P E R T Z E L   T A H A N   &   A S S O C I A T E S
C o n s u l t a n t   G e o l o g i s t s
E s t a b l i s h e d   1 9 8 2

PO BOX 167 PARKVILLE • Victoria Australia • 3052

Phone: + 61 (0) 411 303 703 mobile : + 61 (0) 411 303 703 Fax:: + 61 3 9347 6124
e-mail ptassociates@ozemail.com.au

A Review of Mineralisation at the HART ZONE STERLING GOLD PROSPECT EXPLORATION LICENCE 47/2003 Tasmania

For

SARACEN MINERAL HOLDINGS LIMITED

Bruce Pertzel B. Sc. (Geol); Dip. Geosci. (Post Grad); FAusIMM
Principal

December 2004

Report PTA:04 011

Preamble

Gold mineralisation was discovered in the Sterling Valley by chance.

Sulphide-gold mineralisation was identified and confirmed by Electrolytic Zinc Company of Australasia Limited [EZ] – a specialist base-metal miner and explorer in Western Tasmanian in 1982. The discovery of the high-grade Henty deposit in 1984 stimulated exploration for like deposits along the Henty Fault. EZ farmed out part of its Sterling Valley EL to Billiton Australia [Billiton] in 1985 who subsequently delineated the Lakeside gold deposit (a small currently non-economic sulphide-gold deposit with an inferred resource of some 50,000 ounces) at an area now referred to as the Hudson Zone. In 1997, another specialist base-metal miner and explorer in Western Tasmania and a successor entity of EZ, Pasminco, assessed the near-surface potential of the Lakeside deposit by RCP drilling.

Major base-metal mining companies have been intermittently involved in exploration in the Sterling Valley since 1959. This exploration effort has been neither persistent nor driven by a specialist gold exploration company.

The Henty Fault is a major structure with importance in localising major base metal and gold deposits in Western Tasmania. Mineralisation has been intersected in wide spaced drill holes (at and between the Hudson and Hart, formerly known as Lorrigan's Find, Zones and to the south) adjacent to where these holes penetrate the Henty Fault, over a strike distance of some three kilometres. An opportunity now exists for a persistent exploration effort, with attention to detail, to be rewarded with a new mineral deposit discovery in this area.

Previous Drilling

In 1979 an initial drill hole, MRP 212, by EZ encountered cassiterite mineralisation (2m @ 0.55% Sn in the down hole interval 189.2 to 191.2m in altered Farrell Group sediments, east of the Henty Fault in a sulphide (pyrite, pyrrhotite, arsenopyrite) zone averaging around 10 per cent sulphides by volume, with locally up to 40 per cent. Drill hole MRP212 was designed by EZ to test a coincident IP-ground magnetic anomaly in the Murchison River Project, a joint venture initially between EZ, Aberfoyle Limited and Getty Oil Development Co. [Getty] initiated in 1979. The joint venture was exploring for Rosebery-style VMS base metal deposits, Farrell-type Ag-Pb lodes and Renison-style replacement tin deposits.

Subsequent holes by EZ, MRP233 and MRP219, designed to test the strike extent of the tin mineralisation in MRP212, also encountered sulphide mineralisation adjacent to and east of the Henty Fault. The tin mineralisation was insufficient, however, to justify the joint venture's continued exploration interest in the Murchison River Project.

EZ considered the sulphide-associated cassiterite mineralisation in MRP212 sufficiently explained the geophysical anomaly. Drill hole MRP212 also intersected an 0.3m down hole interval between 163.7 and 164.0 metres of what EZ described as "remobilised epigenetic mineralisation" situated west of the Henty Fault in an altered quartz-veined sulphidic tuff. This interval contained 2.6% Pb, 15% Zn, 51.5 g/t Ag and **based on aqua-regia/AAS analysis** 1.15 g/t Au. EZ samples taken from obviously mineralised sections, where core was split, of holes MRP212 and MRP233 were initially analysed for gold was by the partial aqua-regia/AAS method. Samples from drill hole MRP219 were not initially analysed for gold.

The EZ-managed joint venture was also exploring further south in the Sterling Valley within EL 4/73, held by Aberfoyle Exploration Pty Ltd [Aberfoyle]. Drill holes STP 217, STP221, STP231, STP 232 and STP234 (**see figure 1**) were drilled to test geophysical anomalies in the area now known as the Hart Zone between May 1980 and September 1981. In 1982 a costean excavated to test a tin-in-soil anomaly at the locality now referred to as the Lynch Zone encountered vein-sulphide mineralisation (quartz-pyrite-arsenopyrite). Grab samples of this material were assayed for gold by Analabs in Burnie using a fire assay method and a 30g sample charge and found to contain Au values up to 26.6 g/t. These values could not be repeated in systematic sampling of bedrock in the costean although a rock described as a quartz-schorl rock sampled from a sulphide vein averaged 0.74g/t Au over a 2m interval.

The subsequent discovery of the Henty sulphide-gold deposit in 1984, east of the Henty Fault, alerted EZ and its partners to the prospectivity for a similar discovery within their ELs. EZ only resampled those selected zones within each hole where core had been split. These were generally sulphide-rich zones. The Hart Zone holes except STP221 were resampled at this time. Selected sample pulps from STP217, STP231, STP232A, STP232-A1 and STP234 were also reanalysed.

In 1984 EZ applied the realisation that initial aqua-regia/AAS analyses significantly understated the gold content of sulphide mineralisation by reassaying samples from drill holes on the Sterling Valley grid, within EL 4/73.

In 1986 Billiton resampled those sections of the Hart Zone drill holes not resampled by EZ in 1984, and also resampled drill hole MRP221. Billiton noted poor recoveries for some zones in this hole and that some of the remaining core had been taken for metallurgical test work. Billiton’s samples for the split core in MRP221 were of quarter core.

Hart Zone

In 1984, following the downgrading of the Sterling Valley Project by EZ because of its lack of potential to host a Renison-style replacement tin deposit, they turned their attention to the “arsenic resource.” It is tempting to consider this mineralisation is unique, however this may not hold for a number of reasons not the least of which is that gold assay information is probably unrepresentative at best and there is insufficient additional information to make an informed assessment.

EZ generated an estimate of the arsenic resource on the basis of assay results from four drill holes that tested the western side of the Henty Fault. A set of intercepts was generated using a 1% As cut-off. (Table 1) Four zones were defined.

- Zone A: approximately 70m west of the Henty Fault. This is the best-developed zone with an As-Cu-Au-Sn metal association, although Sn is not always present.
- Zone B: at or adjacent to the Henty Fault. The zone is present in all holes that intercept the Henty Fault in the Hart Zone except STP231. It is possible that this hole did not intersect the main Henty Fault. There are no consistent metal associations although Au is usually present and sometimes Cu. There is no Sn or Pb in this zone.
- Zone C: approximately 25m west of Zone A but appears discontinuous as it is only developed in two positions. There are no consistent metal associations but Au and Cu are sometimes present, together. There is no Sn or Pb. There are anomalous As-Au-Zn and Bi values in a Zone C equivalent position in STP234.

- Zone D: approximately 40m east of the Henty Fault in Farrell Group sediments. There is an As-Au-Cu-Ag metal association, Sn and Pb are absent. This zone contains the highest Au value (0.6m @ 5g/t) and Cu value (0.6m @ 1.15%).

The EZ interpretation of the distribution of these zones, which formed the basis for the resource estimate assumptions (zones projected 50 metres up and down dip) assumes that they run parallel to the Henty Fault. This seems reasonable on the basis of the available evidence (four drill holes with a total of 13 intercepts based on a 1.0% As cut-off). The distribution of these zones is further interpreted to be influenced by cross faults and this also appears reasonable on the basis of the evidence. This cross faulting has caused displacement of the Henty Fault (and consequently the arsenic zones) by about 50 metres to the east in two similar steps, moving southwards through the Hart Zone.

The EZ interpretation can only be confirmed by additional drilling.

A new set of mineralised intercepts for the Hart Zone drill holes was generated using the original EZ drill hole logs, with assay data, and resampling data generated by both EZ and Billiton. These intercepts are based on the presence of anomalous gold values (above 0.2 g/t) and are presented in Table 2. These intercepts are also shown on **Figures 2 to 6** - sections with summarised geology depicted.

This has generated six additional gold-only (with no As or Cu association) intercepts, two of which are in drill holes not used by EZ to calculate the "arsenic resource." The most significant of these new intercepts are in hole STP221, adjacent to EZ's Zone A but closer to the Henty Fault (**see Figure 4**). The down hole interval 49.8 to 52.8 metres averages 1.99 g/t Au and the down hole interval 57.1 to 63.6 metres averages 0.83 g/t Au. These intercepts are from zones which returned anomalous gold values from EZ's original split core sample assays using the aqua-regia/AAS method, including 1.0m of 2.08g/t Au. The Billiton fire assay result from this interval recorded 5.40 g/t Au.

The occurrence of gold-only zones of mineralisation in the Hart Zone drill holes is significant. This association, as distinct from a gold-arsenic association was first reported by EZ from drill hole STP283, drilled beneath the costean containing gold-sulphide vein quartz mineralisation at the Lynch Zone, some 1000 metres south of Hart, and drill hole STP234. EZ observed the former association - high sulphide quartz-pyrite-arsenopyrite with or without chalcopyrite, was prevalent in the upper zones of these holes whereas the latter - low-sulphide quartz vein with minor pyrite with or without pyrrhotite, was prevalent in the lower zones of these holes. EZ inferred increasing gold mineralisation with depth.

It needs to be noted that, obviously sulphide-poor gold mineralisation (where there is little to no associated pyrrhotite) will not yield a magnetic signature, nor an electrical signature and hence geophysics will not detect this style of mineralisation.

EZ also concluded, on the basis of the disappointing gold results from STP284 (designed to test a buried Dighem airborne EM conductor on strike of the southwards projection of the known surface trace of the Henty Fault) the northwest arm of the Henty Fault had more potential than the southeast arm. Drill hole STP284 intersected only Farrell Group sediments beneath the glacial cover rock and, like STP232, STP232A and STP232A-1 (**see Figure 6**) some 300 metres to the north, was collared too far east to test the Henty Fault.

Position of the Henty Fault

The surface position of the Henty Fault trace in the Sterling Valley is generally masked by a cover of unconsolidated alluvial glacial till (Qpg). The thickness of this cover varies to up to 63 metres in drill hole STP232A-1, situated between the Hudson and Hart Zones. The surface trace of the Henty Fault in the Sterling Valley most likely occupies a topographic low, because of preferential erosion, which has been filled with Quaternary age glacial till.

Billiton projection the inferred position of the surface trace of the Henty Fault throughout the Sterling Valley using chargeability contours generated from gradient array, induced polarisation surveys. This interpretation is based on the existence of sulphidic and graphitic black shales in the Farrell Group sediments immediately east of the fault.

This interpretation implies the Henty Fault is conformable with the stratigraphy. This is perhaps a reasonable assumption on a local scale but such an interpretation needs to be applied with caution as detailed work at the Henty Mine, further south, indicates that either the stratigraphy lenses out along the Henty Fault of that the Henty Fault cross cuts the stratigraphy, on a regional scale. There are also two arms of the Henty Fault (the Northern and Southern Henty Faults) south of the Sill and Zone 96 deposits in the Mt Julia deposit area, further complicating the Henty Fault as a continuous planar feature, which it appears to be in the Sterling Project area.

Billiton implied (88-2772) the Farrell Group sediments are non-conformable with the Henty Fault, on the basis of a decrease in conductive material (less graphite) towards the south.

Billiton (88-2772) also invoked a series of cross faults, one north of the Hart Zone between 5374600N and 5374700N, and another at 5374300N at the southern end of the Hart Zone between drill holes STP217 and STP231/SVD87-2.

EZ's interpretation of the distribution of the arsenic zones support the existence of cross faulting in the Hart Zone (EZ's interpretation adds another cross fault between drill holes STP221 and STP234 at around 5374450N).

Sampling

A large proportion of the sulphide zones intersected in the Hart drill holes were cored in BQ-size core (nominal outside diameter 33.5mm). Initial assays were conducted on half core but these assays used the partial gold analysis method of aqua-regia/AAS. EZ reassayed pulps from some, but not all, drill holes by fire assay, and also selected half the remaining core for fire assay from all holes except STP221. Billiton's resampling campaign was conducted subsequent to not only EZ's resampling of core and pulps by fire assay, but EZ's selection of core from the arsenic zones for metallurgical testwork. This meant only quarter core was available in some instances.

Metal Factors

Metal concentration data (gram-metres for Au and per cent metres Cu and As respectively) have been generated in order to study the distribution of metals as a possible means of developing vectors to guide a search for hidden ore bodies in the three kilometre zone along the Henty Fault.

Further considerations and study is ongoing.

Comparison with Henty and Lakeside

Some published literature has been researched but this has by no means been exhaustive.

Superficially there appear to be two major differences between Henty and Lakeside, the former has no noted arsenopyrite mineralisation and the latter has no carbonate replacement lithologies as mineralisation hosts. It also appears Henty has an exclusive VMS component, whereas Lakeside has a later granitoid component dominant, in respect of ore genesis.

The tables below record a summary of the paragenesis of sulphide mineralisation and its gangue minerals, as culled from the short list of published literature:

Gangue Minerals

Henty				Lakeside				
Stages/Minerals	pre	syn	post	1	2a	2b	3	4
Quartz	cherty	XX	xx		XX	XX		
Chlorite		XX		xx	XX			
Carbonates		XX	xx				XX	XX
Sericite		XX		?	?	?	?	?
Muscovite	x	XX		?	?	?	?	?
Fuchsite		XX		?	?	?	?	?
Tourmaline					XX	XX		
fluorite					XX	XX		

Sulphide Minerals

Henty				Lakeside				
Stages/Minerals	pre	syn	post	1	2a	2b	3	4
Pyrite	XX	XX*		X			xx	XX
Pyrrhotite				XXXX?	?			
Arsenopyrite				XXX	XXX		XX	
Chalcopyrite		XX				Xx		
Electrum		XX		xxx		XX		
Tellurides		xx		?	?	?	?	?
Galena		XX					XX	
Sphalerite		?			XX		XX	
Cassiterite		?			XX			
Stannite		?				XX	xx	
Haematite		xx		?	?	?	?	?
bismuth		xx		?	?	?	?	?

APPENDIX
(Sections)

CROSS SECTIONS

5374250N Geology and Mineralised Intercepts (Figure 2)
5374350N Geology and Mineralised Intercepts (Figure 3)
5374400N Geology and Mineralised Intercepts (Figure 4)
5374450N Geology and Mineralised Intercepts (Figure 5)
5374700N Geology and Mineralised Intercepts (Figure 6)

LONGITUDINAL SECTION

384350E Geology and Mineralised Intercepts (Figure 7)

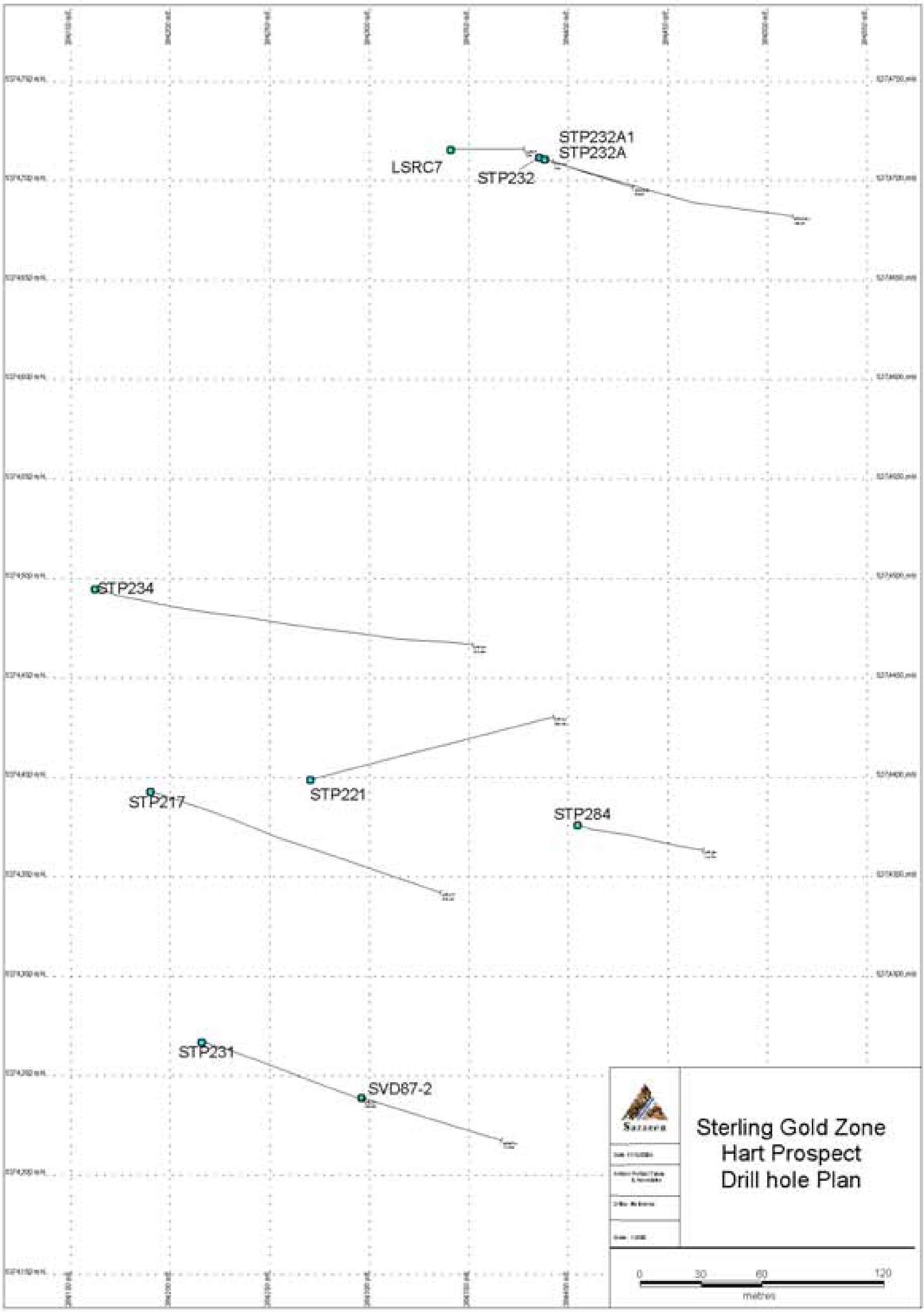
STP232A1
STP232A
LSRC7
STP232
STP234
STP221
STP217
STP284
STP231
SVD87-2
Sterling Gold Zone
Hart Prospect
Drill hole Plan
0
30
60
120
metres

FIGURE 1

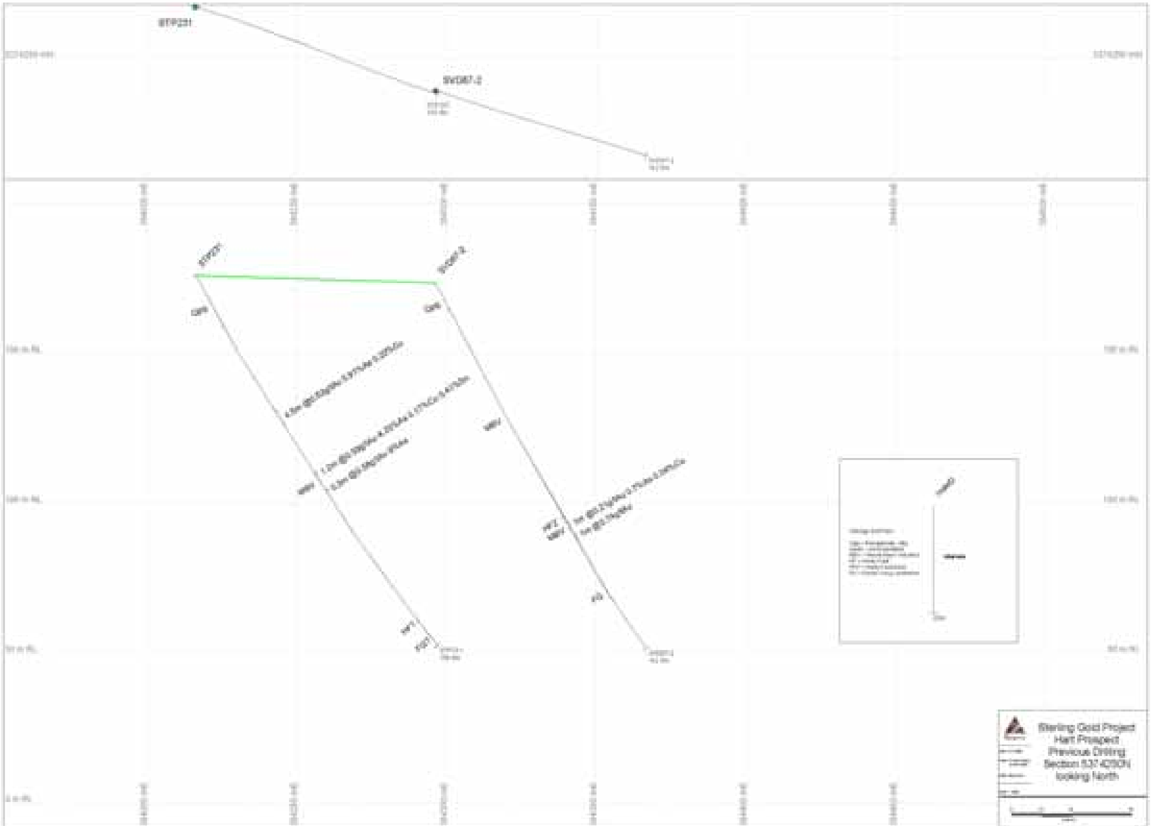

FIGURE 2

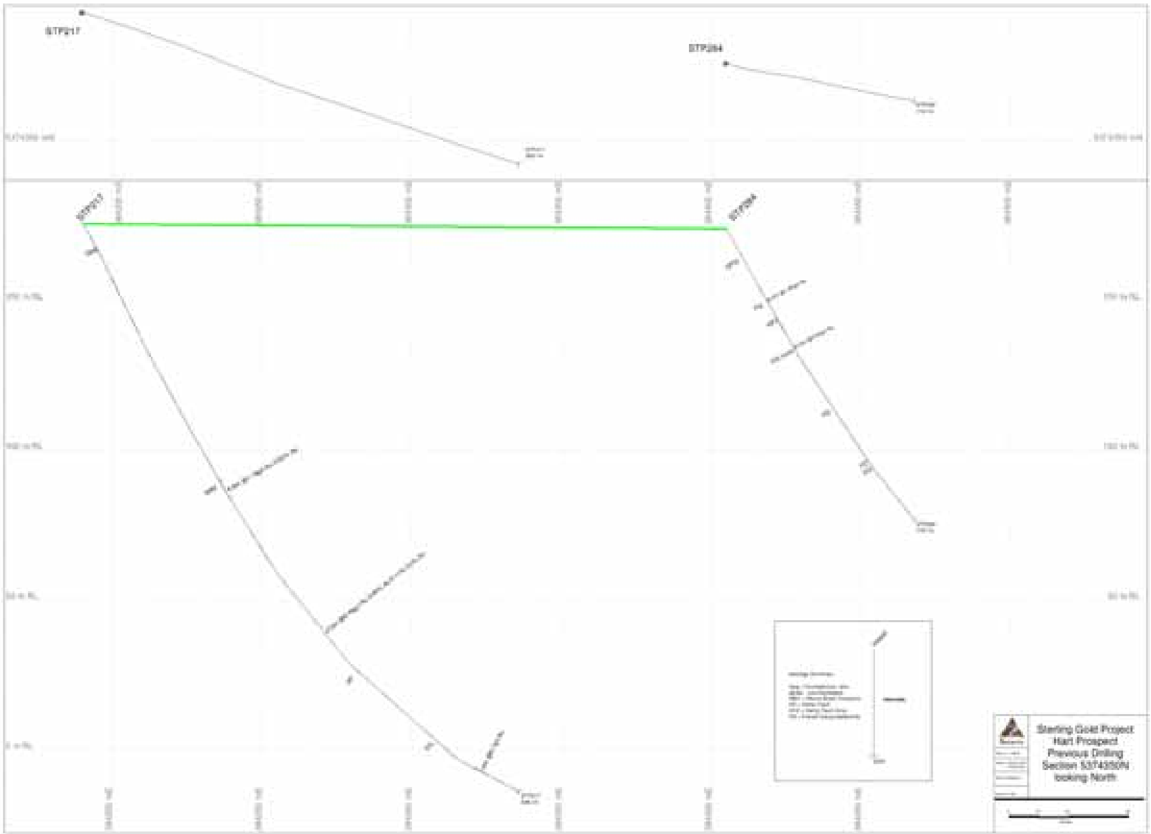

FIGURE 3

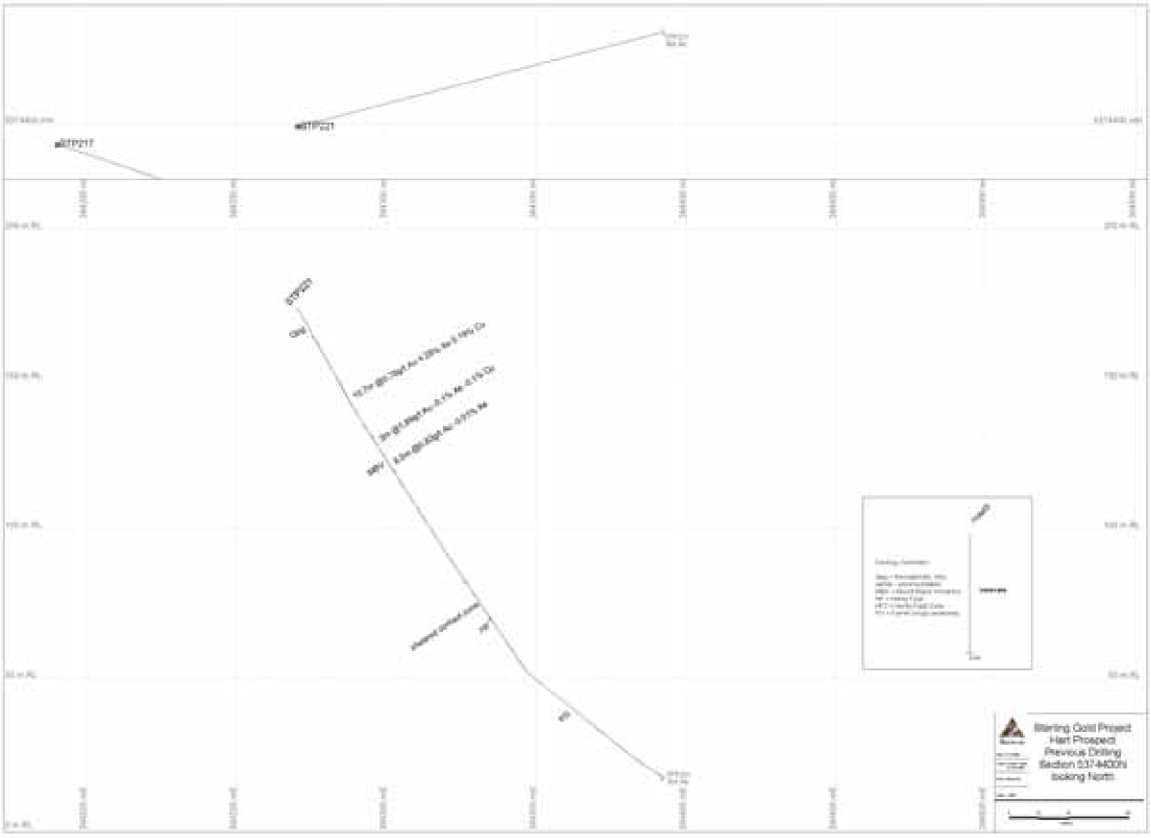

FIGURE 4

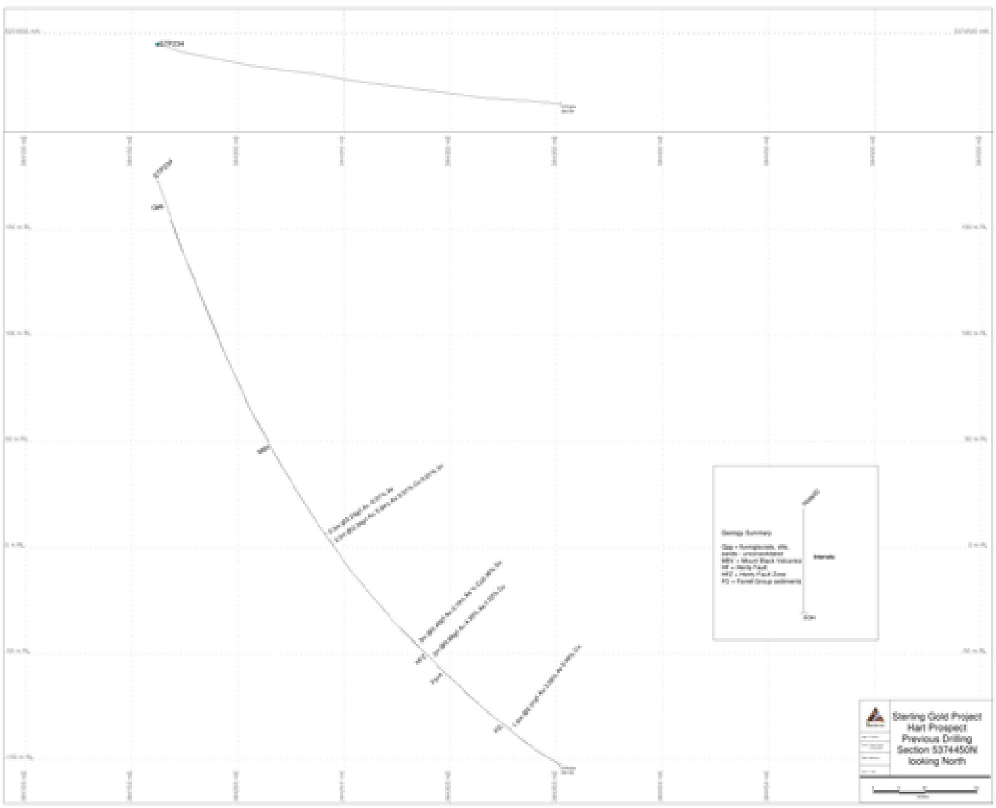

FIGURE 5

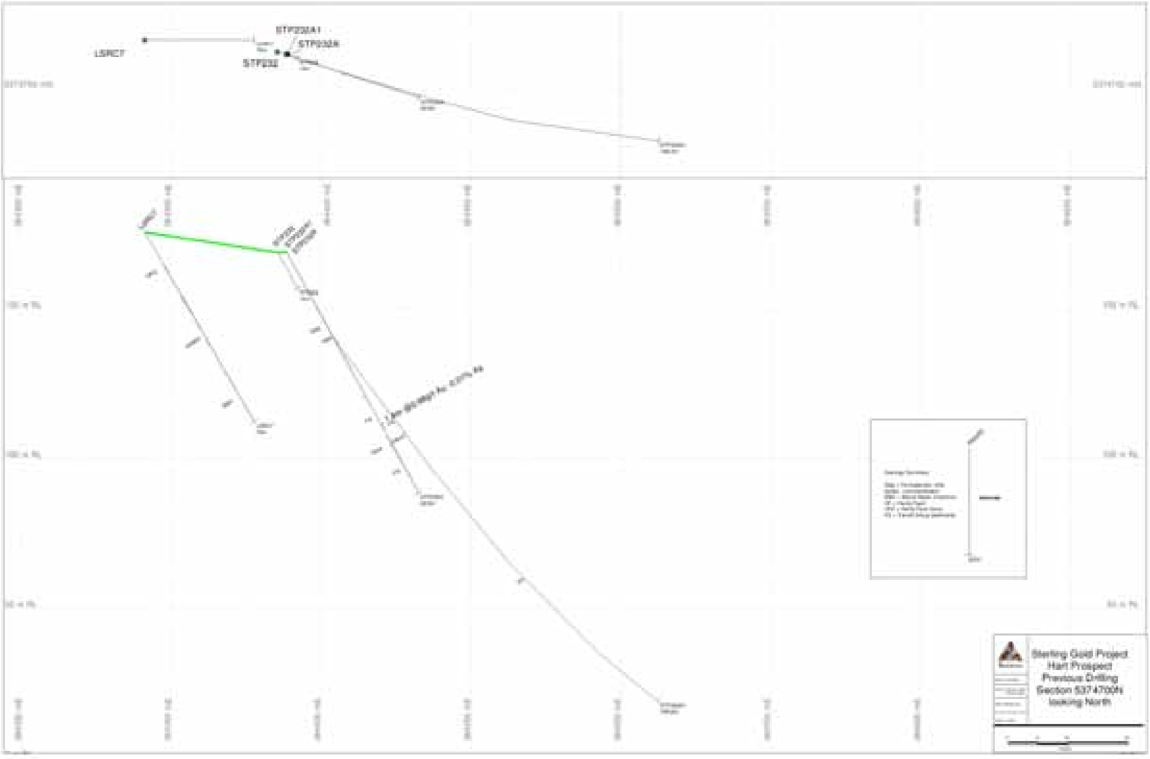

FIGURE 6

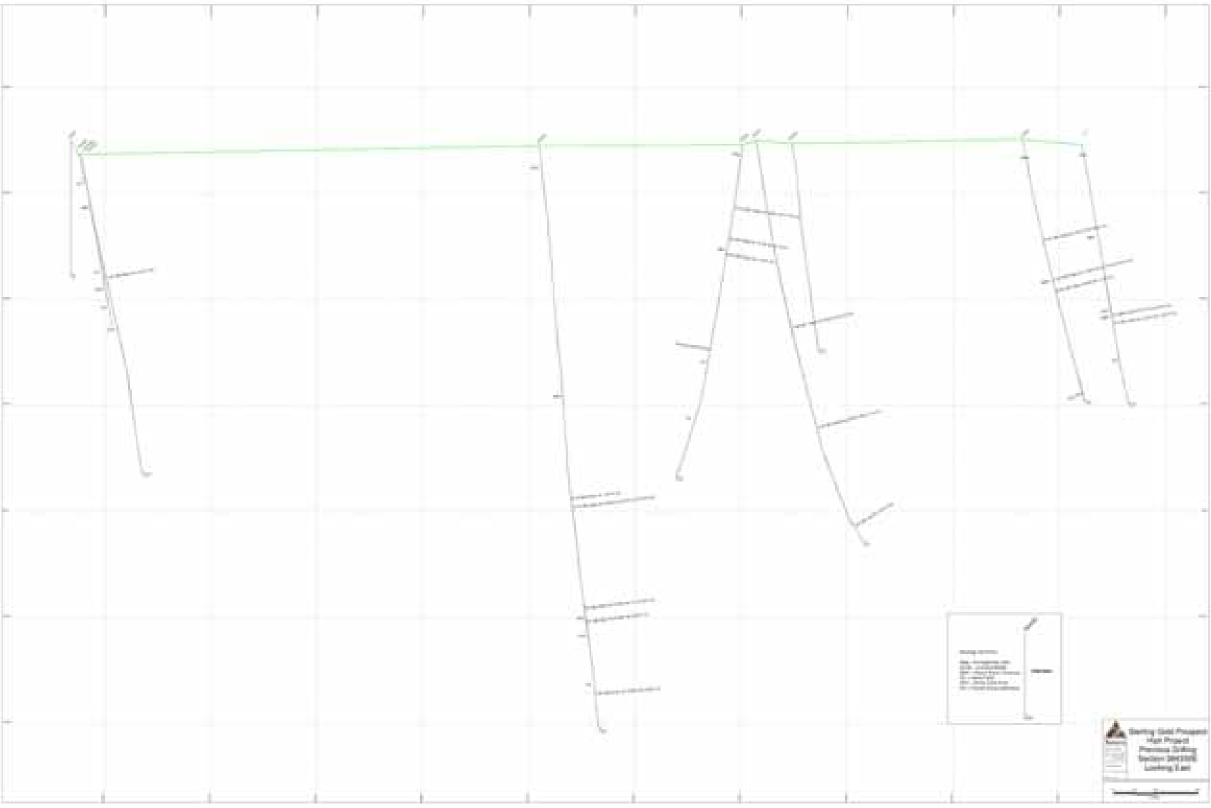

FIGURE 7