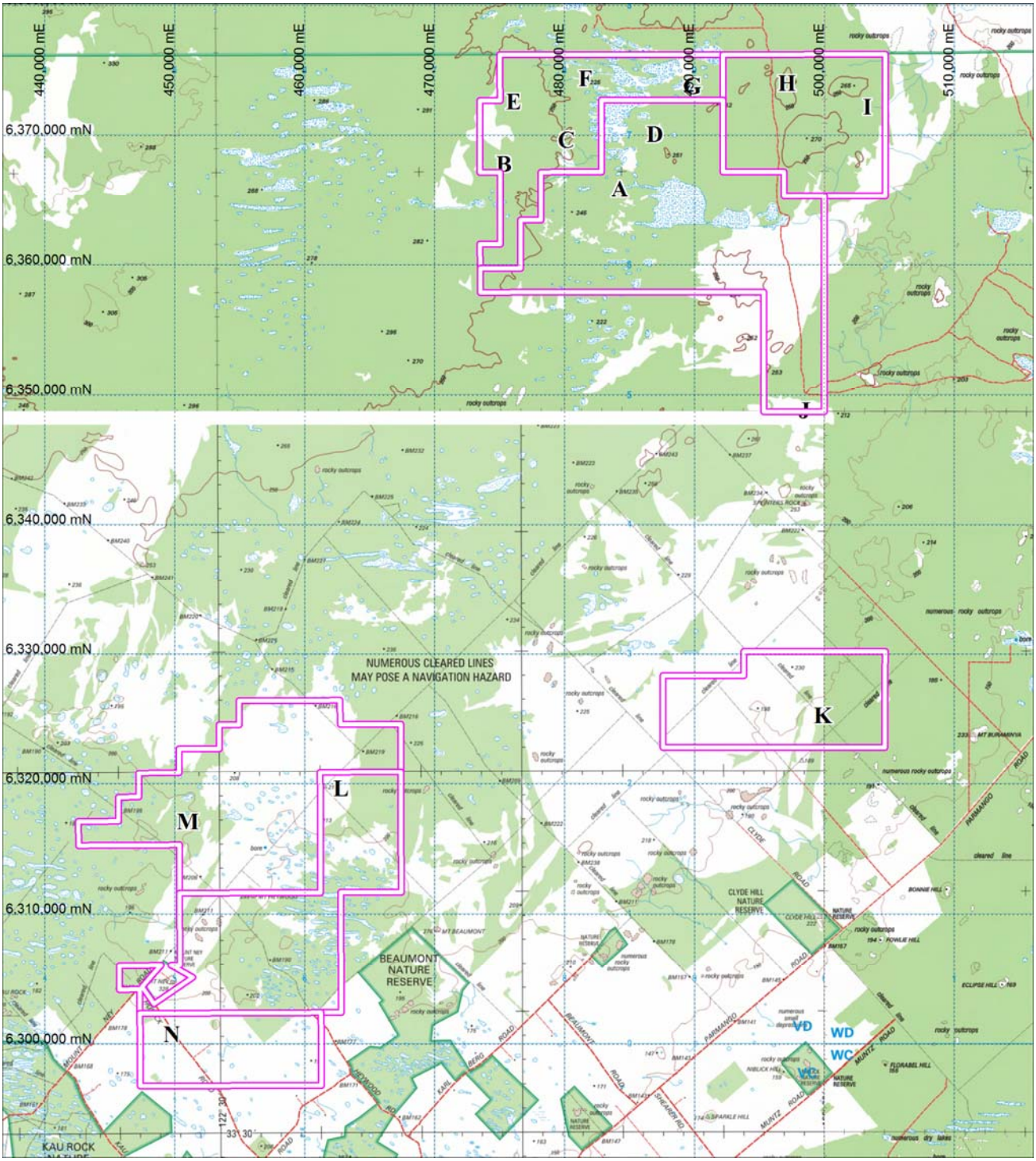


Figure 1: Norseman Tenements and track log of CSA visit


440,000 mE
450,000 mE
460,000 mE
470,000 mE
480,000 mE
490,000 mE
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6,360,000 mN
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6,340,000 mN
6,330,000 mN
6,320,000 mN
6,310,000 mN
6,300,000 mN
A
B
C
D
E
F
G
H
I
J
K
L
M
N
NUMEROUS CLEARED LINES
MAY POSE A NAVIGATION HAZARD
BEAUMONT
NATURE
RESERVE
CLYDE HILL
NATURE
RESERVE
VD
WD
WC
KAU ROCK

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11: Sample 67575 - composite grab sample of ferruginous, brecciated, veined feldspar-quartz rock (gneiss?)